

LONDON BOROUGH OF HOUNSLOW SMALL SITES SMALL BUILDERS PROGRAMME

GARAGE BLOCK ADJACENT TO 48 BEECH AVENUE, BRENTFORD, TW8 8NH

Geotechnical and Geo-Environmental Desk Study

NOVEMBER 2019

A large, solid orange geometric shape, resembling a stylized triangle or a section of a larger triangle, is positioned in the bottom right corner of the page. It is oriented diagonally, with its base at the bottom left and its apex pointing towards the top right. A thin white line runs horizontally across the page, intersecting the orange shape.

Geotechnical and Geo-Environmental Desk Study
Garage Block Adjacent to 48 Beech Avenue

Garage Block Adjacent to 48 Beech Avenue, Brentford, TW8 8NH

Geotechnical and Geo-Environmental Desk Study

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This report dated 20 November 2019 has been prepared for London Borough of Hounslow (the "Client") in accordance with the terms and conditions of appointment dated 25 October 2019 (the "Appointment") between the Client and Arcadis Consulting (UK) Limited ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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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 48 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-0183-01-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 48 Beech Avenue, Brentford, TW8 8NH
National Grid Reference	516854, 177304
Approximate Site Area	The Site covers an area of approximately 0.02 hectares
Description of Site	<p>The Site is currently occupied by 6 no. garages with spaces for car parking at the front. The garage roofs construction cannot be determined but is felt covered. The door frames are of timber the bottoms of which are beginning to rot. The northern and southern Site boundaries comprise close board fences which separate the Site and the properties to the north and south. Access to the Site and the garages is to the east from the cul-de-sac off Beech Avenue. The Site is concrete which is in reasonably good condition with no scarring or staining although some grass and weeds are growing from the joints. The Site is in an urban residential area.</p> <p>Site photographs are included in Appendix C.</p>
Topography	The topography of the Site is generally flat at approximately 9 m Above Ordnance Datum (AOD). The topography of the immediate area is also generally flat, with the hardstanding slightly sloping down towards the cul-de-sac to the east.
Surrounding Area	The Site lies within in urban setting, surrounded by residential homes within an approximate 200m radius. Industrial land uses within 500m to the north, south and west appear to be mainly shopping outlets, car sales and workshops.

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	<p>The Site location is within the centre of a parcel of land, which is detailed to be an orchard potentially associated with either "Syonpark House" (230m south-east) or "The Retreat" (85m east).</p> <p>There are two railway lines; The Great Western Railway (190m north-east) running south-east north-west and "The Loop Line" (210m north-west) running perpendicular.</p> <p>The River Brent is located 430m east of the Site, which flows in a south-easterly direction into the River Thames.</p>

Map Dates	Historical Detail
1935 - 1948	<p>The orchards 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 48 Beech Avenue.</p> <p>Two Motor Car Service Stations, a Fire Extinguishers Manufactory, a Perfume Factory and tanks of unspecified use are noted to have been constructed approximately 230-250m northwest of the Site.</p> <p>A Rubber Tyre Manufactory (350m) and associated tanks (600m) of unspecified use are detailed northwest of the Site.</p>
1960 - 1988	<p>The Site remains unchanged.</p> <p>There are two warehouses approximately to be 185m and 210m east of the Site, an industrial type structure extends to approximately 80m south east of the Site.</p> <p>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.</p> <p>By 1974, the section of the Great Western Railway Line 235m north-east of the Site is dismantled and remains undeveloped.</p>
1991 - 2019	<p>By 1991, the empty parcel of land where the Site is located is developed into the garage structures that are present now.</p> <p>The warehouses east of the Site are redeveloped into residential housing.</p> <p>The land 235m north-east of the Site, north-east of the dismantled Great Western Railway line, is used as a depot storage area.</p>

2.2.1 Summary of Site History

The Site is mapped as an orchard 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 current configuration in 1991, comprising 6 No. 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:

- Railway line approximately 190m north east;
- Car Service Stations approximately 230m north;
- Fire Extinguisher Factory approximately 230m north. This has been identified as the Pyrene Company Factory (<https://www.britainfromabove.org.uk/en/image/EPW032164>); and,
- Tyre Factory approximately 350m northwest. This has been identified as the former Firestone Factory. (<https://www.britainfromabove.org.uk/en/image/EAW050744>).

The warehouses to the south east are 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 c 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	<p>Artificial Ground: British Geological Survey (BGS) did not identify any artificial ground beneath the Site; however, due to development on the Site, Made Ground is anticipated.</p> <p>Superficial Deposits: BGS did not map a superficial deposit beneath the Site. The closest known deposit is the Langley Silt Member – Silt, which located 50m south-east and is designated as an Unproductive Aquifer.</p> <p>Solid Geology: London Clay Formation - Clay which is designated as Unproductive Strata.</p>
BGS Boreholes (within 100m of the site)	There are no boreholes within 100m of the Site, the closest (TQ17NE138 dated 1936) is located 240m south-east of the Site 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 332m 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 430m east of the Site, and flows north-west south-east.
Likely Groundwater Flow Direction	<p>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.</p> <p>Based on the local topography of Site and surrounding area, any shallow groundwater would likely flow east towards the River Brent.</p>

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.

Geotechnical and Geo-Environmental Desk Study
Garage Block Adjacent to 48 Beech Avenue

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	17 No. of features from 166m to 195m northwest 5 No. of features from 217 to 218m west
	Unspecified Ground Workings	249m north-west
Local Authority pollution prevention and controls	None identified within 250m of Site	N/A
Contemporary Trade Directory	Electricity substation	120m west 185m northeast 209m southeast 234m southwest
	Industrial Products	119m north-east 233m north
	Unspecified Warehouse	229m east
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

Data type	Description	Distance (m) and Direction-
Designated environmentally sensitive sites	Royal Botanic Gardens, Kew Buffer Zone (World Heritage site England)	247m south-east
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, there is no potentially contaminative activities which could have viably impacted Site.

All 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	Asbestos, metals, PAH, hydrocarbons, pH, and volatile and semi volatile organic compounds (VOC / SVOC) including chlorinated solvents, poly and perfluoroalkyl substances (PFAS).
Railway	Asbestos, hydrocarbons, heavy metals, polyaromatic hydrocarbons (PAH), phenols, sulphate, ethylene glycol, herbicides and polychlorinated biphenyls (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 430m 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, and high sulphate content within the London Clay.

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;
- Potential presence of public utilities and services; and
- Reference should be made to the Ecological Assessment Report (Ref: 10030793-ARC-XX-XX-RP-EC-0205-01) 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 historical 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 or ground improvement methods maybe required.

7 CONCLUSIONS AND RECOMMENDATIONS

The Site was an orchard until 1935 when a residential estate was developed. The parcel of land that comprises the Site appears to have been 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.

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Garage Block Adjacent to 48 Beech Avenue

APPENDIX A

Historical Ordnance Survey Maps

Site Details:

GARAGES ADJACENT 48,
BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1865

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
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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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Report Ref: GS-6449722
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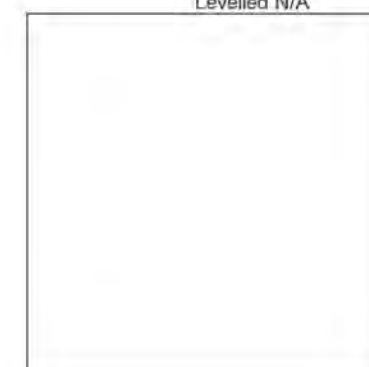
Map date: 1867

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1867
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

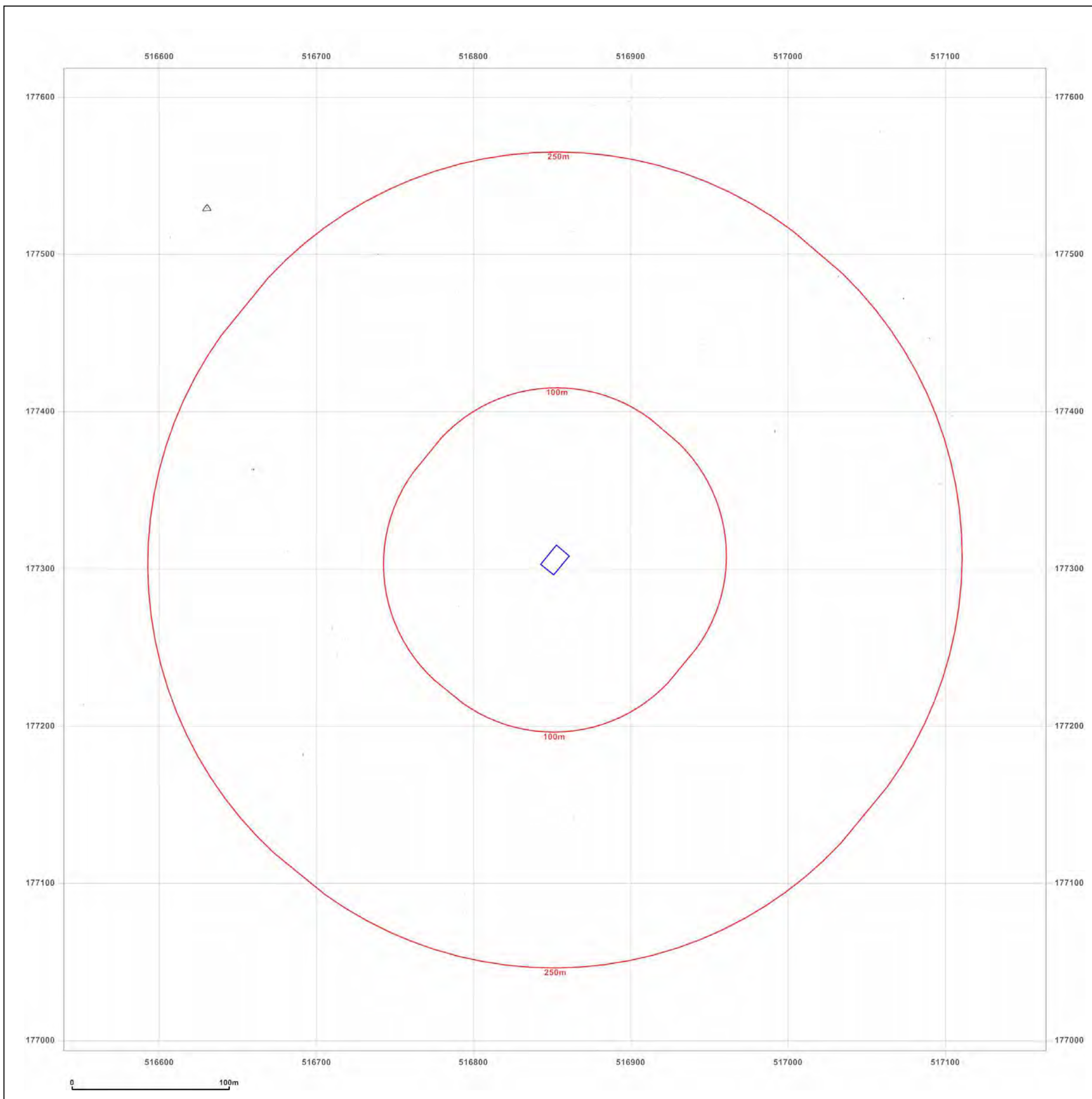


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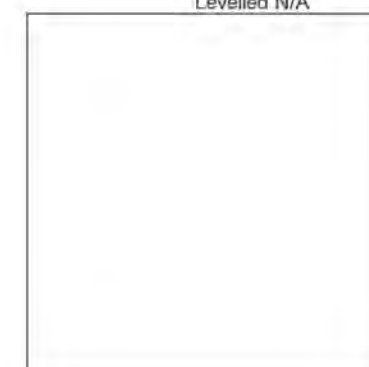
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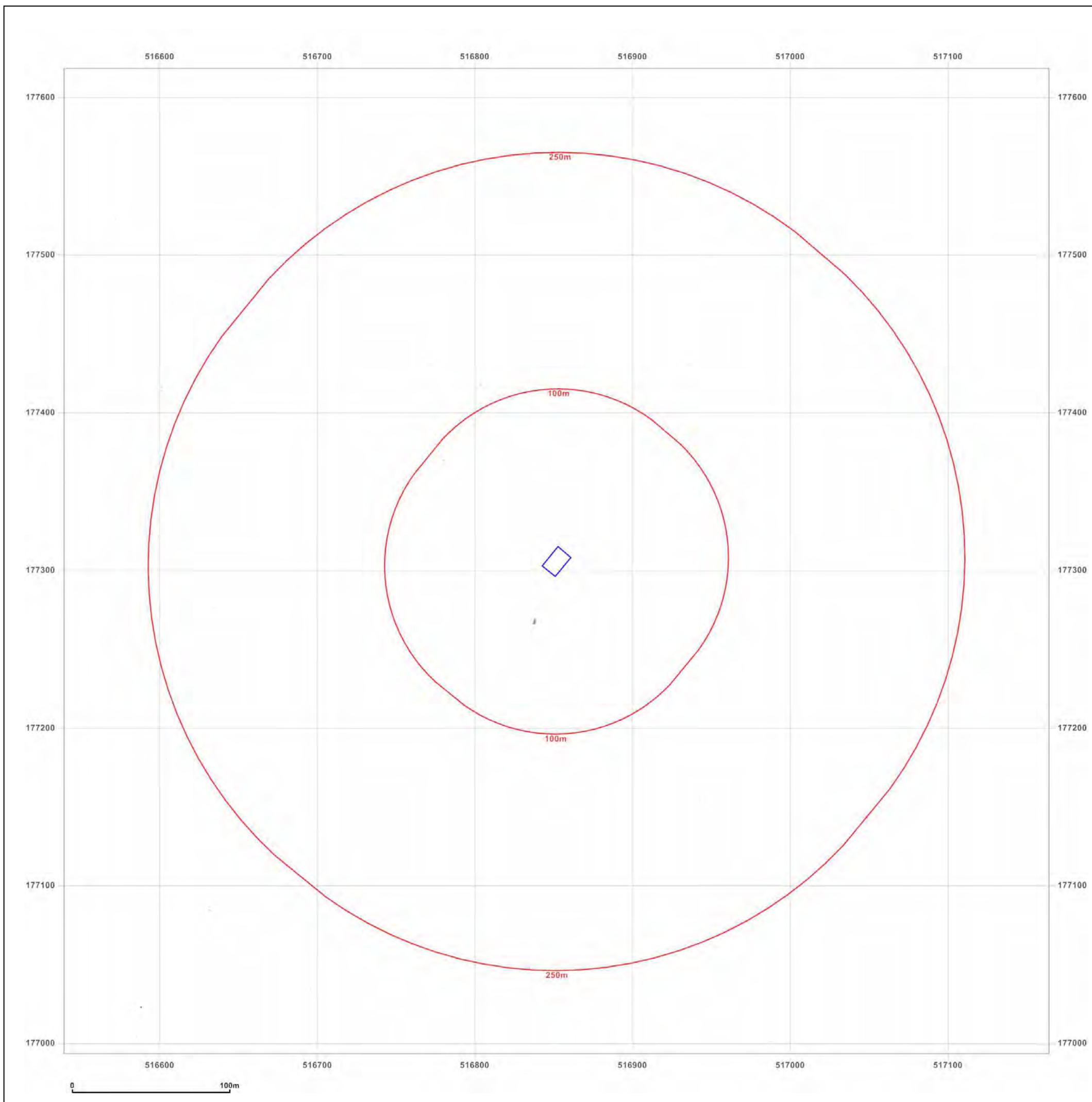


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Site Details:

GARAGES ADJACENT 48,
BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

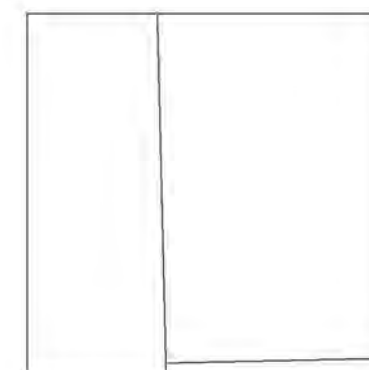
Map date: 1868-1869

Scale: 1:2,500

Printed at: 1:2,500



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



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

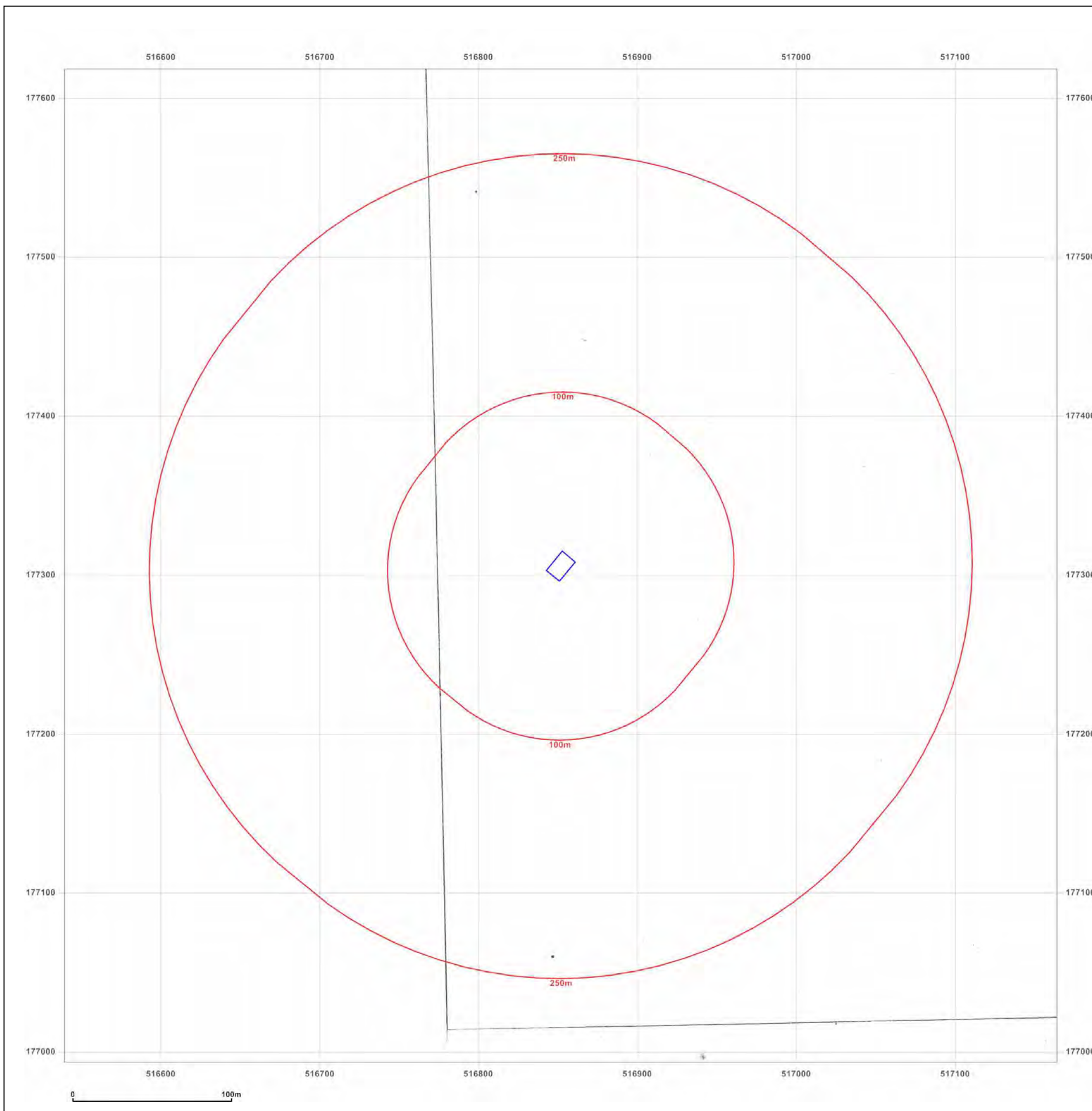


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Site Details:

GARAGES ADJACENT 48,
BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

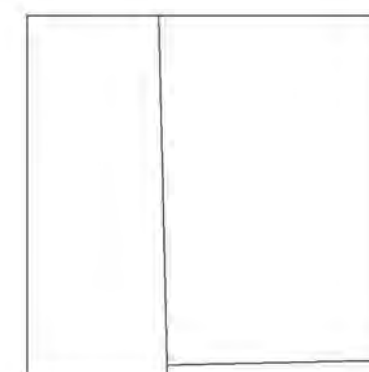
Map date: 1868-1869

Scale: 1:2,500

Printed at: 1:2,500



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



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

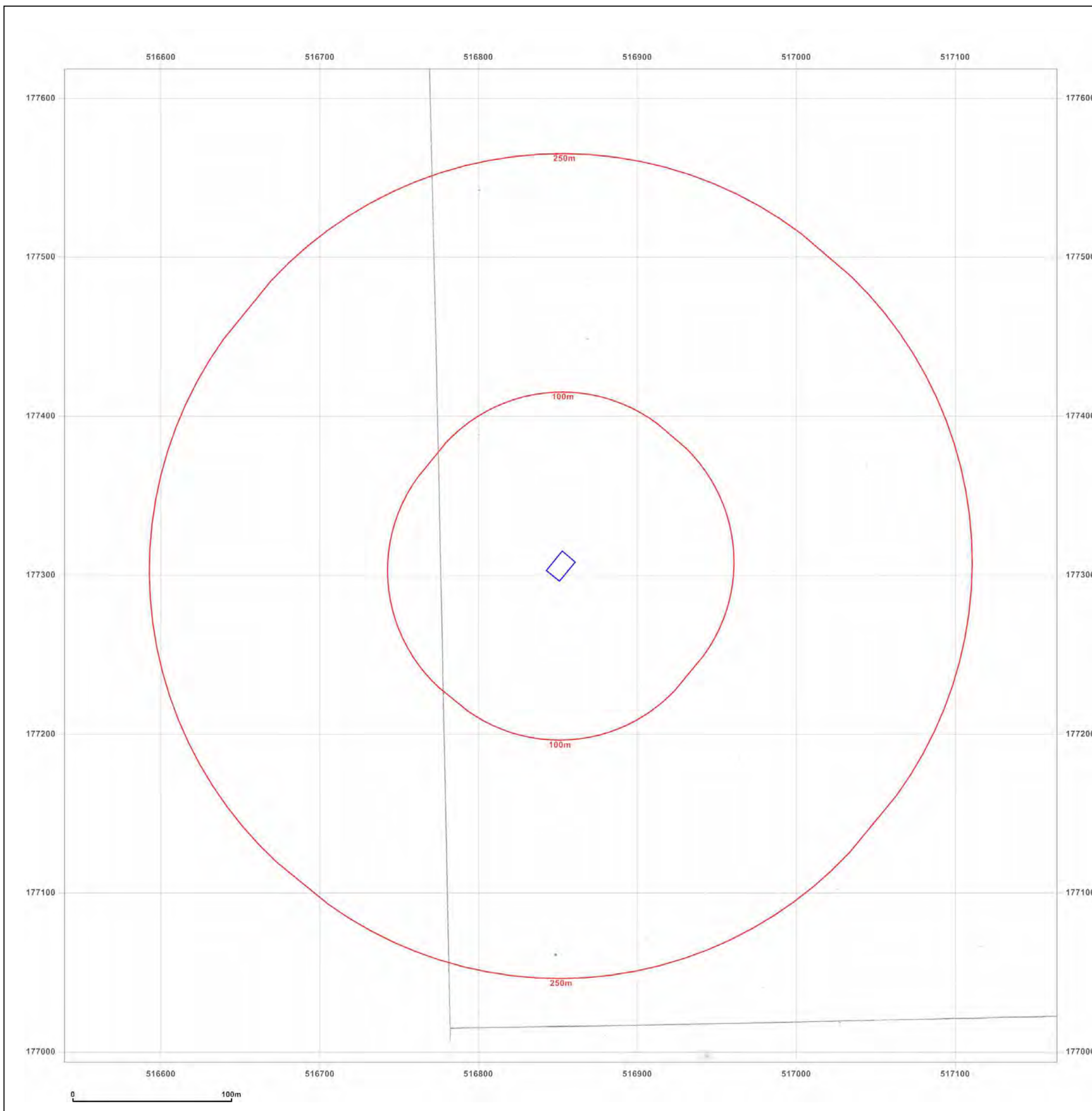


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Site Details:

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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1896

Scale: 1:2,500

Printed at: 1:2,500



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

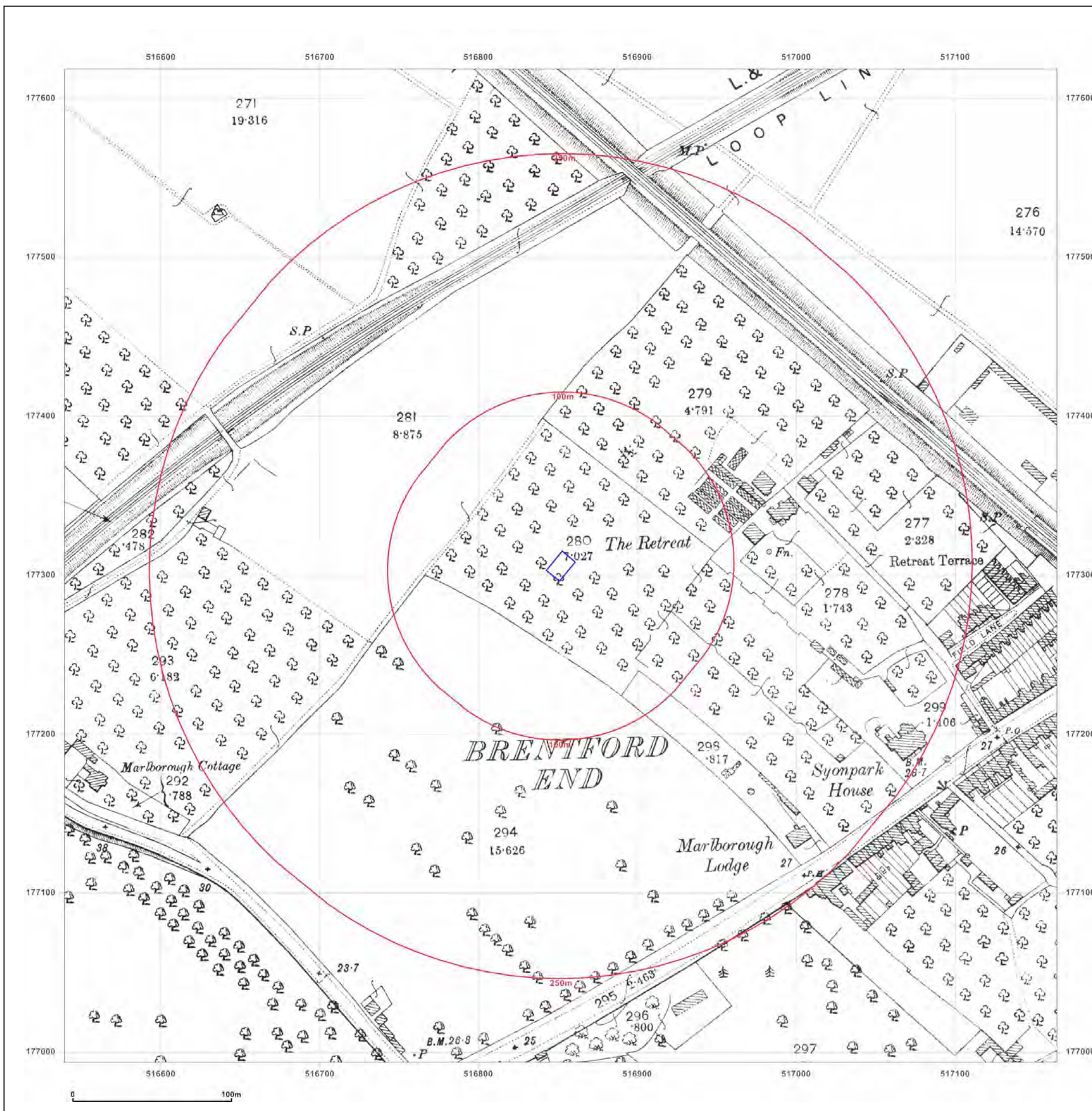


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

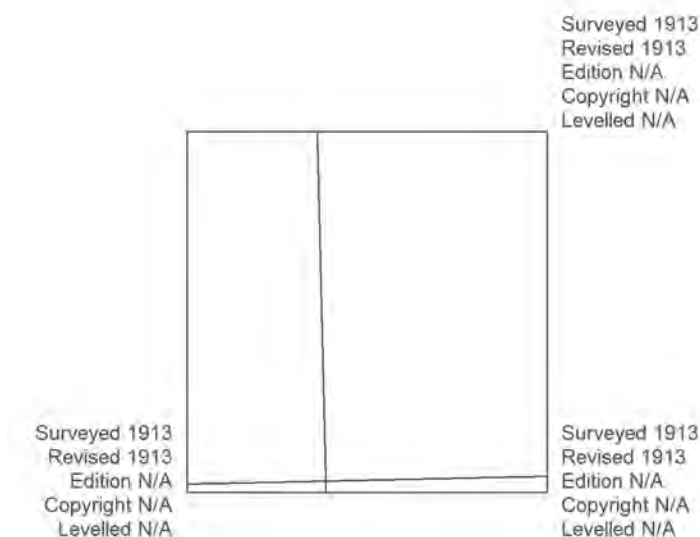
Map date: 1913

Scale: 1:2,500

Printed at: 1:2,500



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



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

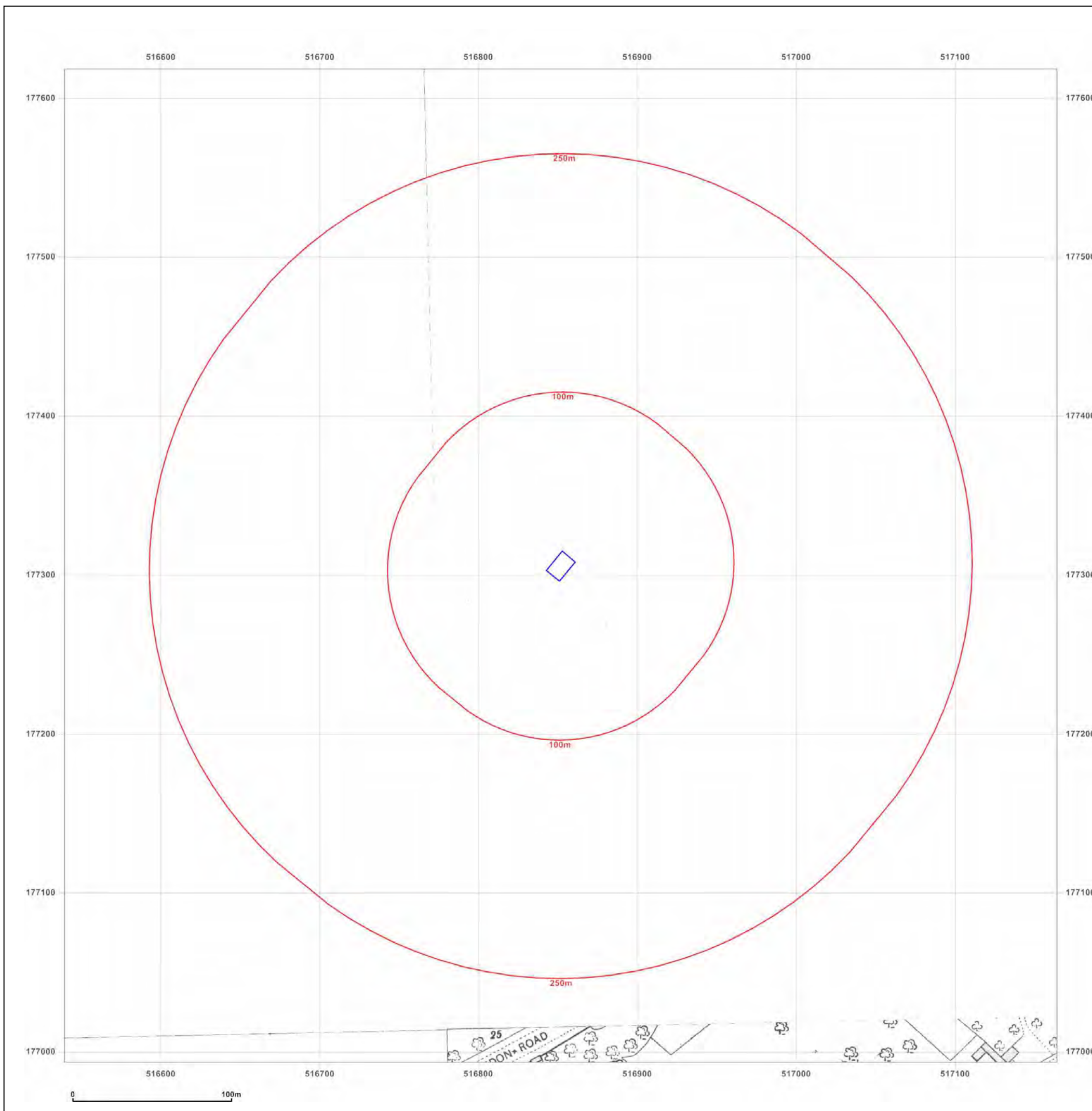


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1915

Scale: 1:2,500

Printed at: 1:2,500



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

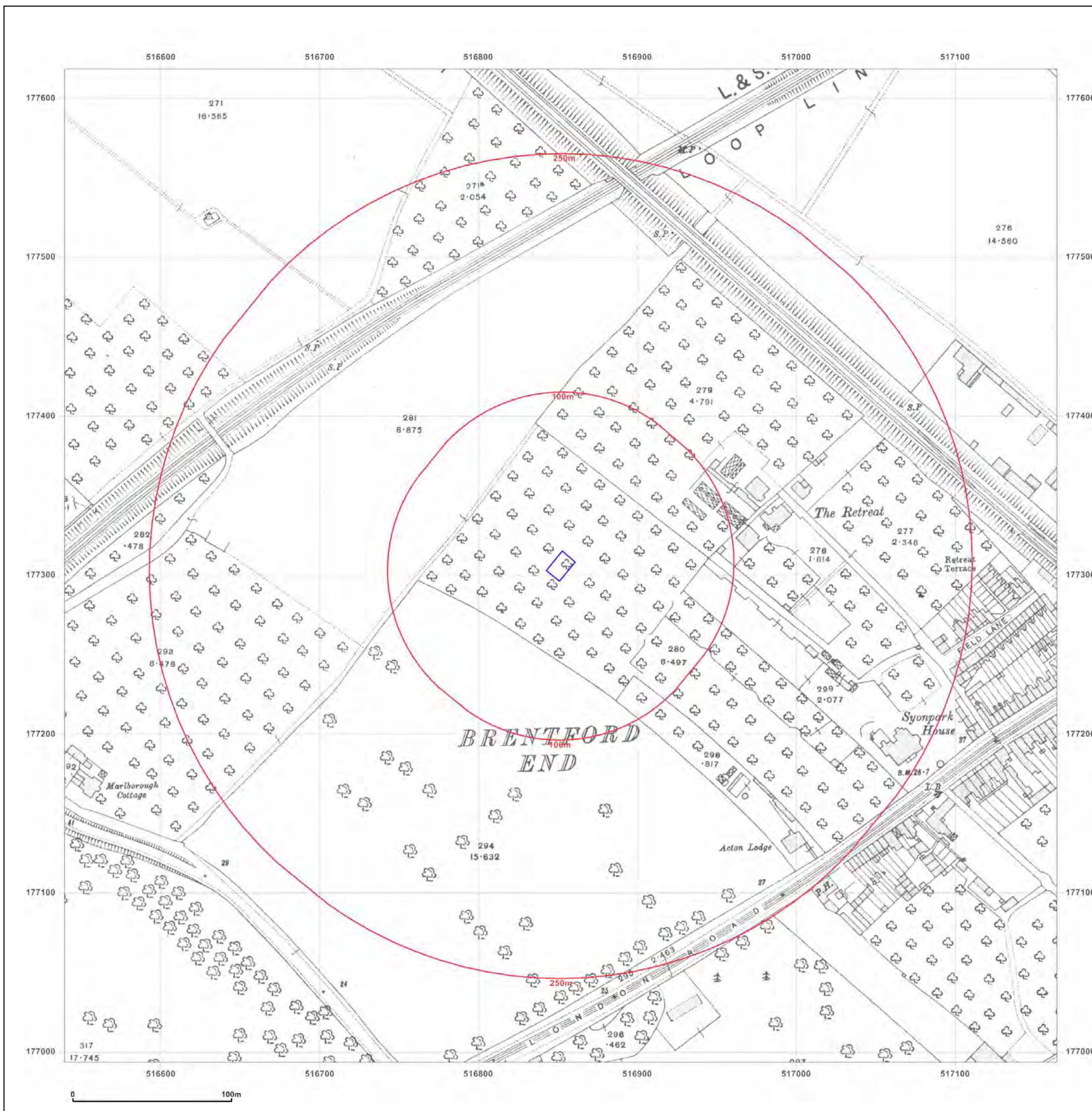


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

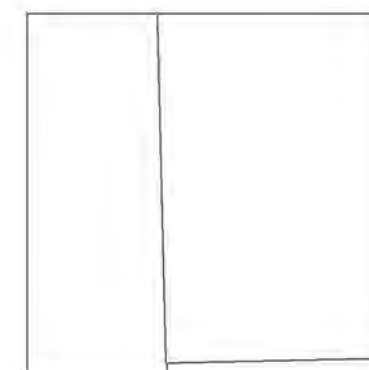
Map date: 1933

Scale: 1:2,500

Printed at: 1:2,500



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



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

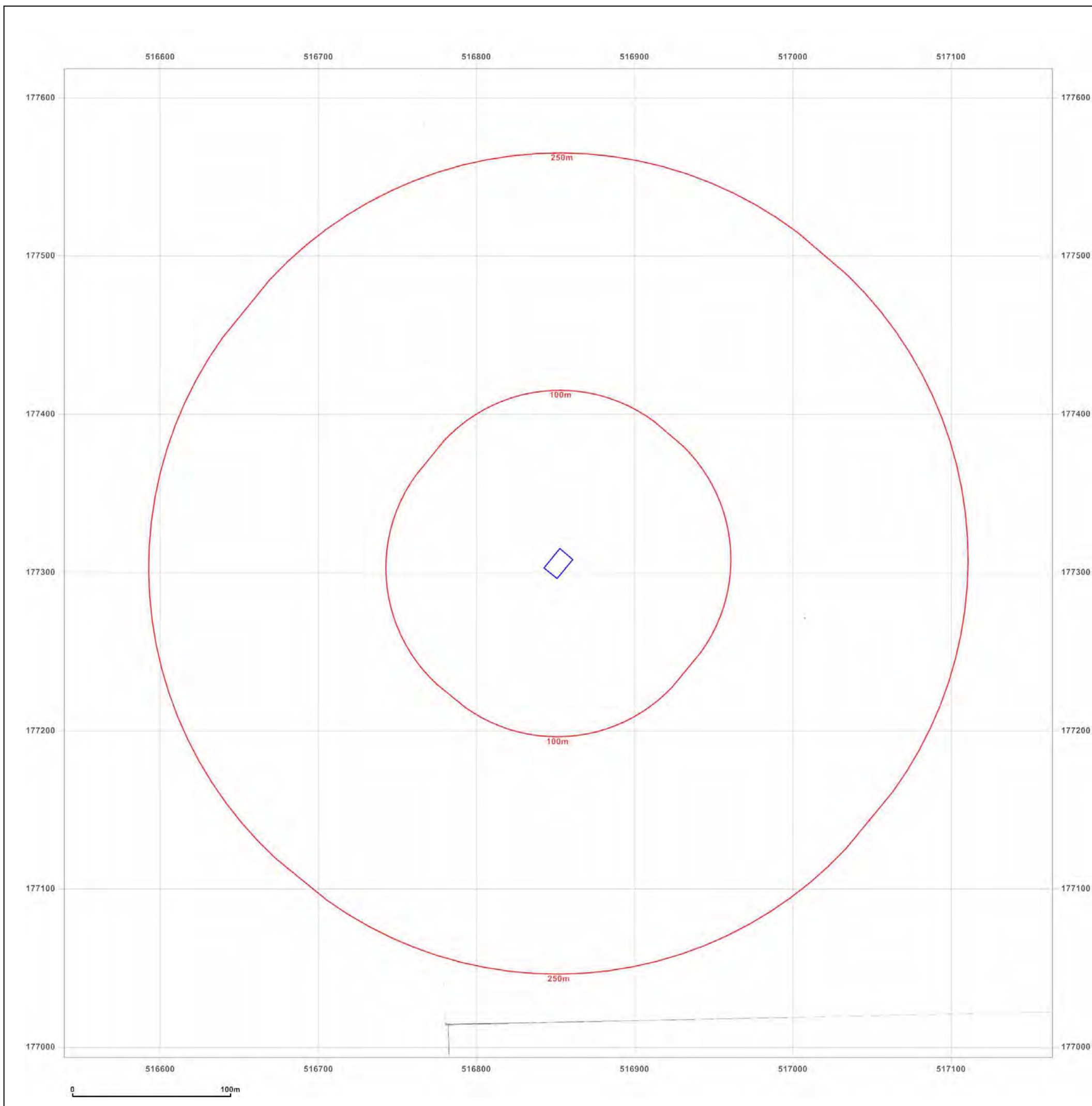


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1935

Scale: 1:2,500

Printed at: 1:2,500



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

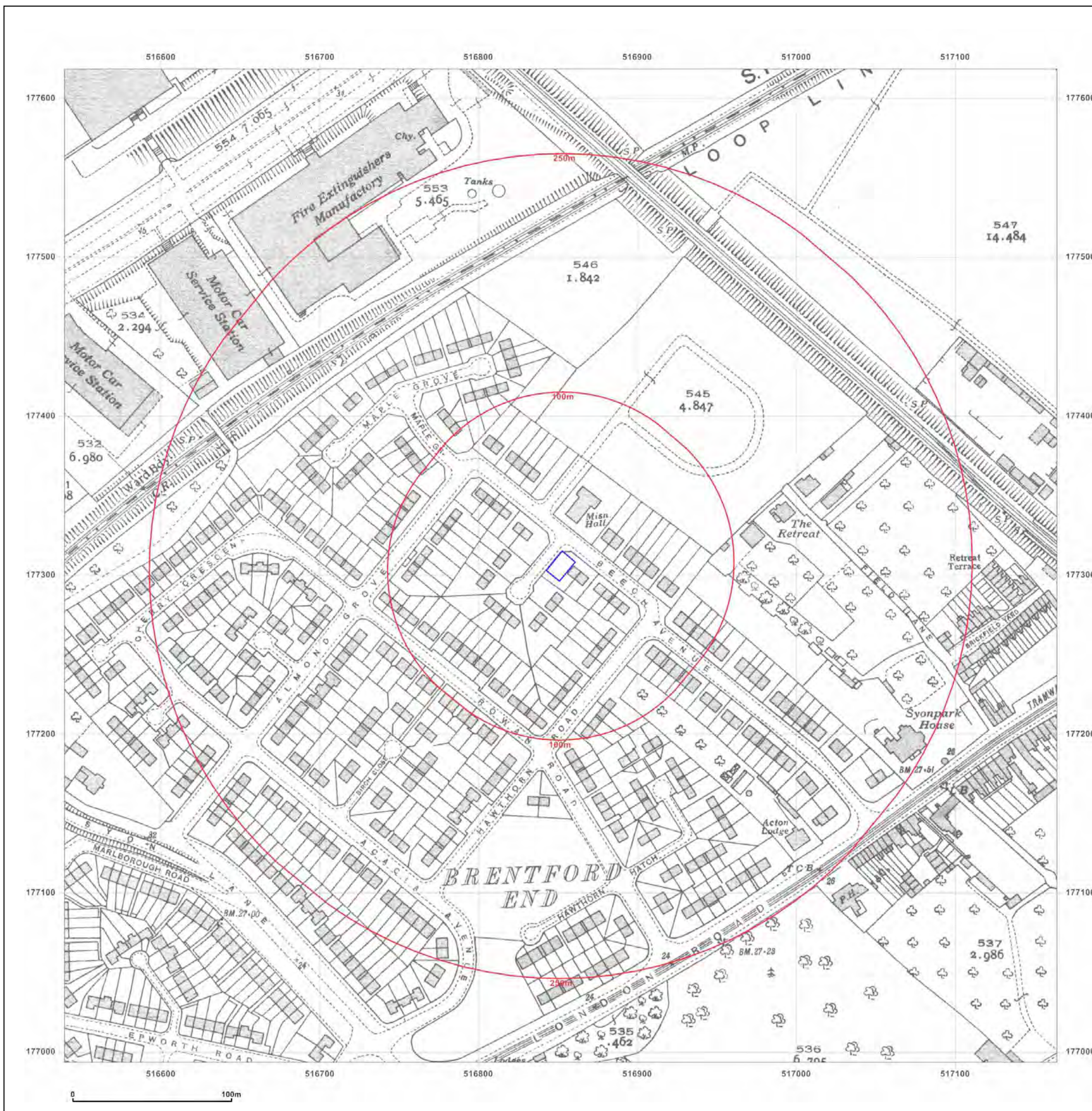


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

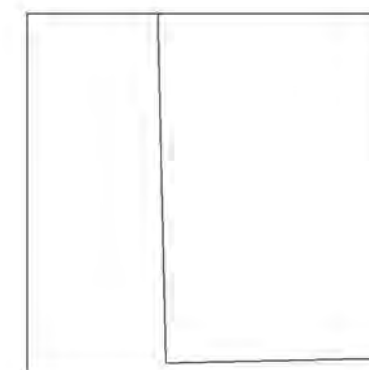
Map date: 1940

Scale: 1:2,500

Printed at: 1:2,500



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

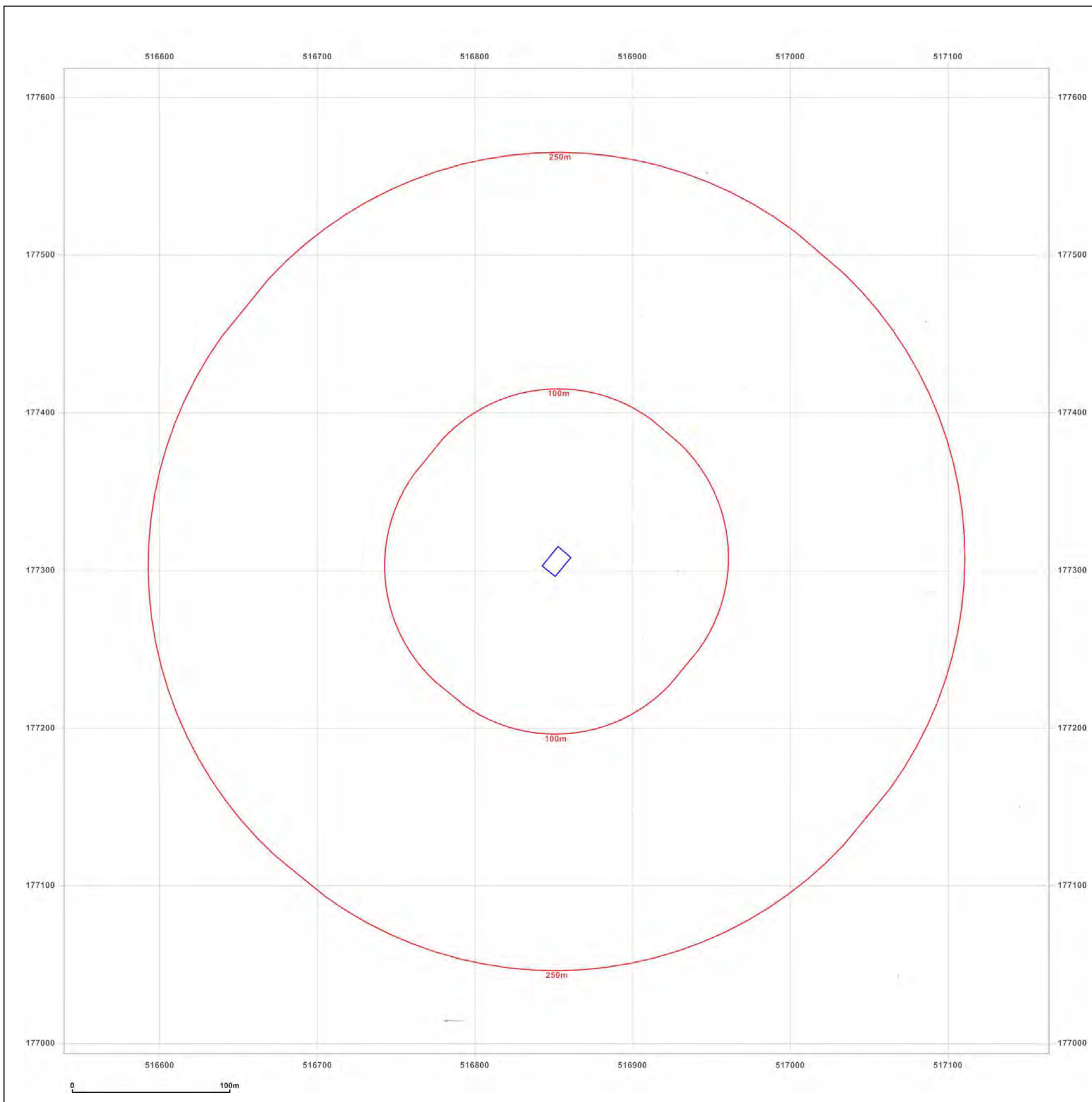


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1960

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1960
Edition N/A
Copyright 1960
Levelled 1957

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1957

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1960
Levelled 1957

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1957

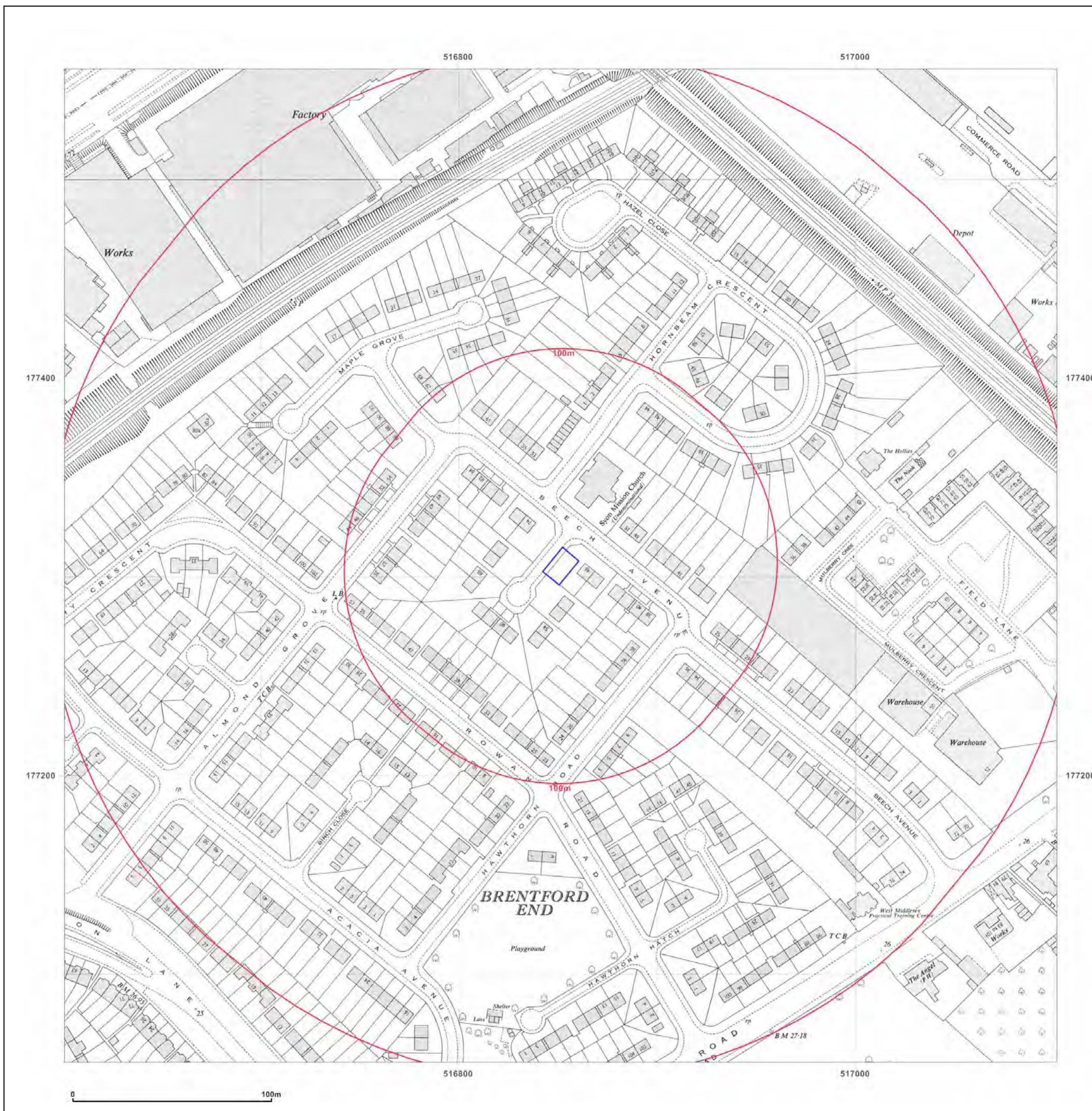


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1959-1960

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1960
Revised 1960
Edition 1961
Copyright 1961
Levelled 1957

Surveyed 1959
Revised 1959
Edition 1961
Copyright 1961
Levelled 1957

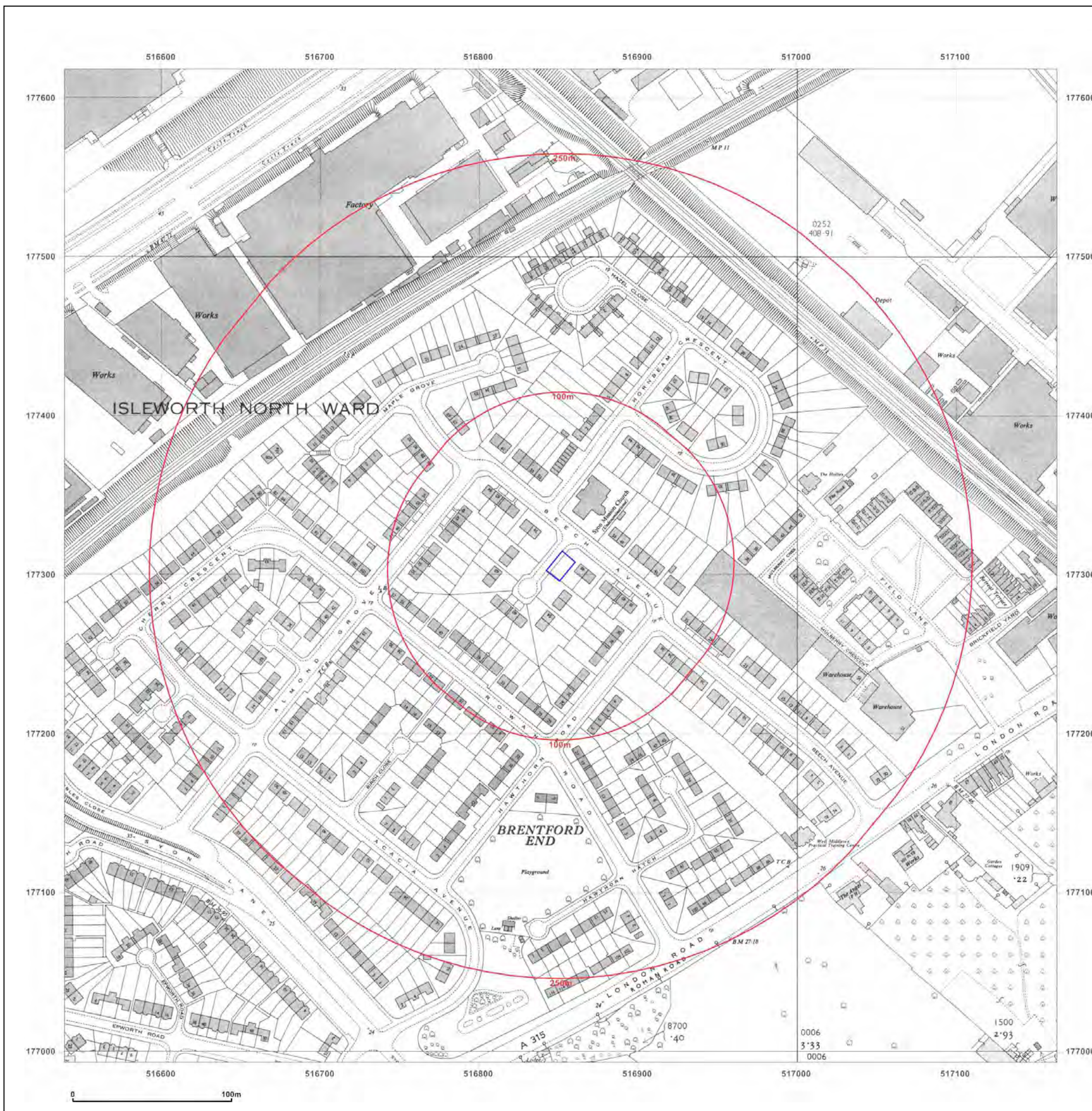


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1961

Scale: 1:2,500

Printed at: 1:2,500



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

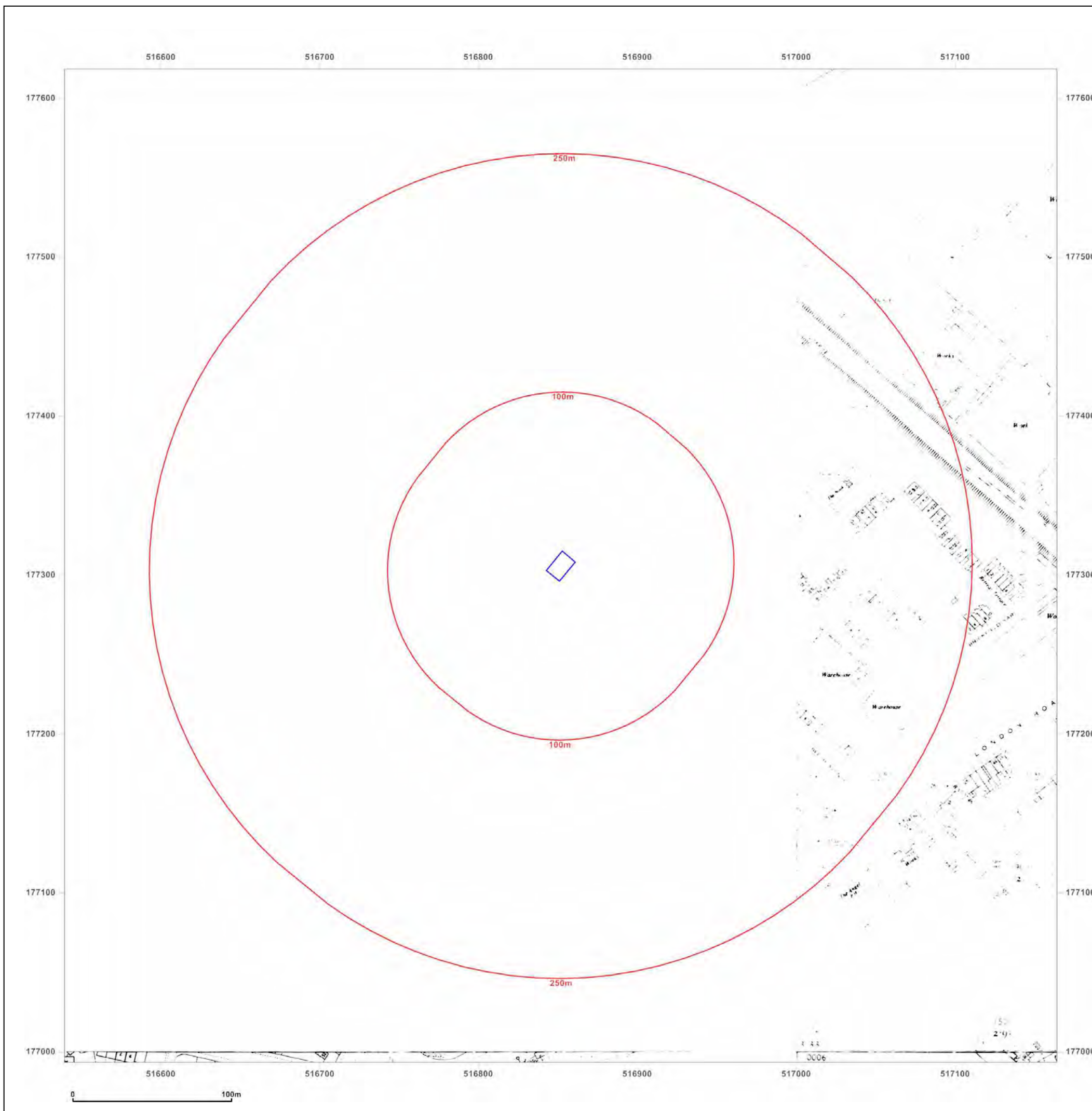


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1961

Scale: 1:2,500

Printed at: 1:2,500



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

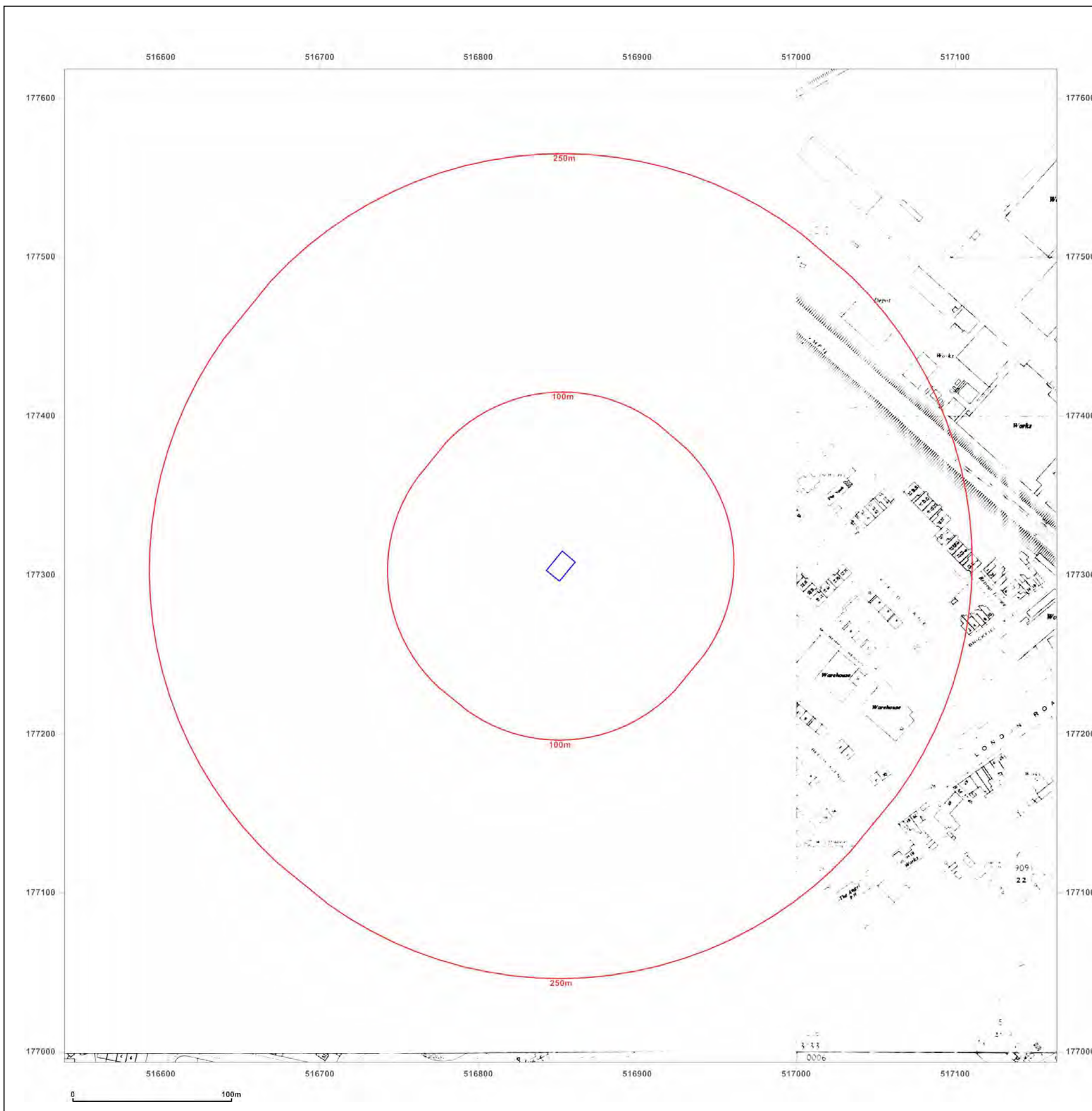


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1983-1988

Scale: 1:1,250

Printed at: 1:2,000



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

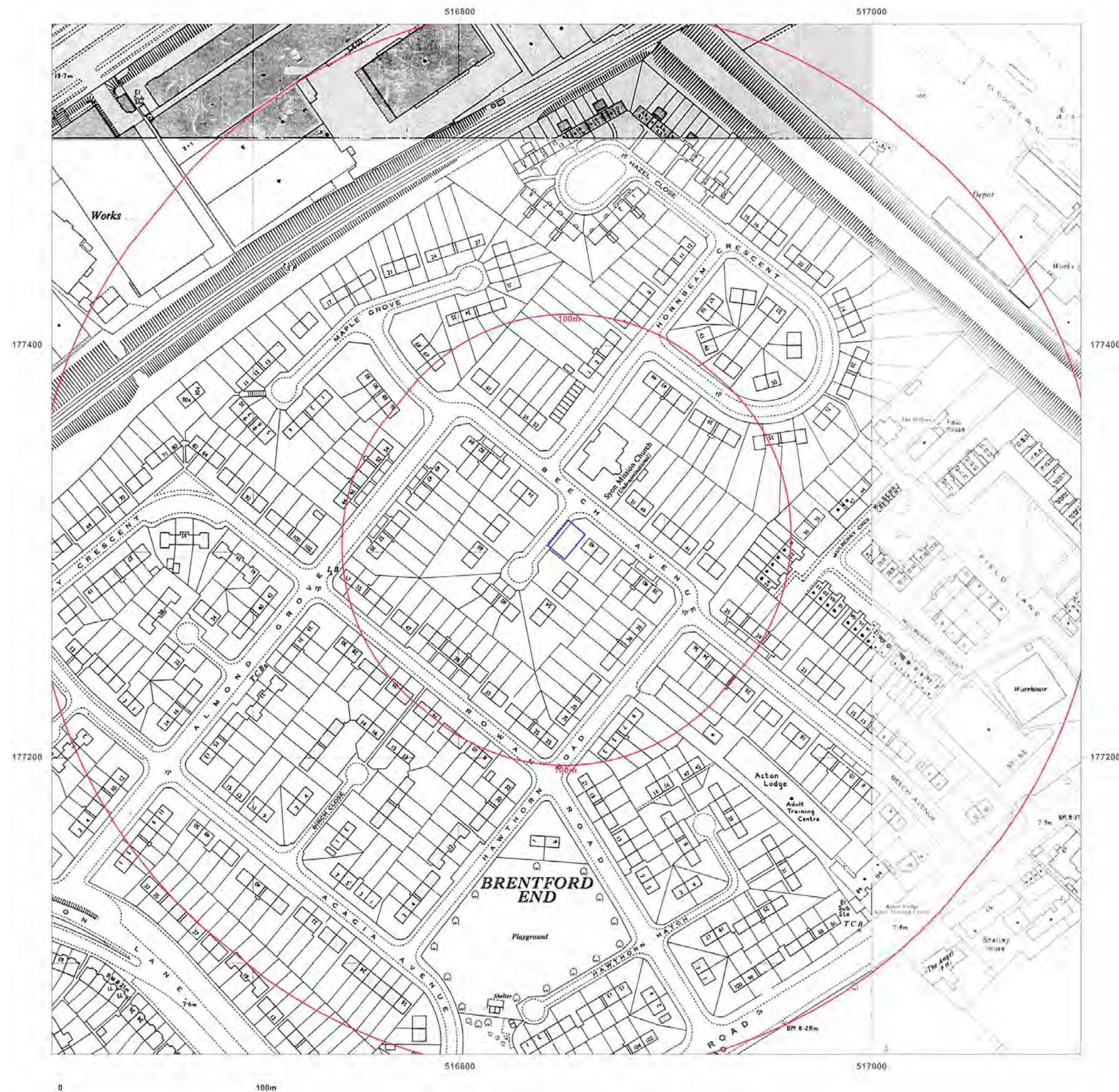


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1988-1991

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1988
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1957
Revised 1989
Edition N/A
Copyright 1989
Levelled 1957

Surveyed N/A
Revised 1990
Edition 1991
Copyright 1991
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1991
Levelled N/A

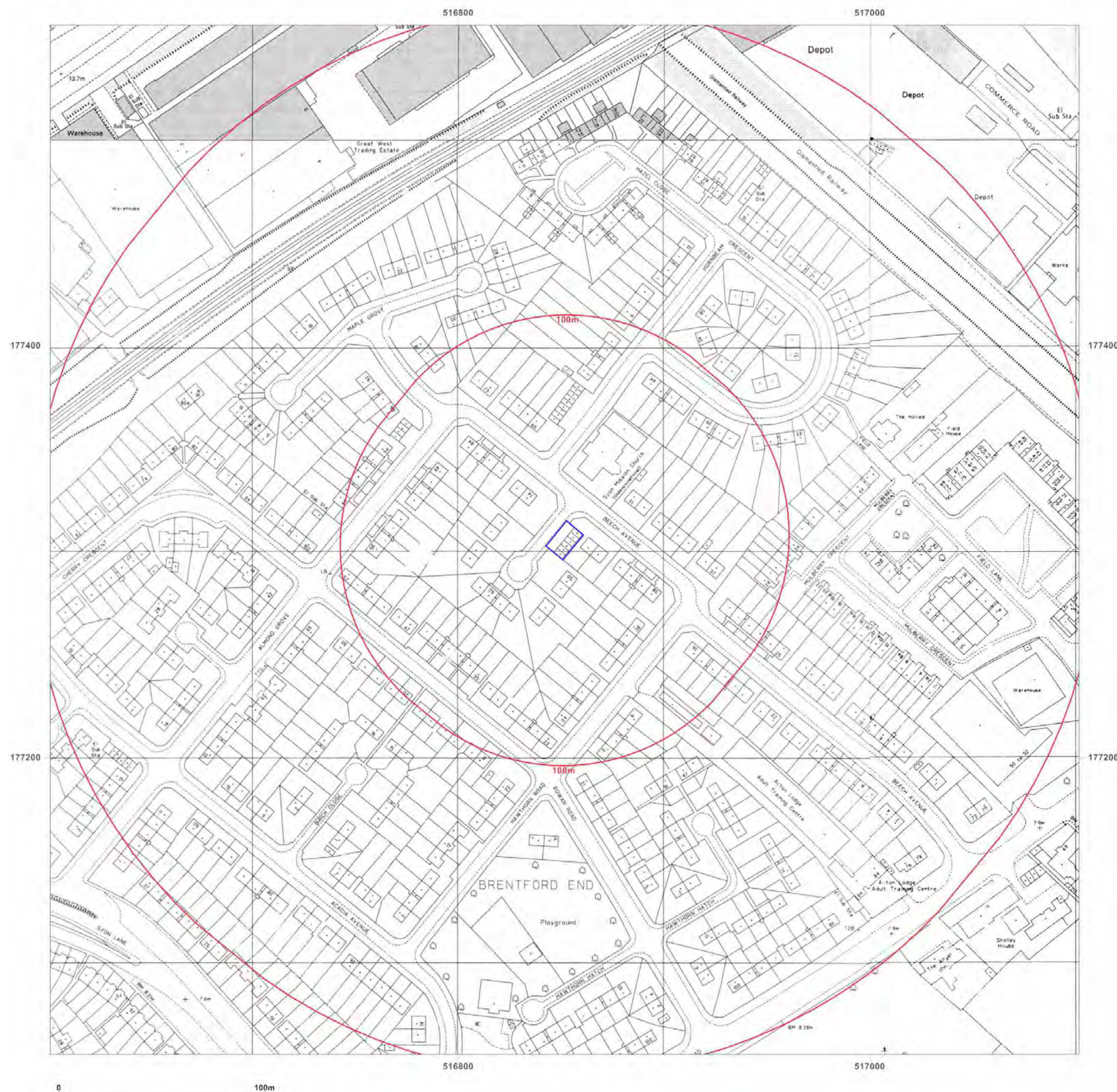


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

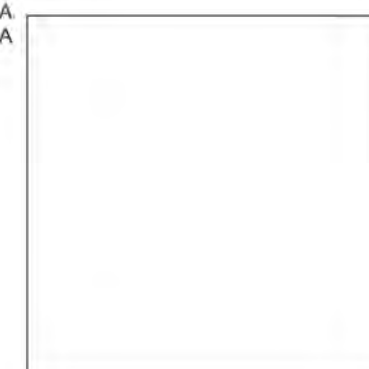
Map date: 1867

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

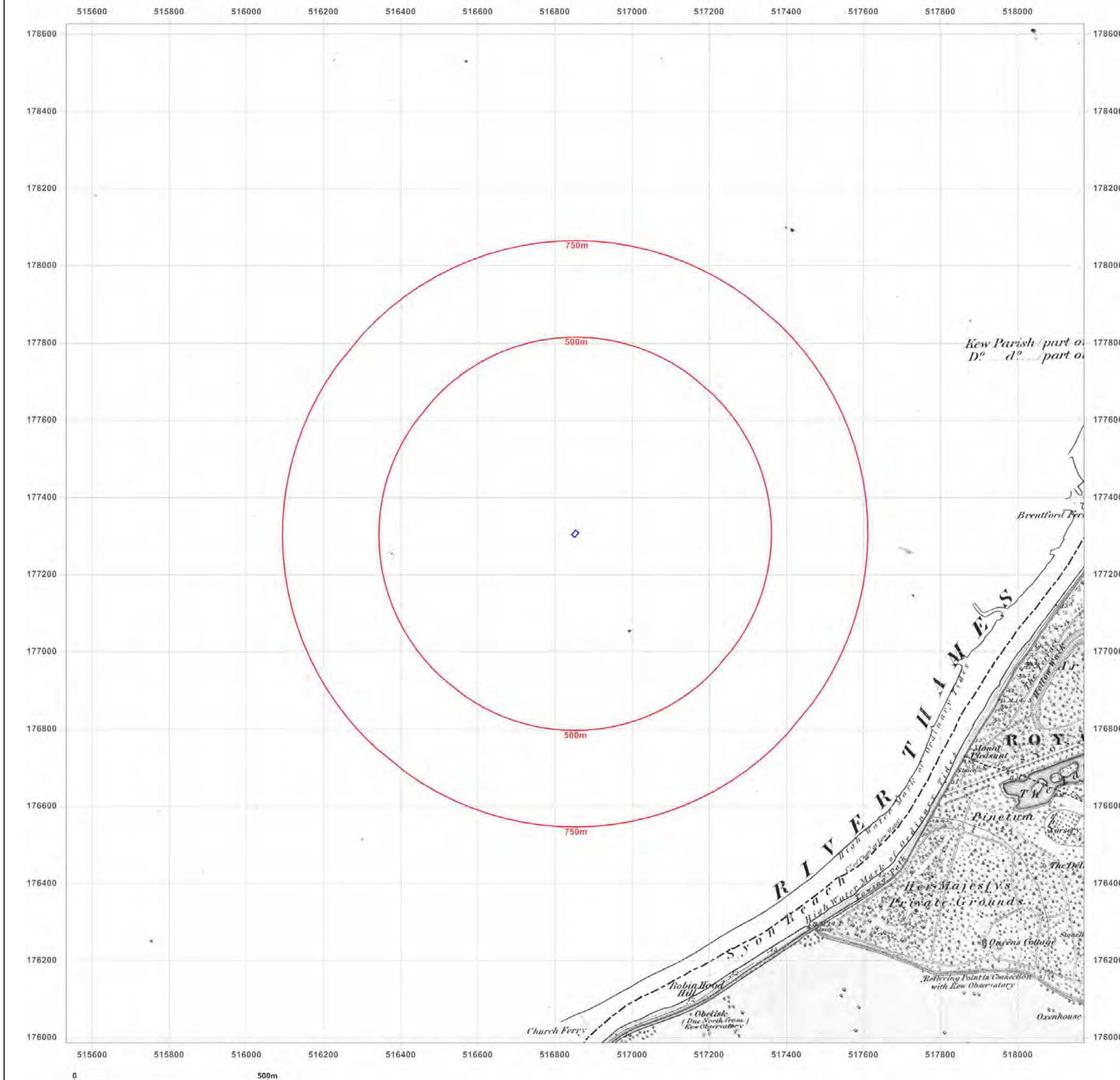


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

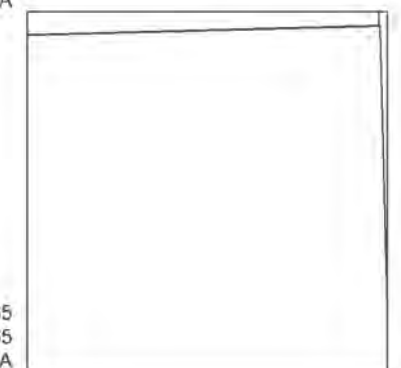
Map date: 1865-1868

Scale: 1:10,560

Printed at: 1:10,560



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

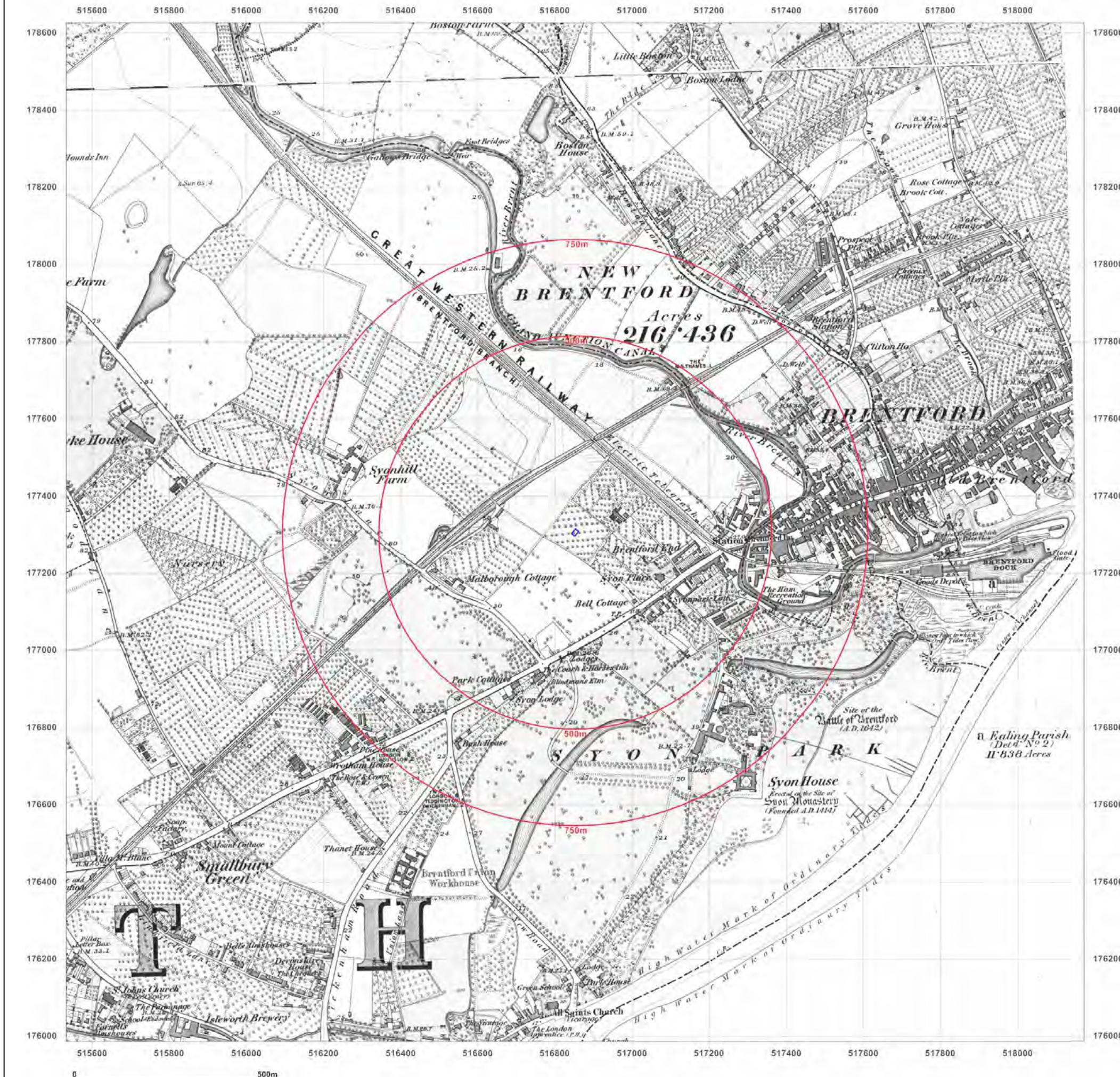


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1893-1894

Scale: 1:10,560

Printed at: 1:10,560



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

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

Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

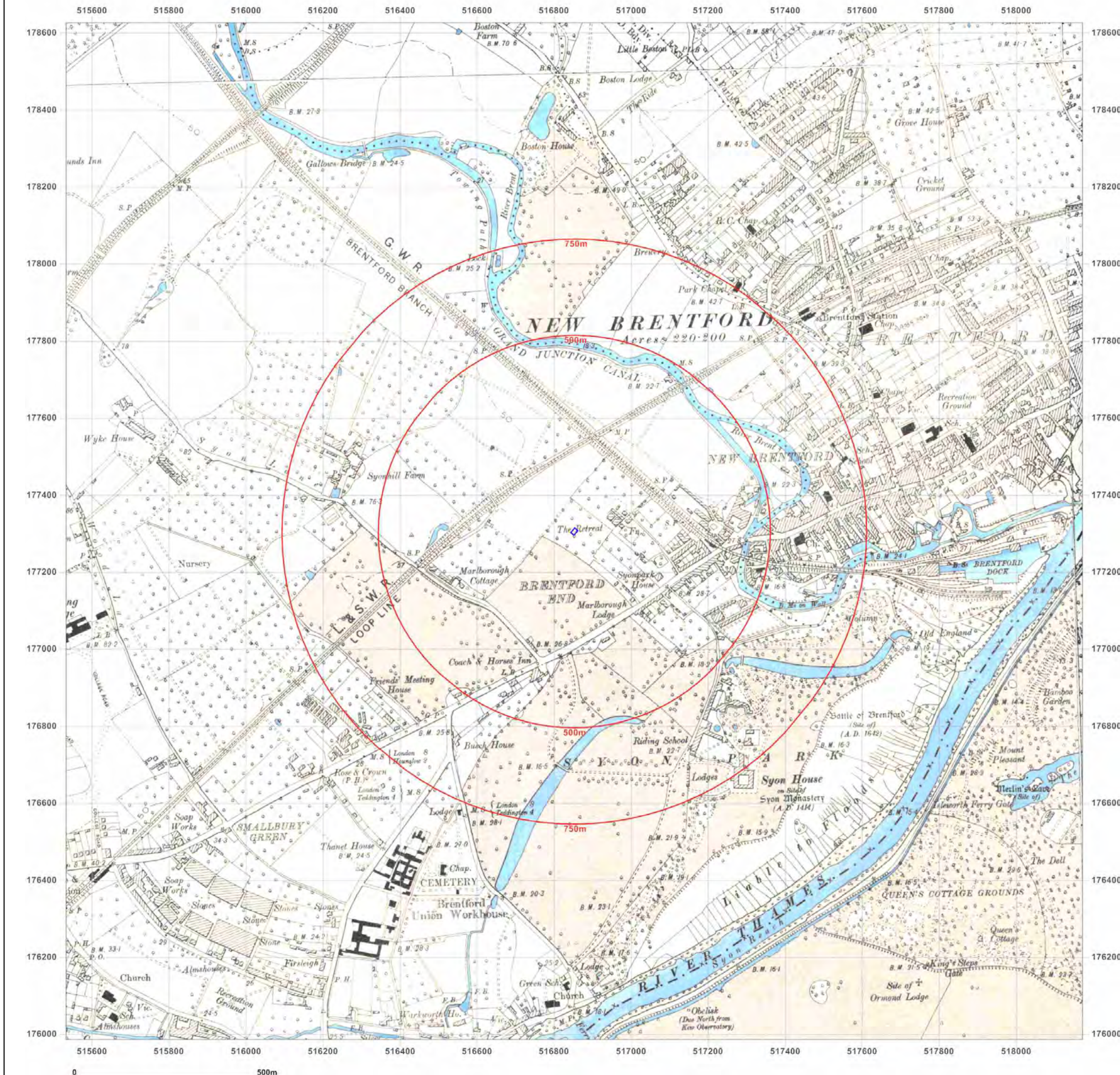


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1894

Scale: 1:10,560

Printed at: 1:10,560



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

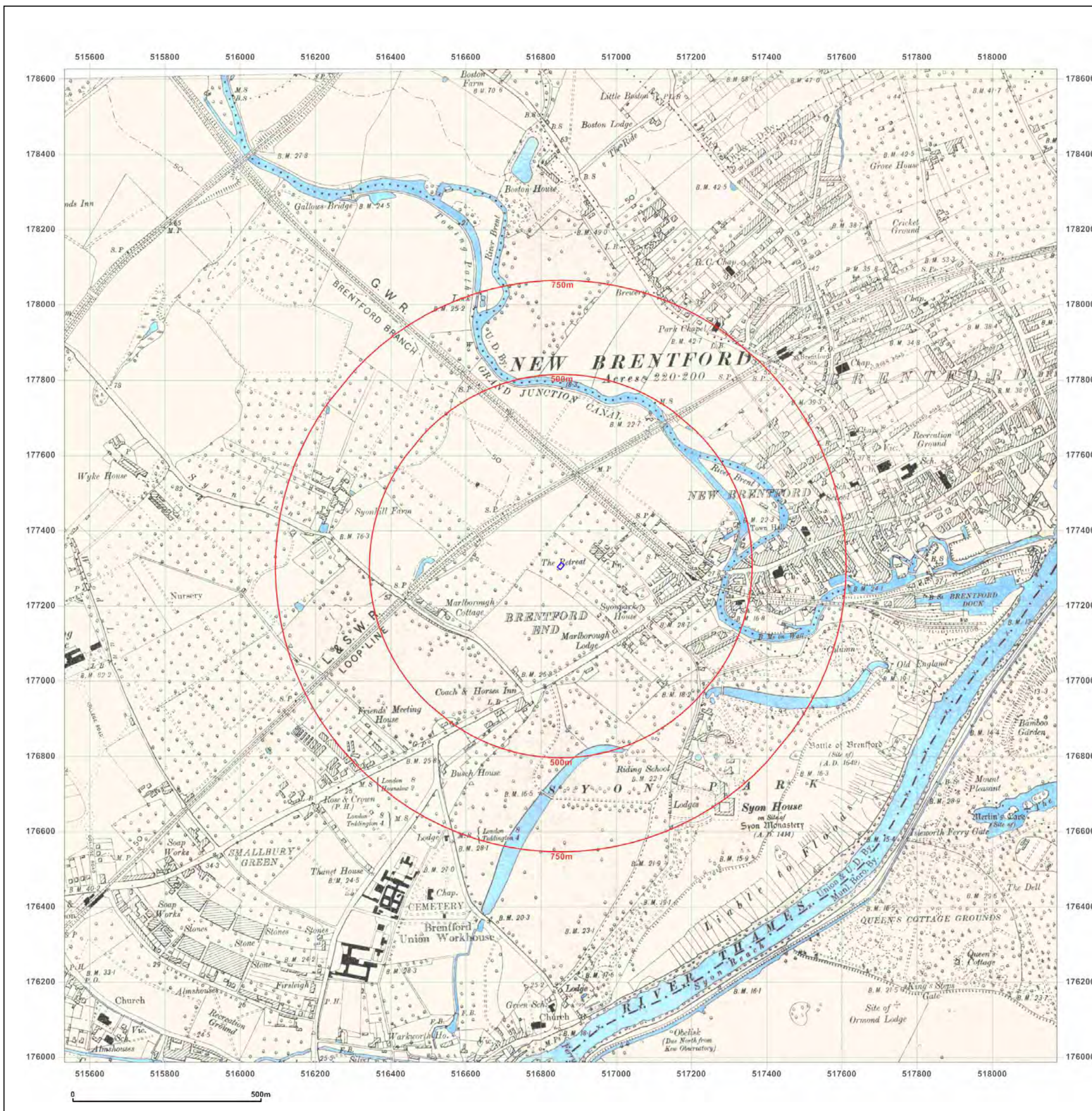


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1896

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1894
Revised N/A
Edition 1896
Copyright N/A
Levelled N/A

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

Surveyed 1893
Revised N/A
Edition 1896
Copyright N/A
Levelled N/A

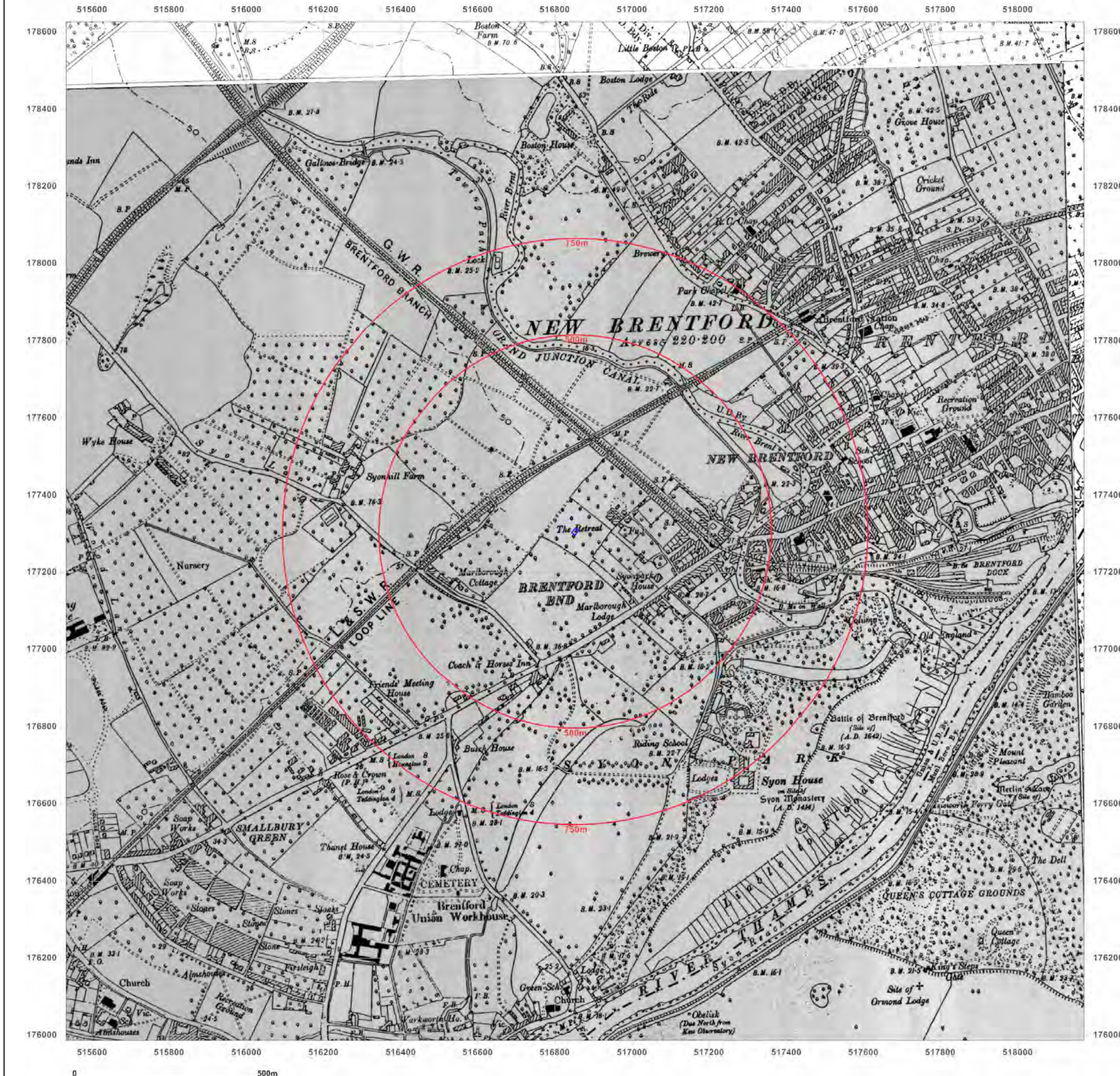


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1898

Scale: 1:10,560

Printed at: 1:10,560



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

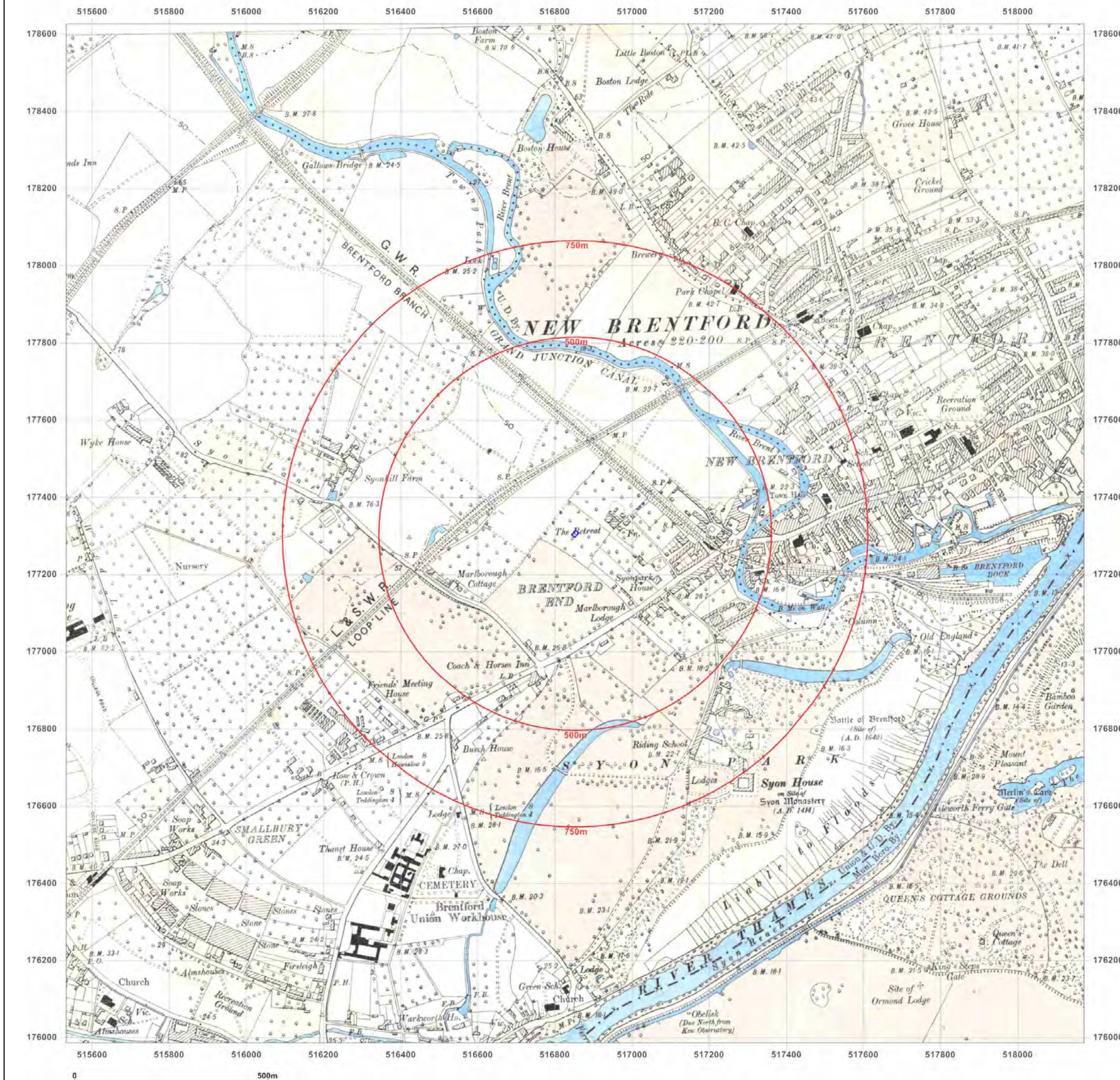


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BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1912

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

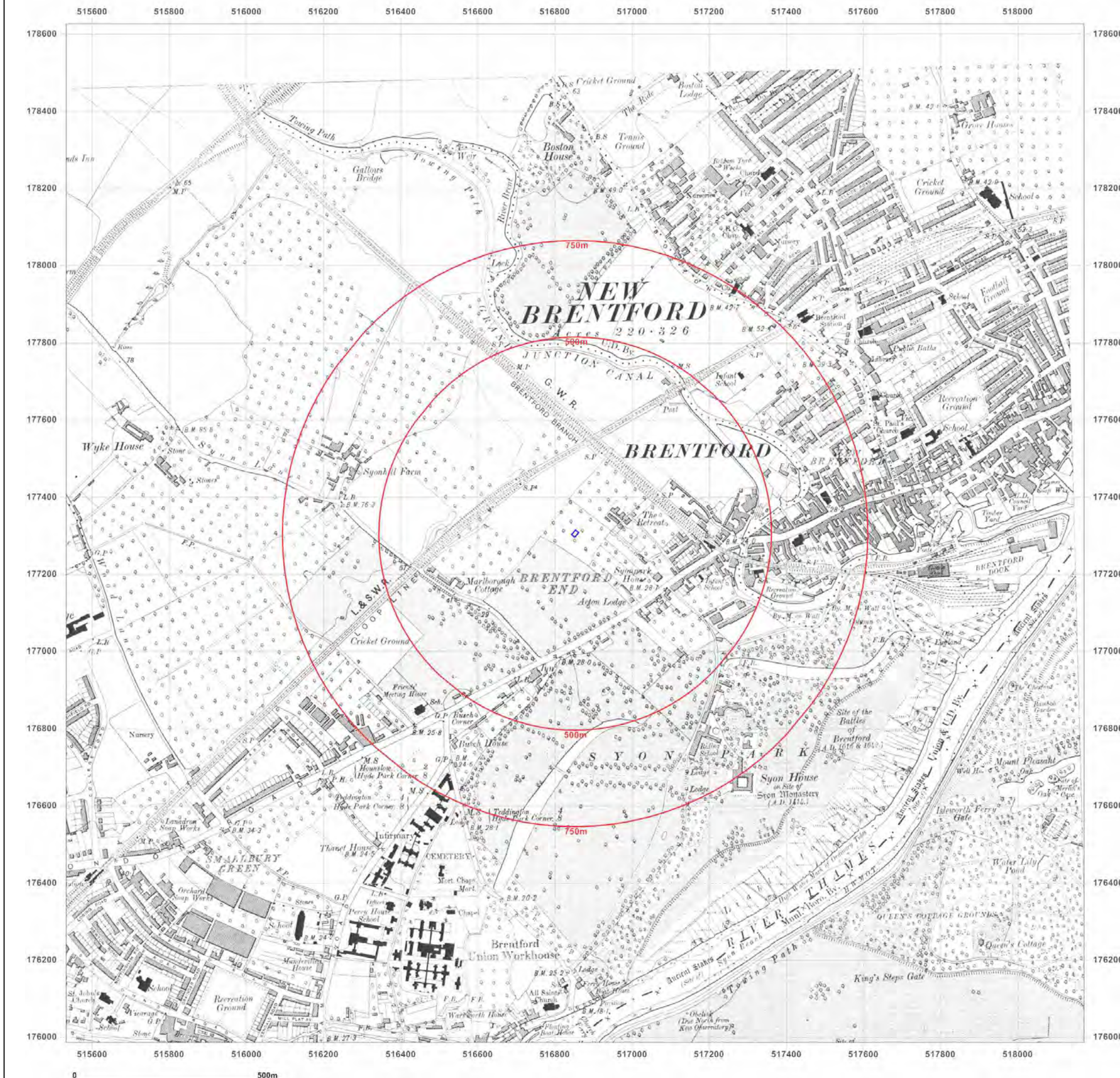


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1912

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

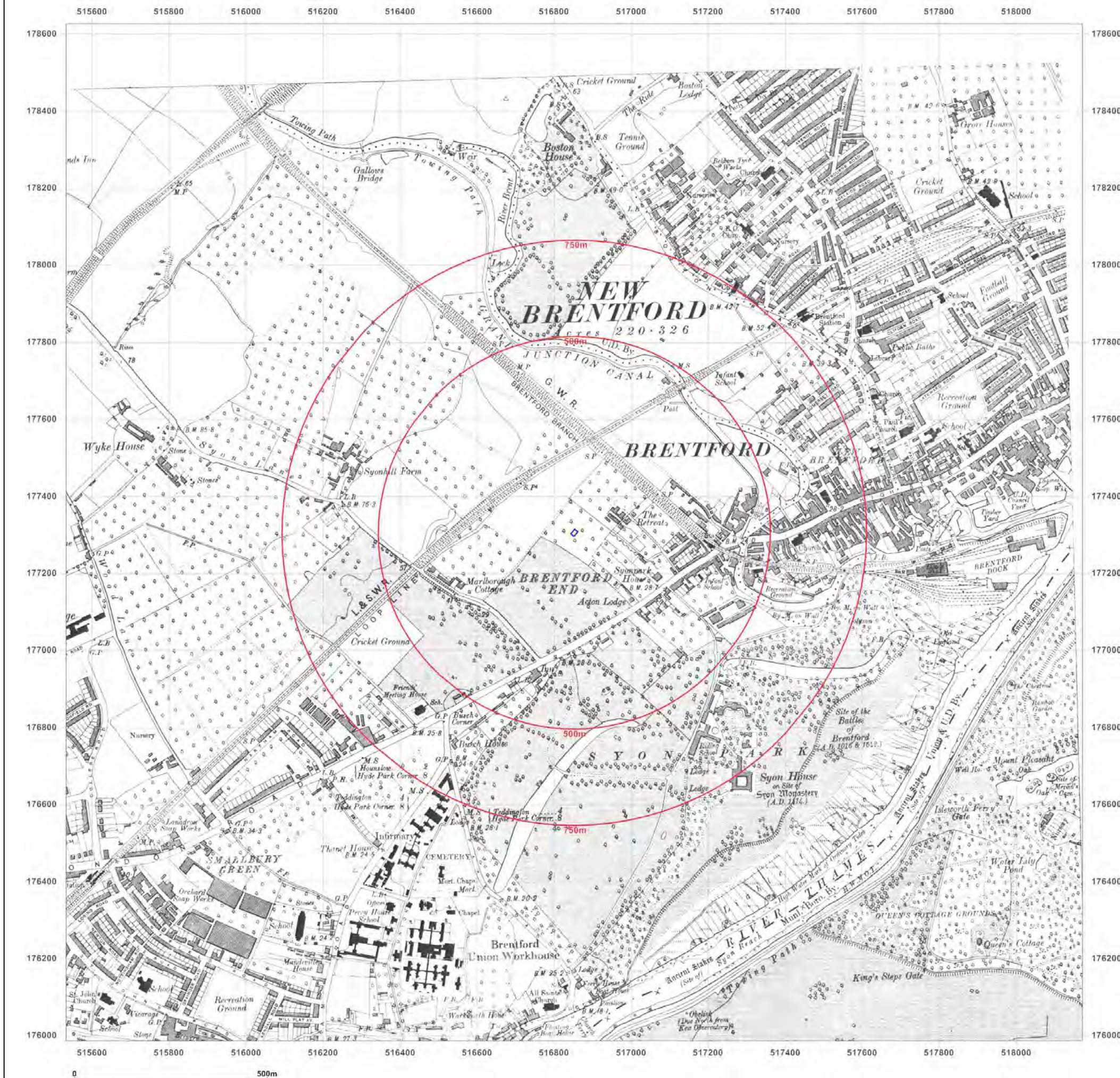


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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1920

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
Revised 1911
Edition 1920
Copyright N/A
Levelled 1911

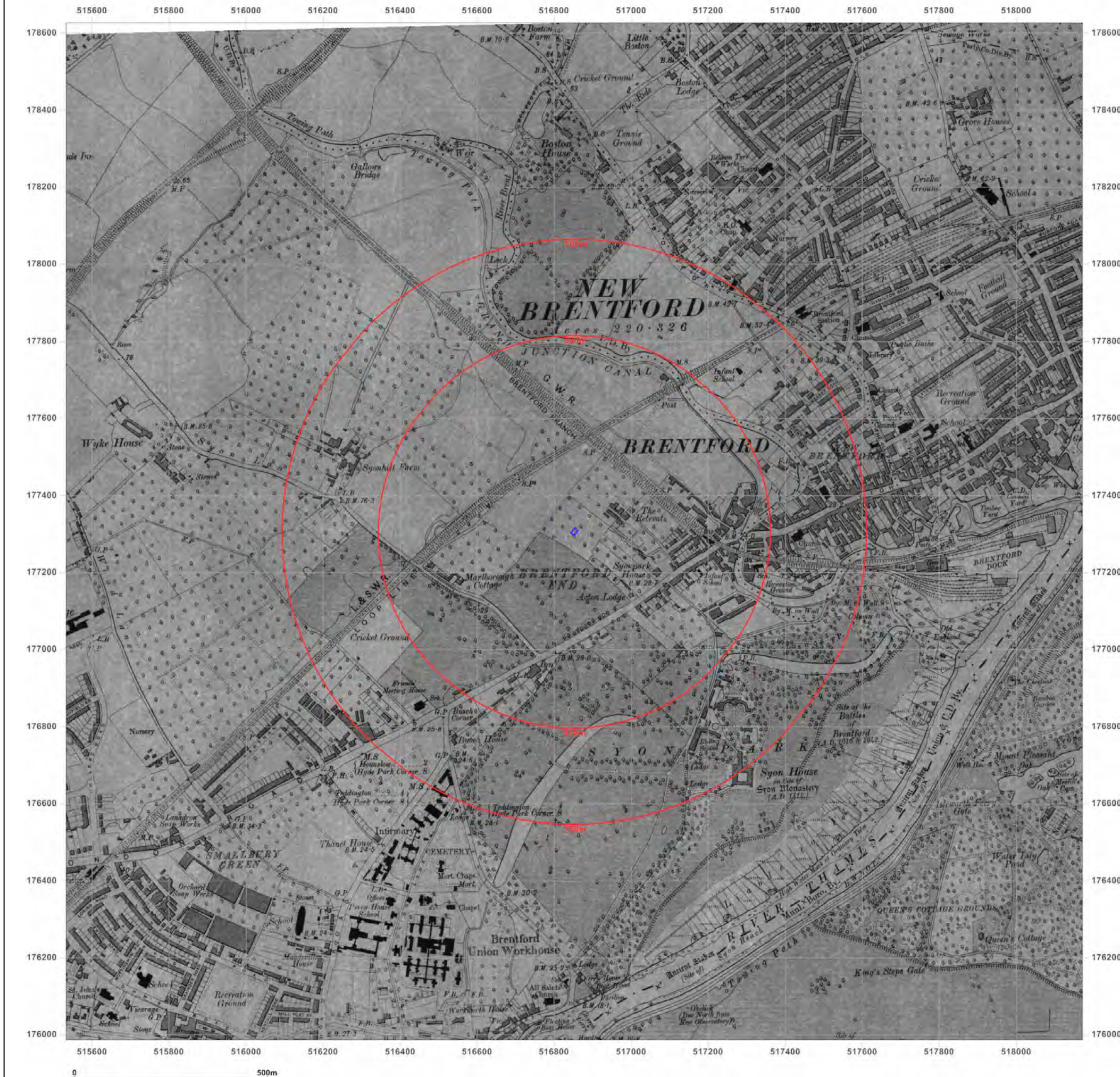


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Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: County Series

Map date: 1933

Scale: 1:10,560

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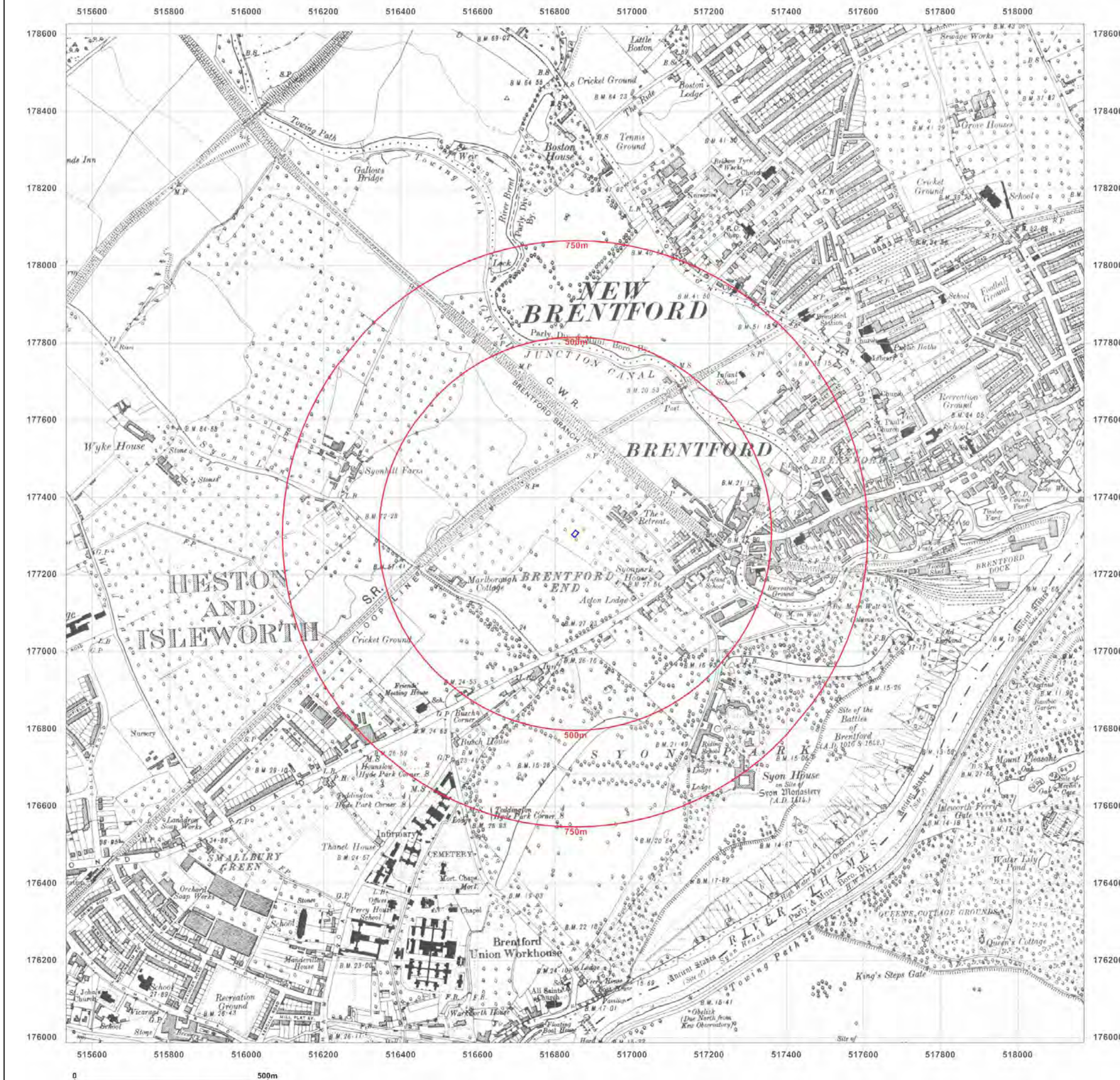


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Map Name: County Series

Map date: 1934-1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
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Surveyed 1866
Revised 1935
Edition N/A
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Surveyed 1867
Revised 1938
Edition N/A
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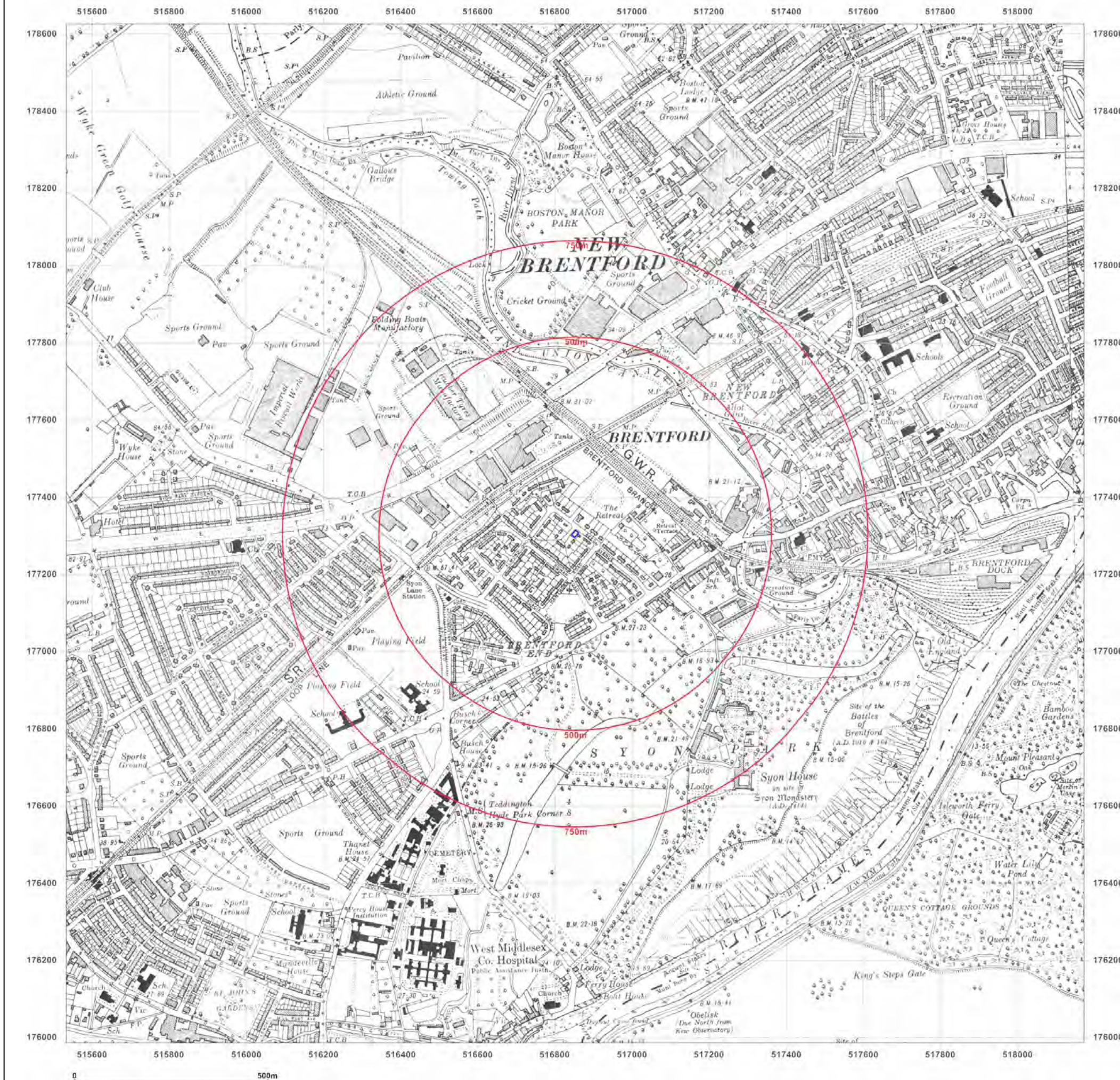


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Map Name: County Series

Map date: 1938

Scale: 1:10,560

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Revised 1938
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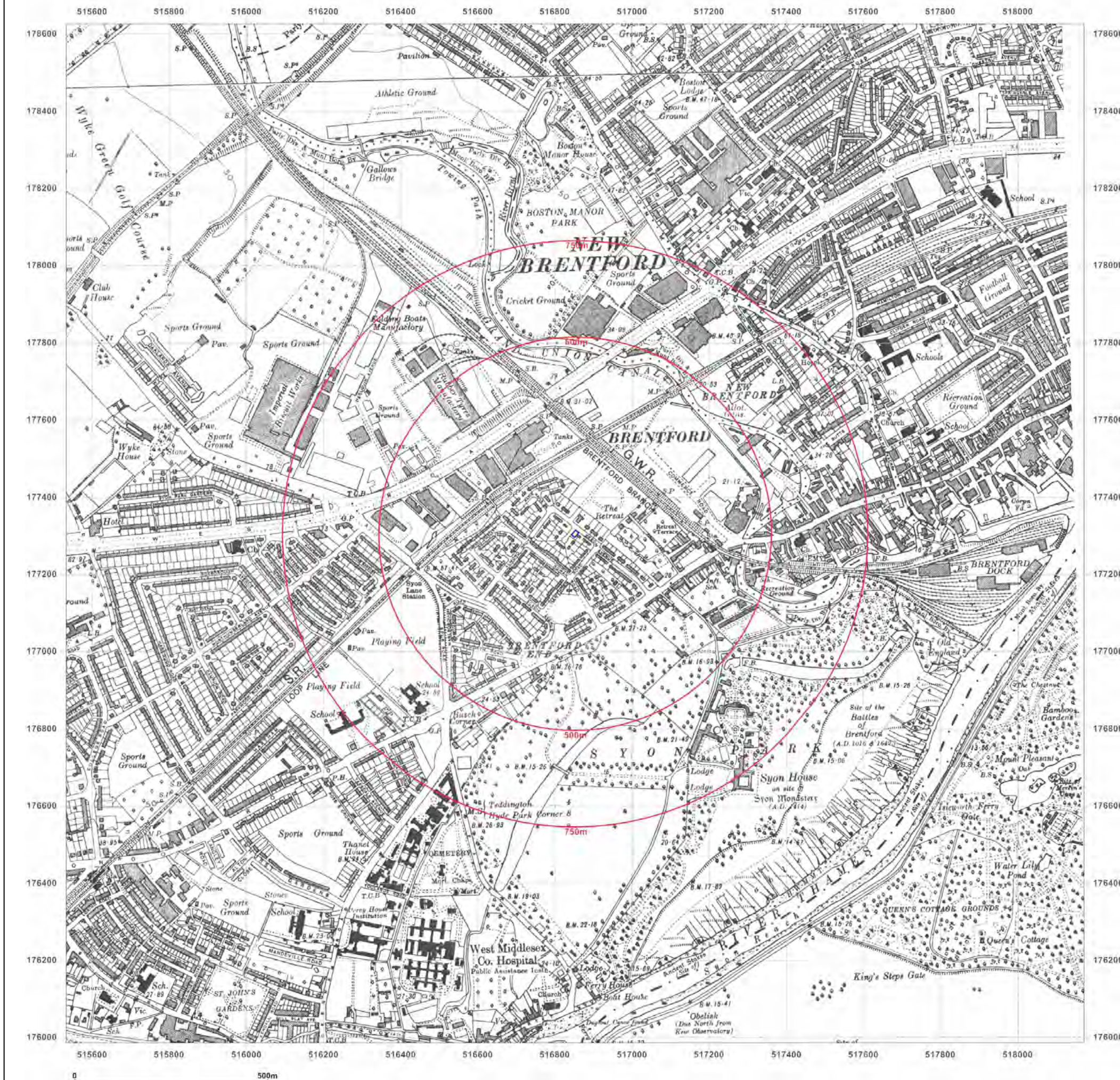


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Grid Ref: 516852, 177306

Map Name: Provisional

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1940
Revised 1948
Edition N/A
Copyright N/A
Levelled 1934

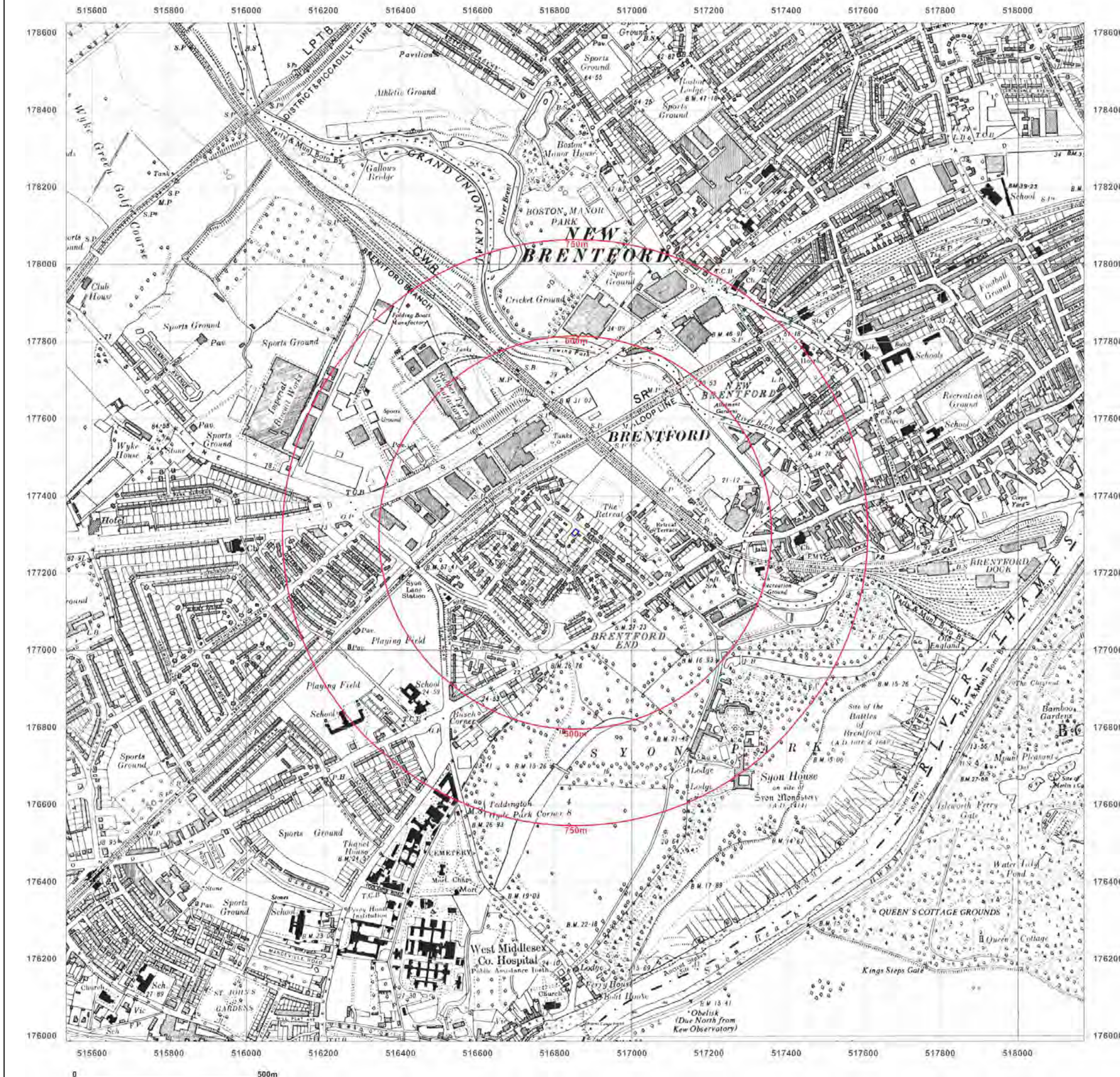


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Grid Ref: 516852, 177306

Map Name: Provisional

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



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

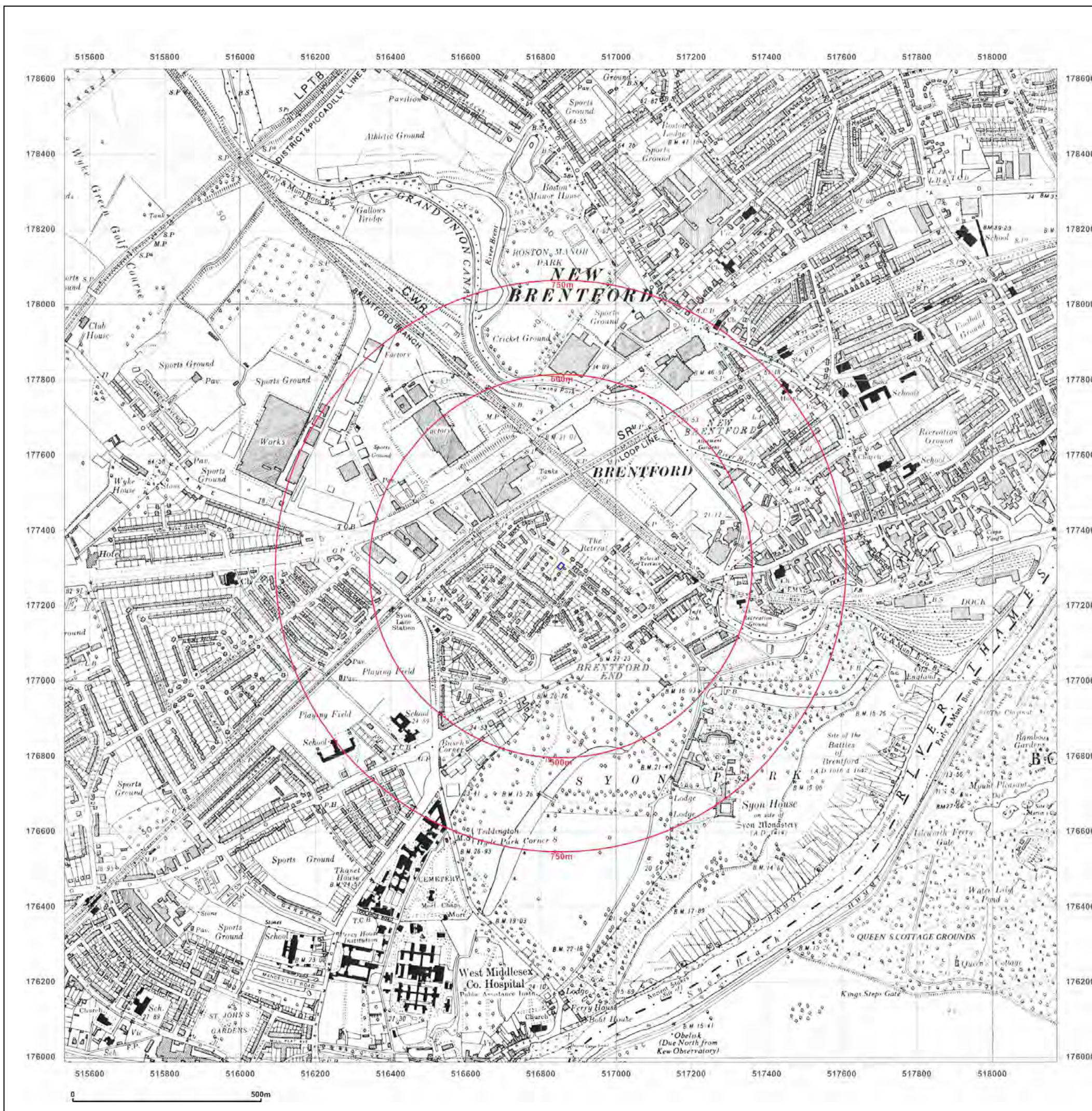


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Map Name: Provisional

Map date: 1961

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Surveyed 1940
Revised 1961
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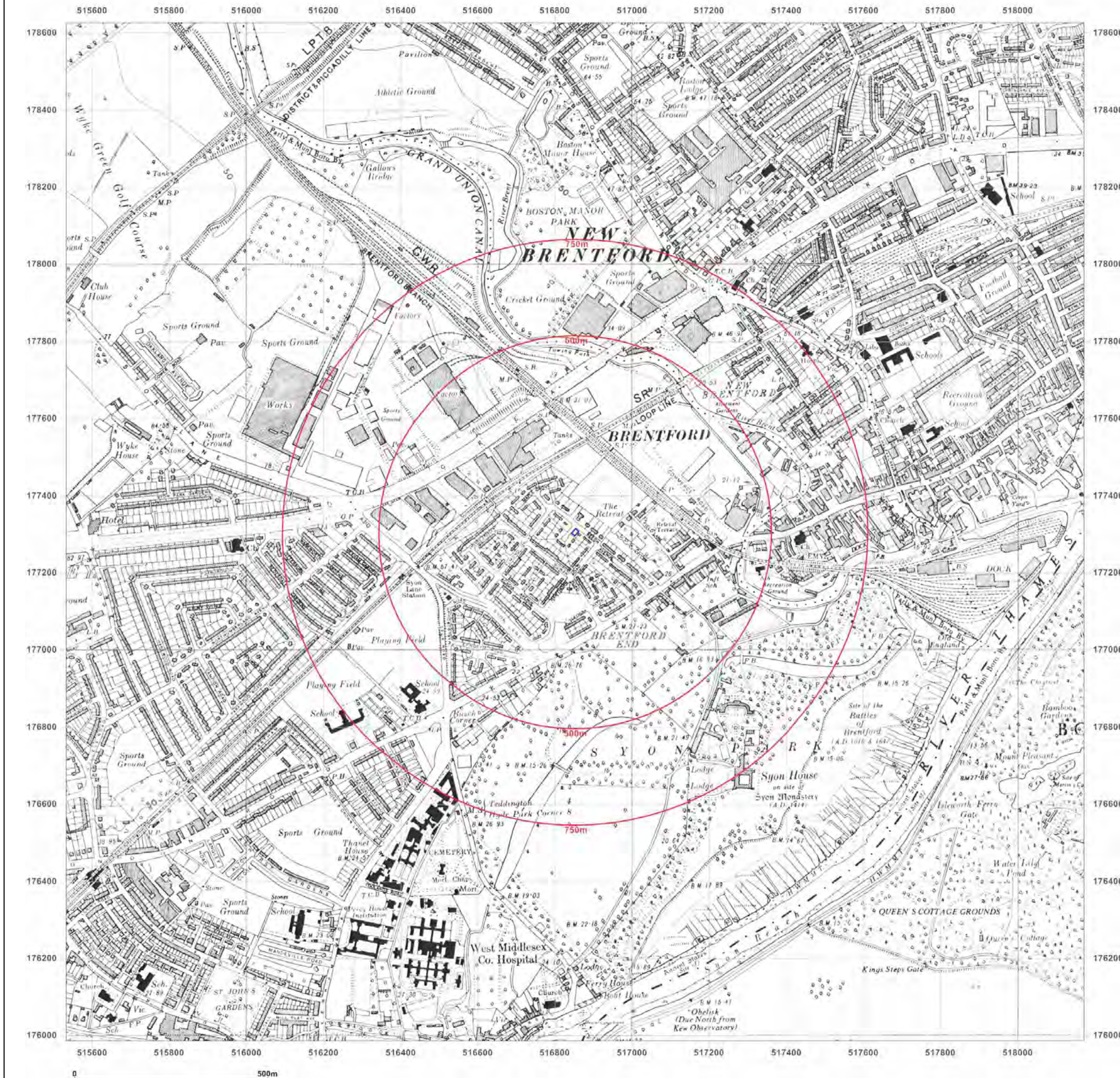


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Map Name: Provisional

Map date: 1966

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Printed at: 1:10,560



Surveyed 1966
Revised 1966
Edition N/A
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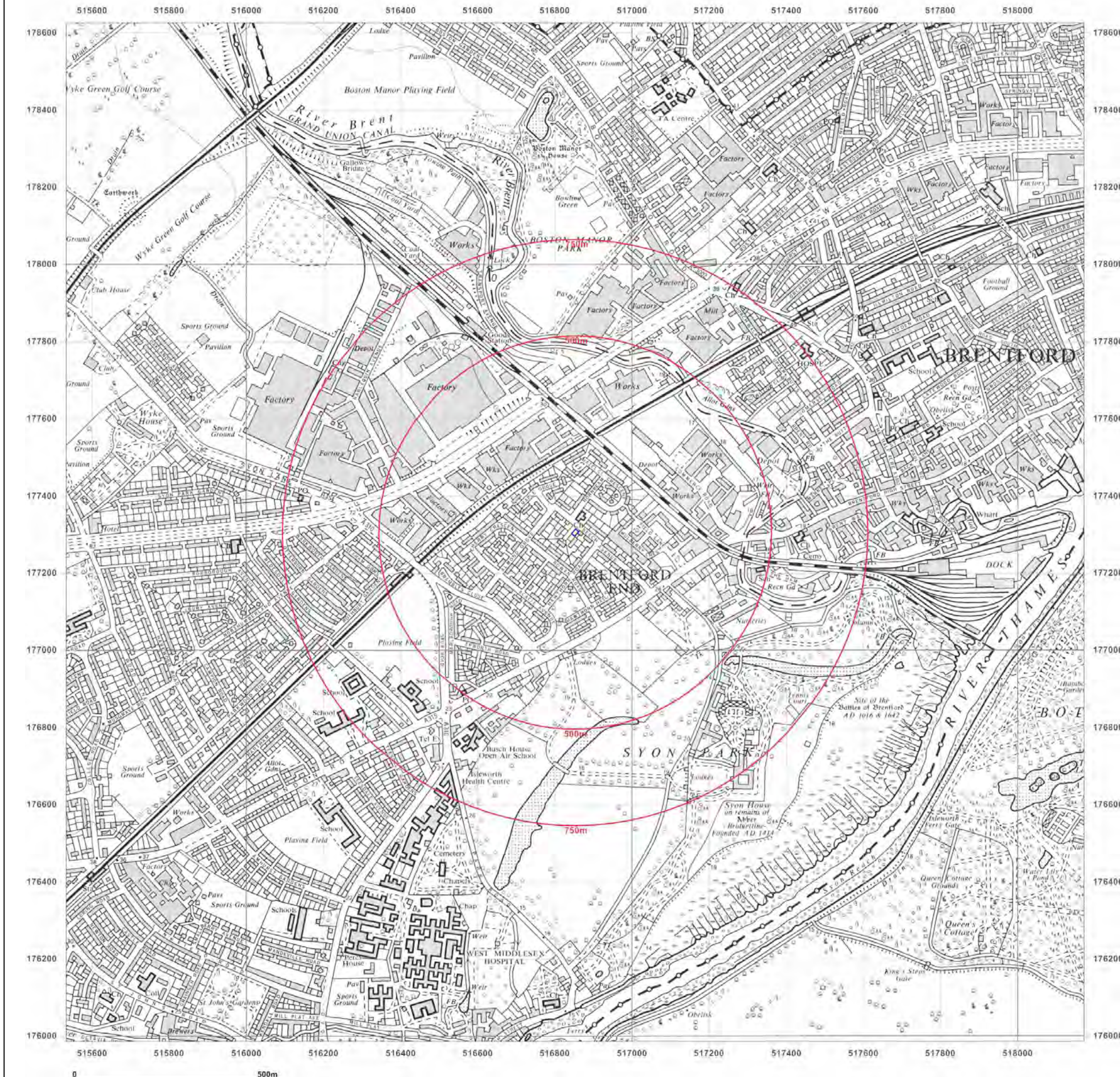


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Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1974

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1973
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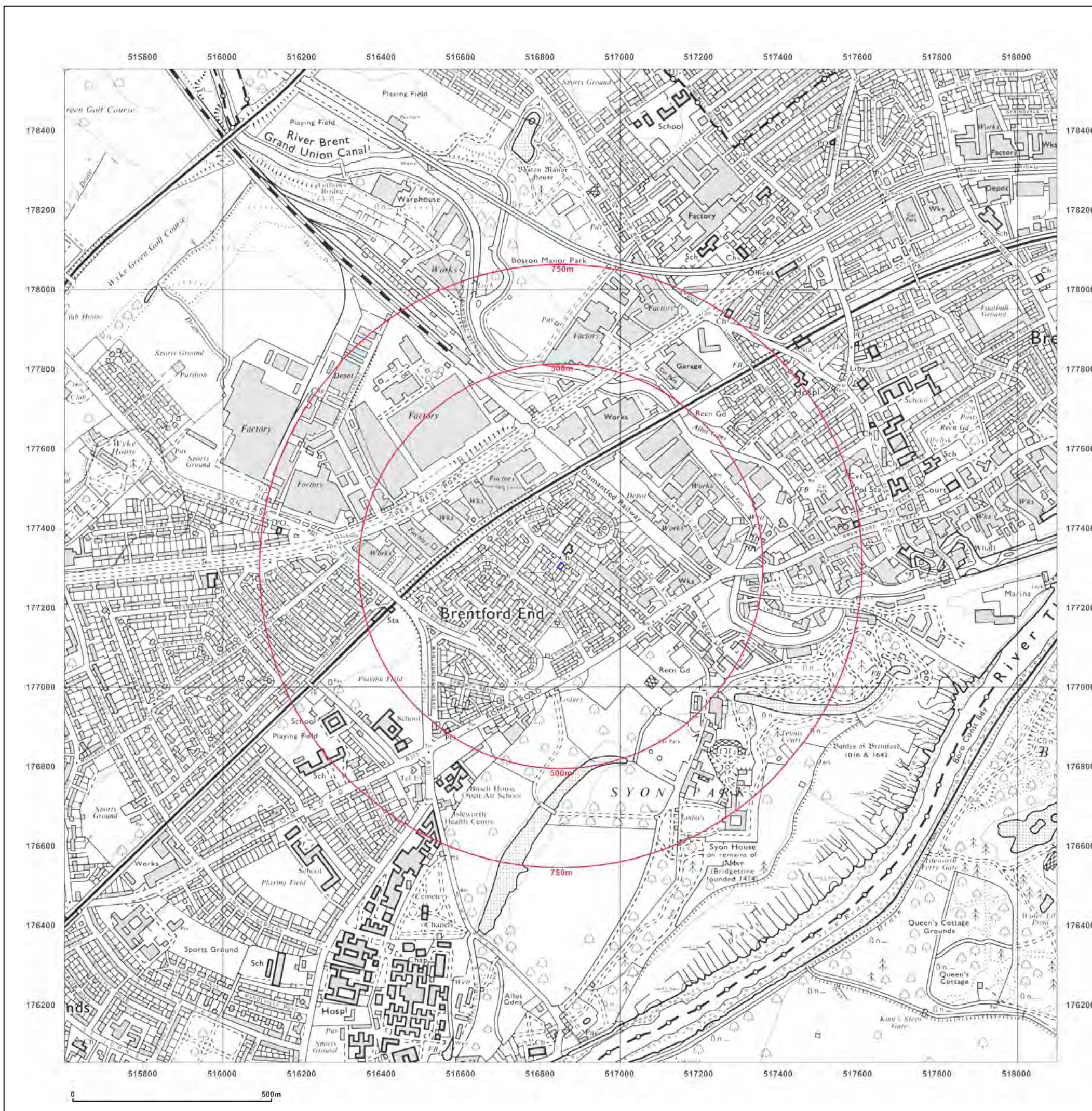


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Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 1987

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1982
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

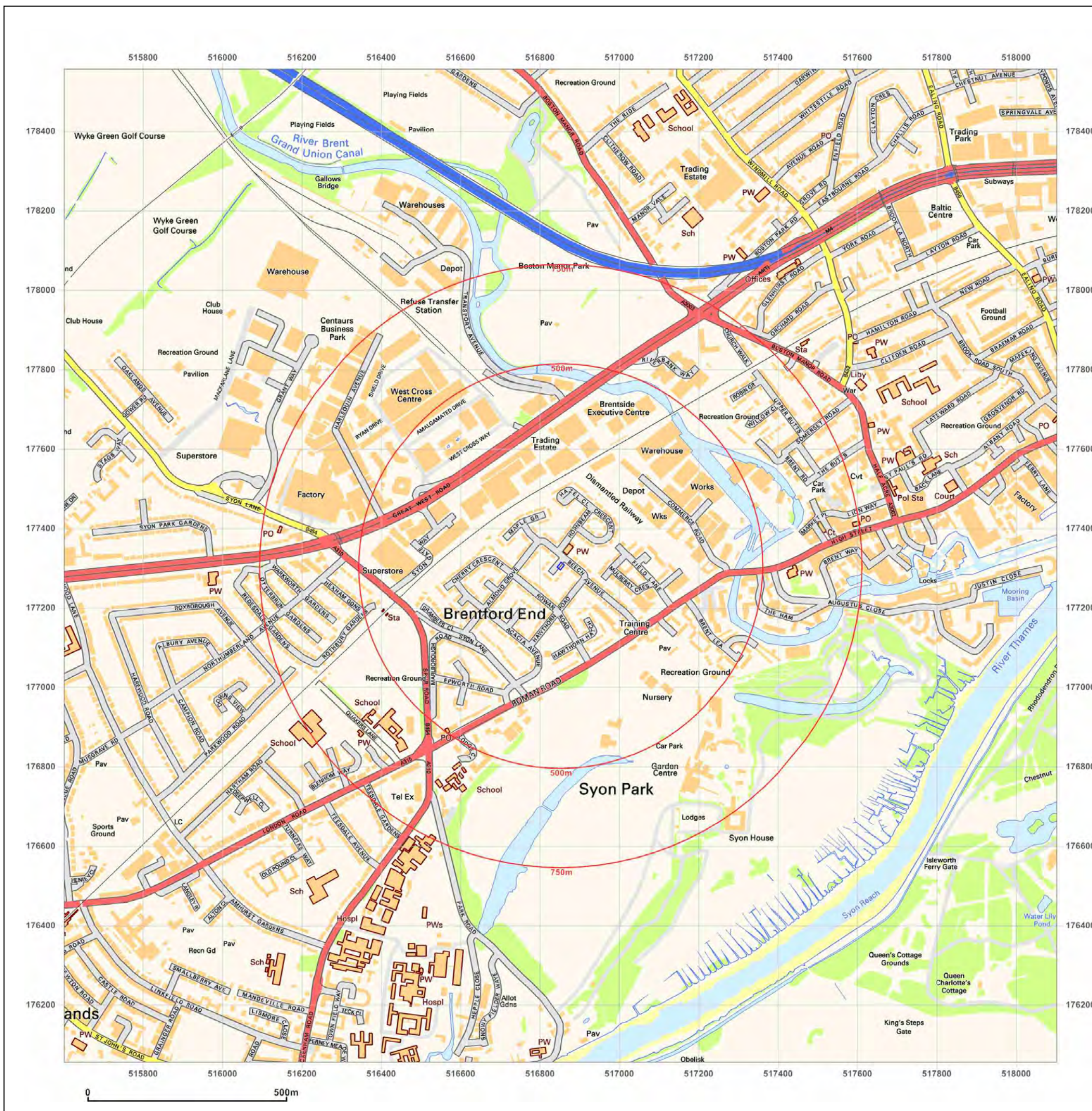


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Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

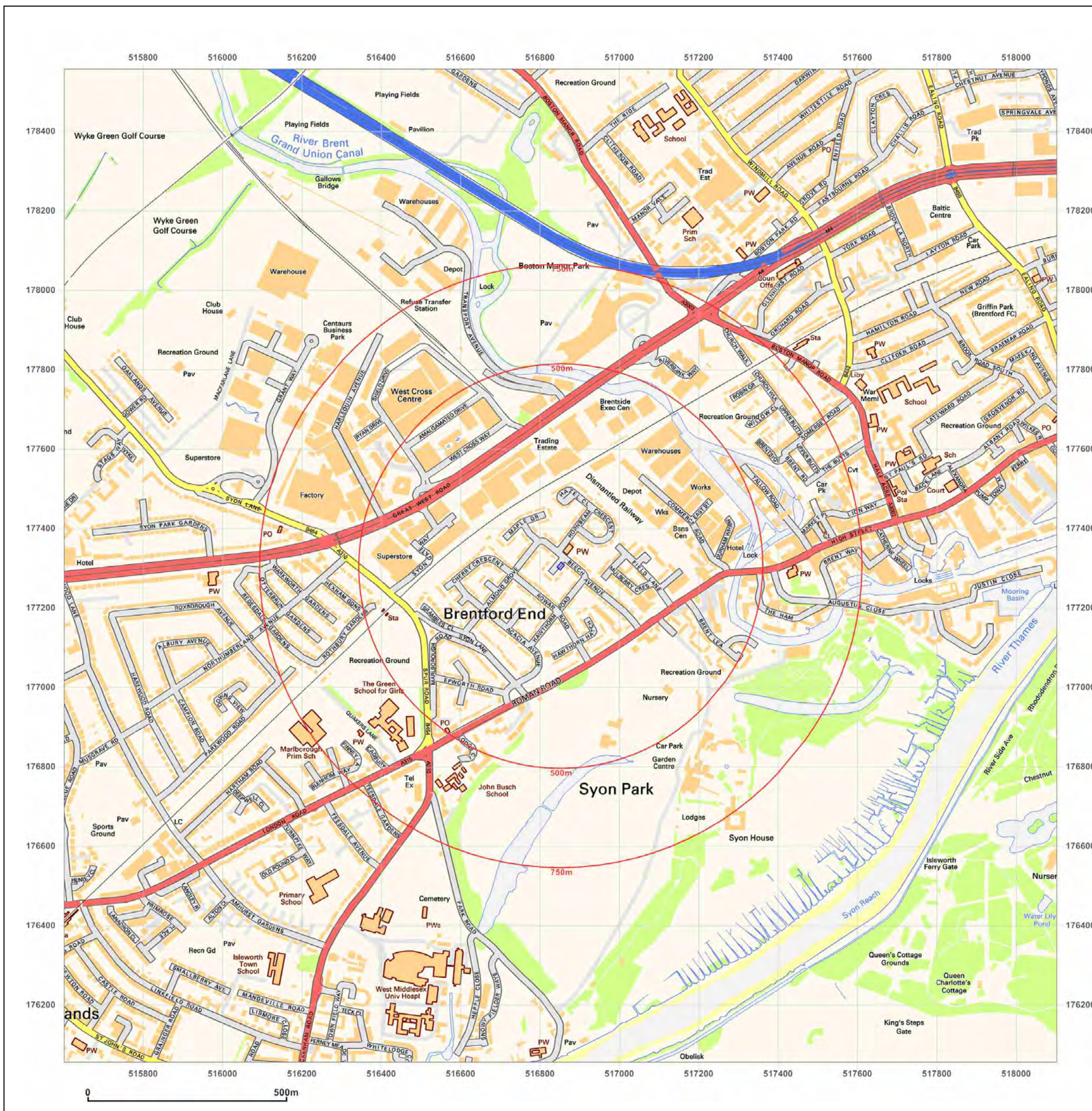


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Client Ref: 14032643
Report Ref: GS-6449722
Grid Ref: 516852, 177306

Map Name: National Grid

Map date: 2019

Scale: 1:10,000

Printed at: 1:10,000

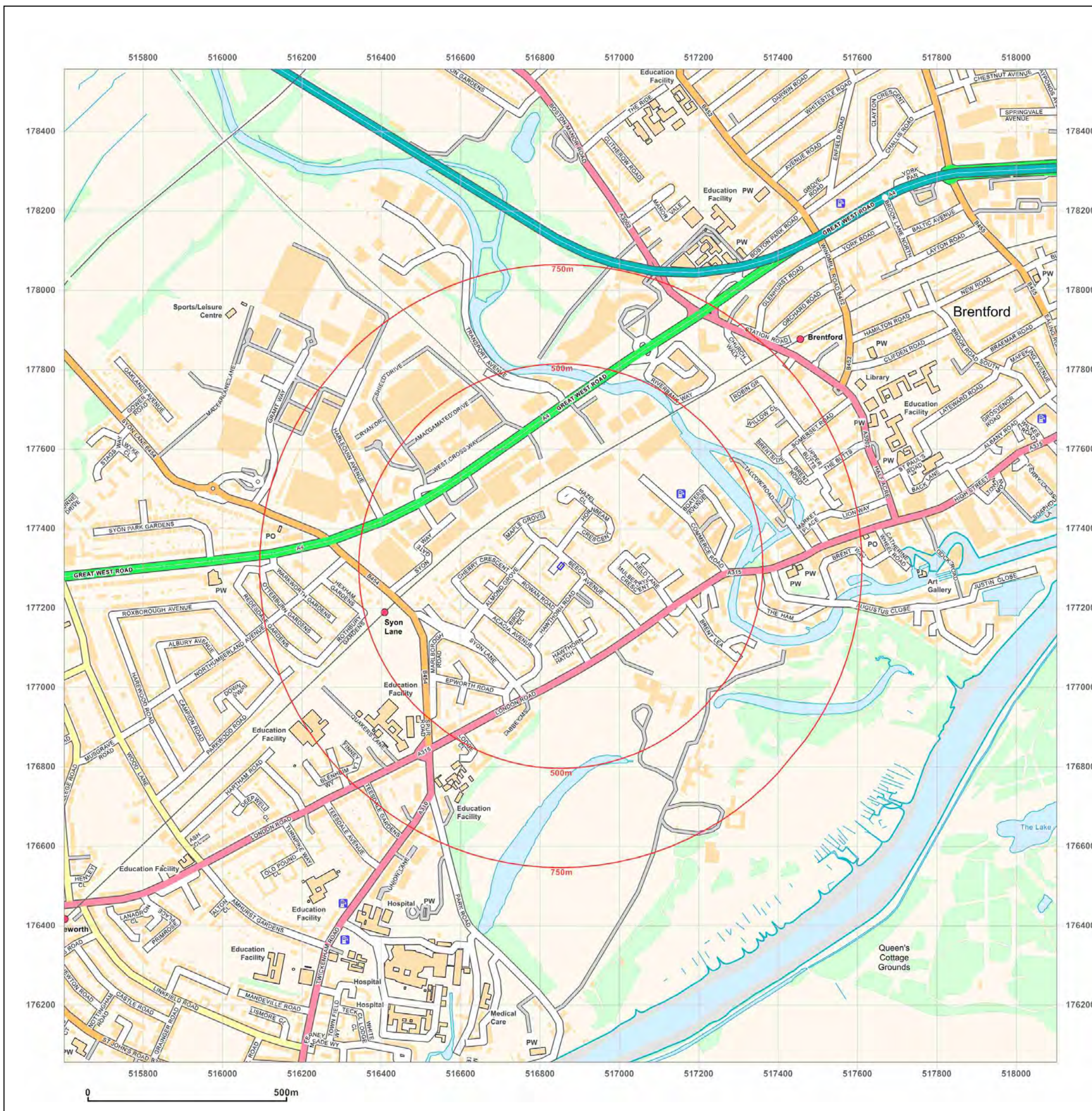


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APPENDIX B

Groundsure Data Sheets and Site Sensitivity Maps



Arcadis Consulting UK Ltd

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

Groundsure
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GS-6449720

Your Reference: 14032643

Report Date 8 Nov 2019

Report Delivery Method: Email - pdf

Enviro Insight

Address: GARAGES ADJACENT 48, BEECH AVENUE, BRENTFORD, TW8 8NH

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Managing Director
Groundsure Limited

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Address: GARAGES ADJACENT 48, BEECH AVENUE, BRENTFORD, TW8 8NH

Date: 8 Nov 2019

Reference: GS-6449720

Client: Arcadis Consulting UK Ltd

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 20-Apr-2015

Grid Reference: 516854,177304

Site Size: 0.0168ha

Report Reference: GS-6449720

Client Reference: 14032643

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main 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: 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	51	81
1.2 Additional Information – Historical Tank Database	0	0	7	22
1.3 Additional Information – Historical Energy Features Database	0	0	10	37
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	24	48
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	1
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	12
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	3
2.3.2 National Incidents Recording System, List 1	0	0	0	1
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	3	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	2	8	3

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	7	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
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	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	0	3	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	Yes	No	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	36	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 Environment 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	2
8.8 Records of World Heritage Sites	0	0	1	0	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.

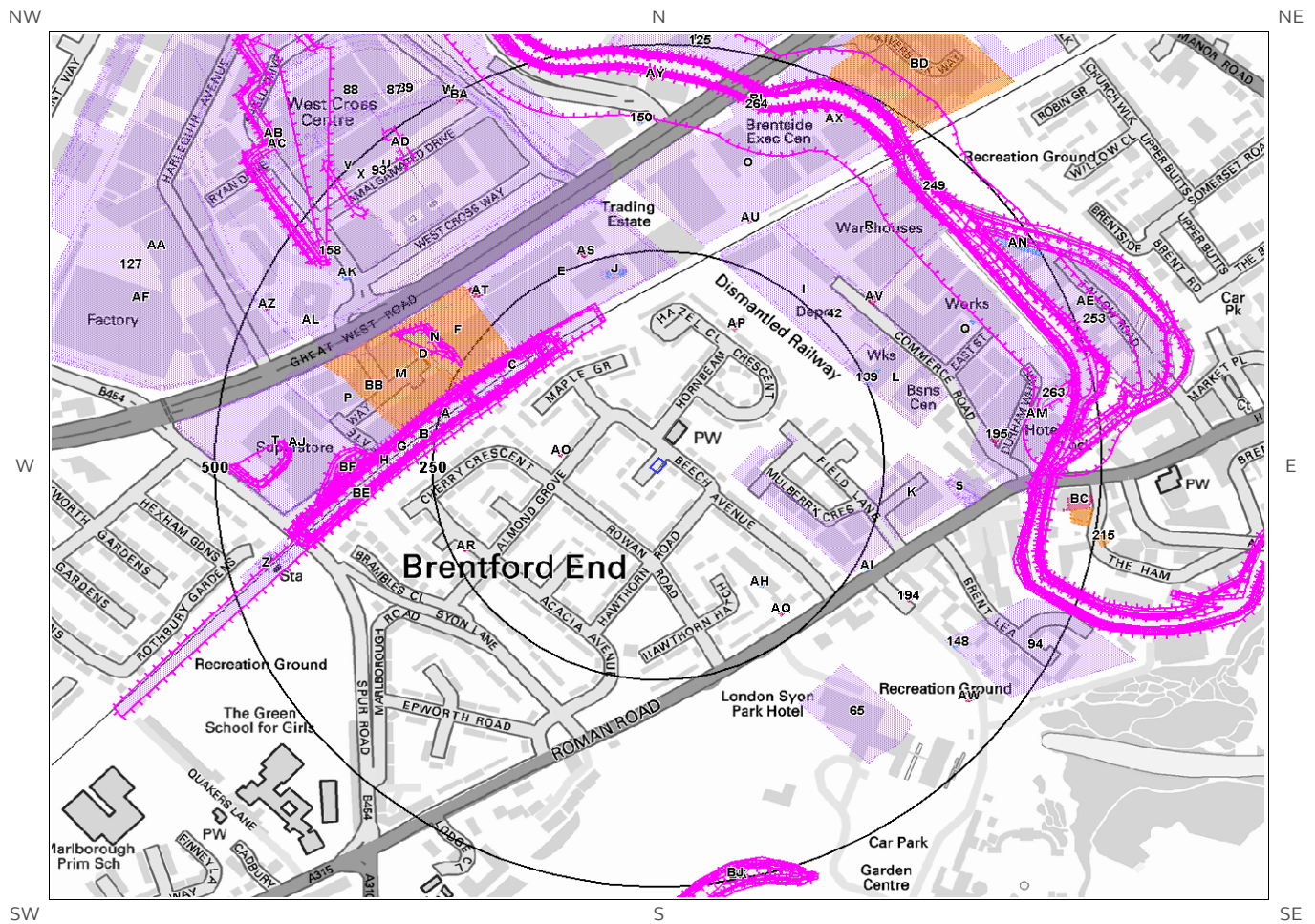
Note: Maps

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).

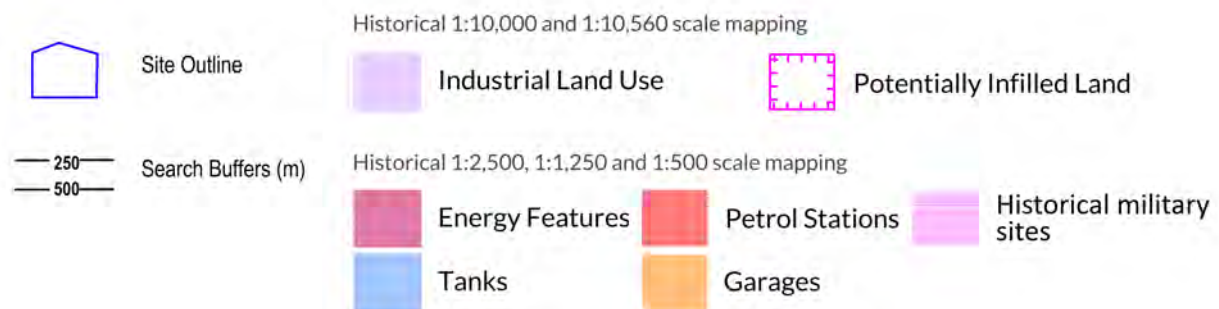
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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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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: 132

ID	Distance [m]	Direction	Use	Date
1	76	E	Unspecified Commercial/Industrial	1974
2BE	166	NW	Cuttings	1865
3A	171	NW	Cuttings	1974
4A	171	NW	Cuttings	1966
5C	172	NW	Cuttings	1933
6A	172	NW	Cuttings	1987
7B	173	NW	Cuttings	1912
8B	173	NW	Cuttings	1894
9C	174	NW	Cuttings	1894
10B	175	NW	Cuttings	1896
11C	176	NW	Cuttings	1912
12B	177	NW	Cuttings	1898
13C	179	NW	Cuttings	1913
14C	180	NW	Cuttings	1938
15B	180	NW	Cuttings	1935
16B	182	NW	Cuttings	1948
17B	182	NW	Cuttings	1948
18E	194	NW	Unspecified Commercial/Industrial	1961
19D	195	NW	Unspecified Commercial/Industrial	1935
20D	195	NW	Unspecified Commercial/Industrial	1948
21D	195	NW	Unspecified Commercial/Industrial	1948
22E	195	NW	Unspecified Factory	1974
23E	195	NW	Unspecified Factory	1966
24G	195	NW	Cuttings	1961
25F	210	NW	Unspecified Works	1987
26F	210	NW	Unspecified Works	1974
27F	210	NW	Unspecified Works	1966
28P	211	NW	Unspecified Commercial/Industrial	1961
29G	217	W	Cuttings	1938
30H	217	W	Cuttings	1912

31H	217	W	Cuttings	1894
32H	217	W	Cuttings	1933
33H	218	W	Cuttings	1913
34J	223	N	Unspecified Tanks	1961
35I	224	NE	Unspecified Depot	1966
36I	224	NE	Unspecified Depot	1974
37J	226	N	Unspecified Tanks	1938
38J	226	N	Tanks	1948
39J	226	N	Tanks	1948
40J	226	N	Unspecified Tanks	1935
41J	229	N	Unspecified Tanks	1938
42	229	NE	Unspecified Works	1987
43K	229	E	Unspecified Commercial/Industrial	1974
44K	229	E	Unspecified Works	1987
45L	235	NE	Unspecified Works	1974
46L	235	NE	Unspecified Works	1966
47BB	236	NW	Unspecified Commercial/Industrial	1987
48M	244	NW	Unspecified Works	1974
49M	244	NW	Unspecified Works	1966
50N	249	NW	Unspecified Ground Workings	1935
51N	249	NW	Unspecified Ground Workings	1935
52N	259	NW	Unspecified Heap	1961
53N	262	NW	Unspecified Ground Workings	1948
54N	262	NW	Unspecified Ground Workings	1948
55O	263	N	Unspecified Works	1966
56O	263	N	Unspecified Works	1974
57U	288	NW	Folding Boats Manufactory	1938
58P	289	W	Unspecified Factory	1974
59P	289	W	Unspecified Factory	1966
60R	301	NE	Unspecified Commercial/Industrial	1974
61Q	304	NE	Unspecified Works	1987
62Q	304	NE	Unspecified Works	1974
63Q	304	NE	Unspecified Works	1966
64R	305	NE	Unspecified Depot	1987
65	314	SE	Nursery	1987
66S	321	E	Railway Station	1894
67S	321	E	Railway Station	1933
68S	321	E	Railway Station	1948
69S	321	E	Railway Station	1948
70S	322	E	Railway Station	1961

71S	322	E	Railway Station	1898
72S	322	E	Railway Station	1938
73S	323	E	Railway Station	1913
74S	324	E	Railway Station	1935
75S	324	E	Railway Station	1912
76T	328	W	Unspecified Works	1966
77T	328	W	Unspecified Works	1987
78T	328	W	Unspecified Works	1974
79S	329	E	Railway Station	1894
80U	339	NW	Rubber Tyres Manufactory	1935
81V	339	NW	Unspecified Factory	1961
82V	340	NW	Rubber Tyres Manufactory	1948
83V	340	NW	Factory	1948
84V	344	NW	Unspecified Factory	1966
85X	344	NW	Unspecified Factory	1974
86AM	350	E	Unspecified Commercial/Industrial	1961
87	357	N	Railway Sidings	1961
88	357	N	Railway Sidings	1938
89	363	N	Railway Sidings	1935
90W	368	N	Railway Sidings	1948
91W	368	N	Railway Sidings	1948
92X	382	NW	Unspecified Factory	1961
93	382	NW	Rubber Tyres Manufactory	1938
94	385	SE	Nurseries	1966
95Y	412	W	Unspecified Ground Workings	1935
96Y	412	W	Unspecified Ground Workings	1935
97Y	412	W	Unspecified Heap	1938
98Y	415	W	Unspecified Ground Workings	1948
99Y	415	W	Unspecified Ground Workings	1948
100Z	422	W	Railway Station	1974
101Z	422	W	Railway Station	1987
102Z	422	W	Railway Building	1966
103Z	425	W	Railway Station	1948
104Z	425	W	Railway Station	1948
105Z	425	W	Railway Station	1938
106Z	427	W	Railway Building	1935
107Z	427	W	Railway Station	1961
108AA	434	W	Folding Boats Manufactory	1948
109AA	434	W	Factory	1948
110AA	435	W	Unspecified	1961

Commercial/Industrial				
111Z	445	W	Railway Station	1935
112AB	446	NW	Unspecified Ground Workings	1935
113AB	446	NW	Unspecified Ground Workings	1935
114X	446	NW	Unspecified Ground Workings	1948
115X	446	NW	Unspecified Ground Workings	1948
116AB	448	NW	Unspecified Ground Workings	1938
117AC	455	NW	Unspecified Pit	1961
118AC	455	NW	Unspecified Ground Workings	1948
119AC	455	NW	Unspecified Ground Workings	1948
120AD	458	NW	Unspecified Ground Workings	1948
121AD	458	NW	Unspecified Ground Workings	1948
122AE	462	NE	Unspecified Depot	1966
123AE	469	NE	Unspecified Commercial/Industrial	1987
124AE	469	NE	Unspecified Commercial/Industrial	1974
125	471	N	Unspecified Commercial/Industrial	1961
126BD	471	N	Unspecified Factory	1966
127	475	W	Unspecified Factory	1987
128AF	475	W	Unspecified Factory	1974
129AF	475	W	Unspecified Factory	1966
130AG	480	N	Unspecified Factory	1987
131AG	487	N	Unspecified Factory	1974
132AG	487	N	Unspecified Factory	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:

29

ID	Distance (m)	Direction	Use	Date
133AH	177	SE	Unspecified Tank	1915
134AH	177	SE	Unspecified Tank	1865
135AH	177	SE	Unspecified Tank	1935
136AH	179	SE	Unspecified Tank	1896

137J	223	N	Tanks	1935
138J	226	N	Tanks	1935
139	249	NE	Tanks	1966
140L	260	NE	Tanks	1966
141AI	261	SE	Unspecified Tank	1865
142AI	261	SE	Unspecified Tank	1915
143AI	261	SE	Unspecified Tank	1935
144AI	265	SE	Unspecified Tank	1896
145Q	389	NE	Unspecified Tank	1988
146Q	390	NE	Unspecified Tank	1966
147Q	390	NE	Unspecified Tank	1996
148	397	SE	Unspecified Tank	1935
149AJ	403	W	Tanks	1984
150	405	N	Unspecified Tank	1935
151AJ	407	W	Unspecified Tank	1984
152AK	414	NW	Unspecified Tank	1991
153AK	414	NW	Unspecified Tank	1995
154AL	426	NW	Unspecified Tank	1995
155AL	426	NW	Unspecified Tank	1995
156AL	426	NW	Unspecified Tank	1992
157AM	446	E	Unspecified Tank	1896
158	446	NW	Unspecified Tank	1995
159AX	451	NE	Unspecified Tank	1970
160AN	467	NE	Oil Tanks	1935
161AN	478	NE	Oil Tanks	1915

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:

47

ID	Distance (m)	Direction	Use	Date
162AO	101	W	Electricity Substation	1991
163AO	101	W	Electricity Substation	1991
164AP	176	NE	Electricity Substation	1991
165AP	176	NE	Electricity Substation	1991
166AQ	216	SE	Electricity Substation	1991
167AQ	216	SE	Electricity Substation	1991
168AQ	216	SE	Electricity Substation	1984
169AQ	216	SE	Electricity Substation	1984
170AR	231	SW	Electricity Substation	1991
171AR	231	SW	Electricity Substation	1991

172AS	256	N	Electricity Substation	1988
173AS	258	N	Electricity Substation	1994
174AS	258	N	Electricity Substation	1983
175AS	258	N	Electricity Substation	1991
176AT	283	NW	Electricity Substation	1988
177AT	283	NW	Electricity Substation	1994
178AT	284	NW	Electricity Substation	1983
179AT	284	NW	Electricity Substation	1991
180AT	284	NW	Electricity Substation	1988
181D	287	NW	Electricity Substation	1991
182D	287	NW	Electricity Substation	1984
183D	287	NW	Electricity Substation	1991
184D	288	NW	Electricity Substation	1984
185AT	288	NW	Electricity Substation	1991
186AT	289	NW	Electricity Substation	1994
187AU	302	N	Electricity Substation	1994
188AU	302	N	Electricity Substation	1991
189AU	302	N	Electricity Substation	1988
190AV	304	NE	Electricity Substation	1970
191AV	304	NE	Electricity Substation	1989
192AV	304	NE	Electricity Substation	1995
193AV	304	NE	Electricity Substation	1991
194	320	SE	Electricity Substation	1996
195	374	E	Electricity Substation	1996
196AW	446	SE	Electricity Substation	1988
197AW	447	SE	Electricity Substation	1996
198AX	457	NE	Electricity Substation	1970
199AY	457	N	Electricity Substation	1988
200AY	458	N	Electricity Substation	1983
201BC	458	E	Electricity Substation	1996
202AZ	478	NW	Electricity Substation	1992
203AZ	478	NW	Electricity Substation	1995
204AZ	478	NW	Electricity Substation	1995
205BA	487	NW	Electricity Substation	1988
206BA	488	NW	Electricity Substation	1991
207BA	488	NW	Electricity Substation	1983
208BA	488	NW	Electricity Substation	1994

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
209F	209	NW	Motor Car Service Station	1935
210BB	243	NW	Motor Car Service Station	1935
211BC	468	E	Garage	1988
212BC	469	E	Garage	1996
213BC	469	E	Garage	1966
214BD	488	NE	Garage	1970
215	500	E	Garage	1988

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: 72

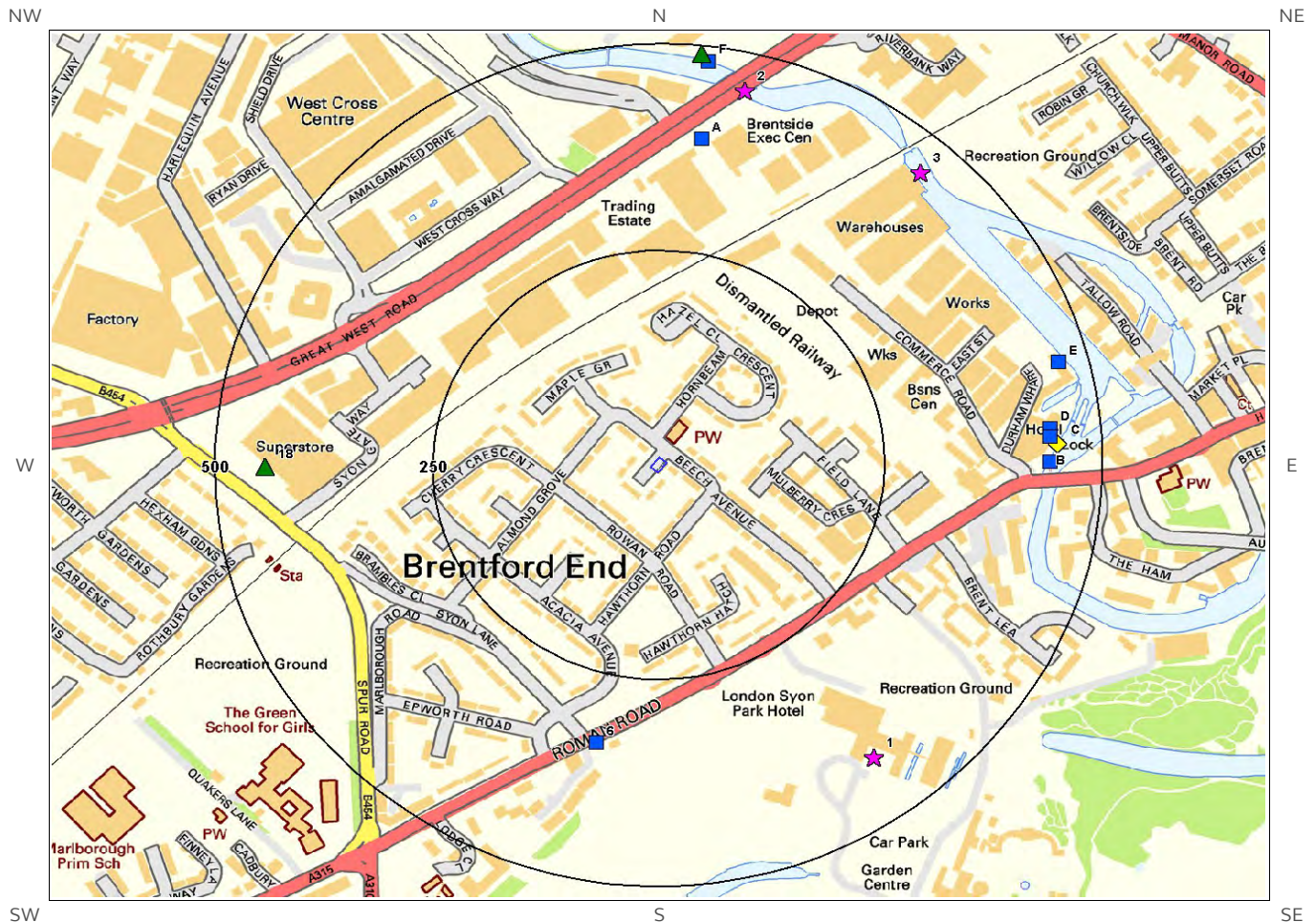
The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
216BE	166	NW	Cuttings	1865
217A	171	NW	Cuttings	1966
218A	171	NW	Cuttings	1974
219C	172	NW	Cuttings	1933
220A	172	NW	Cuttings	1987
221B	173	NW	Cuttings	1912
222B	173	NW	Cuttings	1894
223C	174	NW	Cuttings	1894

224G	175	NW	Cuttings	1896
225C	176	NW	Cuttings	1912
226G	177	NW	Cuttings	1898
227C	179	NW	Cuttings	1913
228C	180	NW	Cuttings	1938
229G	180	NW	Cuttings	1935
230G	182	NW	Cuttings	1948
231G	182	NW	Cuttings	1948
232G	195	NW	Cuttings	1961
233G	217	W	Cuttings	1938
234G	217	W	Cuttings	1912
235H	217	W	Cuttings	1933
236H	217	W	Cuttings	1894
237G	218	W	Cuttings	1913
238N	249	NW	Unspecified Ground Workings	1935
239N	249	NW	Unspecified Ground Workings	1935
240N	259	NW	Unspecified Heap	1961
241N	262	NW	Unspecified Ground Workings	1948
242N	262	NW	Unspecified Ground Workings	1948
243BF	316	W	Pond	1894
244BF	317	W	Pond	1865
245BF	325	W	Pond	1894
246BF	326	W	Pond	1898
247BF	351	W	Pond	1935
248BF	351	W	Pond	1938
249	383	NE	Canal	1865
250Y	412	W	Unspecified Ground Workings	1935
251Y	412	W	Unspecified Ground Workings	1935
252Y	412	W	Unspecified Heap	1938
253	414	E	Canal	1912
254Y	415	W	Unspecified Ground Workings	1948
255Y	415	W	Unspecified Ground Workings	1948
256AX	416	E	Canal	1912
257BG	417	E	Canal	1913
258	419	E	Canal	1938
259BH	419	E	Canal	1935
260BG	419	E	Canal	1894
261BH	420	E	Canal	1933
262BH	426	E	Canal	1894
263	429	E	Pond	1894

264	431	NE	Canal	1898
265BI	434	NE	Canal	1948
266BI	434	NE	Canal	1948
267AB	446	NW	Unspecified Ground Workings	1935
268AB	446	NW	Unspecified Ground Workings	1935
269X	446	NW	Unspecified Ground Workings	1948
270X	446	NW	Unspecified Ground Workings	1948
271AB	448	NW	Unspecified Ground Workings	1938
272AC	455	NW	Unspecified Pit	1961
273AC	455	NW	Unspecified Ground Workings	1948
274AC	455	NW	Unspecified Ground Workings	1948
275AD	458	NW	Unspecified Ground Workings	1948
276AD	458	NW	Unspecified Ground Workings	1948
277BJ	478	S	Water Body	1933
278BJ	478	S	Water Body	1894
279BK	480	S	Water Body	1966
280BK	480	S	Ponds	1987
281BK	480	S	Water Body	1974
282BK	482	S	Water Body	1961
283BK	485	S	Water Body	1912
284BK	485	S	Water Body	1938
285BK	486	S	Pond	1898
286BK	486	S	Water Body	1912
287BK	488	S	Ponds	1865

2. Environmental Permits, Incidents and Registers Map



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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:

1

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
5C	448	E	517308	Name: Outlet C Brentford Lock	Authorised Substances: Iron, Benzene

ID	Distance (m)	Direction	NGR	Details
			177331	Development Dw T/e Status: Active Receiving Water: Thames EstuaryBrent

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
18	443	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
19F	488	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
20F	488	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:

12

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

ID	Distance (m)	Direction	NGR	Details
6	334	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 Receiving Water: GRAVEL STRATA Status: TRANSFERRED FROM WRA 1963 Issue date: 25/01/1985 Effective Date: 25-Jan-1985 Revocation Date:

ID	Distance (m)	Direction	NGR	Details	
Permit Version: 1					
7A	388	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
8A	388	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
9B	439	E	517300 177310	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0095 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
10B	439	E	517300 177310	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0095 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
11C	441	E	517300 177340	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0093 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
12C	441	E	517300 177340	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0093 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
13D	441	E	517300 177350	Address: NEW DEV AT BRENTFORD LOCK -OUTLET C, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0098 Permit Version: 1	Receiving Water: RIVER BRENT G.U.C. Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/08/2000 Effective Date: 06-Jul-2000 Revocation Date: 06/07/2000
14D	441	E	517300 177350	Address: NEW DEV AT BRENTFORD LOCK -OUTLET C, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0098 Permit Version: 1	Receiving Water: RIVER BRENT G.U.C. Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/08/2000 Effective Date: 06-Jul-2000 Revocation Date: 06/07/2000
15E	466	E	517310 177430	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0094 Permit Version: 1	Receiving Water: GRAND UNION CANAL Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005

ID	Distance (m)	Direction	NGR	Details	
16E	466	E	517310 177430	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0094 Permit Version: 1	Receiving Water: GRAND UNION CANAL Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
17F	482	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:

3

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	423	SE	517097.0 176952.0	Incident Date: 03-Feb-2002 Incident Identification: 56076.0	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor)

ID	Distance (m)	Direction	NGR	Details	
				Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Air Impact: Category 3 (Minor)
2	453	N	516949.0 177758.0	Incident Date: 06-Jul-2001 Incident Identification: 14395.0 Pollutant: Contaminated Water Pollutant Description: Urban Run-Off	Water Impact: Category 1 (Major) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	455	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:

1

The following NIRS List 1 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
4B	439	E		Incident Date: 27-Apr-2000 Incident Identification: 7609.0 Catchments Name: BRENT Water Description: RIVER STRETCH (FRESHWATER) Water Course: BRENT / G.U.C. - BRENTFOR Incident Substantiated: N/A	Priority Description: 1 Day (24 Hours) Waste Description: Not Available Water Impact: Significant Impact Land Impact: No Impact Air Impact: No Impact Action Taken: Prosecution

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



- | | | | | | |
|---|--------------------------|---|----------------------------|---|---|
|  | Site Outline |  | EA/NRW Active Landfill |  | Historic and Planned Waste Sites |
|  | EA/NRW Historic Landfill |  | EA/NRW Licensed Waste Site |  | Local Authority/Historical Mapping Landfill Records |
|  | 250 |  | BGS / DoE Survey Landfill | | |
|  | 500 | | | | |

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
4	330	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: -
5	369	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
Not shown	600	NW		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	964	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	1369	E		Site Address: Watermans Park, High Street, Brentford Waste Licence: - Licence Issue: Licence Surrendered: Licence Holder Address: -

ID	Distance (m)	Direction	NGR	Details		
				Site Reference: 8HO066 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865	
Not shown	1378	NW		Site Address: Wyke Green, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO089 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1949 Last Recorded: -	
Not shown	1400	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	

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:

3

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	356	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
2A	356	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

ID	Distance (m)	Direction	NGR	Details		
3A	357	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

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

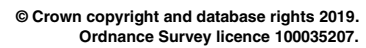
13

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		
11B	495	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: -	
12B	495	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: -	
13B	512	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: -	
14B	512	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	Issue Date: 09/09/2007 Effective Date: - Modified: 31/03/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Service Centre	

ID	Distance (m)	Direction	NGR	Details
				<p>EPR reference: EA/EPR/FP3395EE/V002 Operator: Rentokil Initial Services Ltd Waste Management licence No: 100044 Annual Tonnage: 4999.0</p> <p>Correspondence Address: -</p>
15C	517	N	516659 177795	<p>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</p> <p>Issue Date: 20/04/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Transport Avenue Transfer Station Correspondence Address: -</p>
16C	517	N	516659 177795	<p>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</p> <p>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: -</p>
Not shown	806	NW	516454 178016	<p>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</p> <p>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: -</p>
Not shown	858	NW	516496 178096	<p>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</p> <p>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: -</p>
Not shown	912	NW	516490 178152	<p>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/A001 Operator: Day Group Ltd Waste Management licence No: 103193 Annual Tonnage: 775000.0</p> <p>Issue Date: 31/05/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Brentford Aggregate Materials Recycling Facility Correspondence Address: -</p>
Not	980	NW	516323	<p>Site Address: Mayer Parry Brentford,</p> <p>Issue Date: 28/07/1998</p>

ID	Distance (m)	Direction	NGR	Details	
shown			178140	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	Effective Date: - Modified: 11/12/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Mayer Parry, Brentford Correspondence Address: -
Not shown	1043	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	1057	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	1132	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 Uses

4.1 Current Industrial Data

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

7

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	119	NE	J H Windows	516952 177383	50, Hornbeam Crescent, Brentford, Greater London, TW8 8NE	Conservatories	Consumer Products
2	120	W	Electricity Sub Station	516725 177329	Greater London, TW8	Electrical Features	Infrastructure and Facilities
3	185	NE	Electricity Sub Station	516943 177477	Greater London, TW8	Electrical Features	Infrastructure and Facilities
4	209	SE	Electricity Sub Station	516984 177135	Greater London, TW8	Electrical Features	Infrastructure and Facilities
5	229	E	Warehouse	517077 177233	Greater London, TW8	Container and Storage	Transport, Storage and Delivery
6	233	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
7	234	SW	Electricity Sub Station	516630 177205	Greater London, TW8	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

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

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

Lex Code	Description	Rock Type
LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT

5.3 Bedrock and Solid Geology

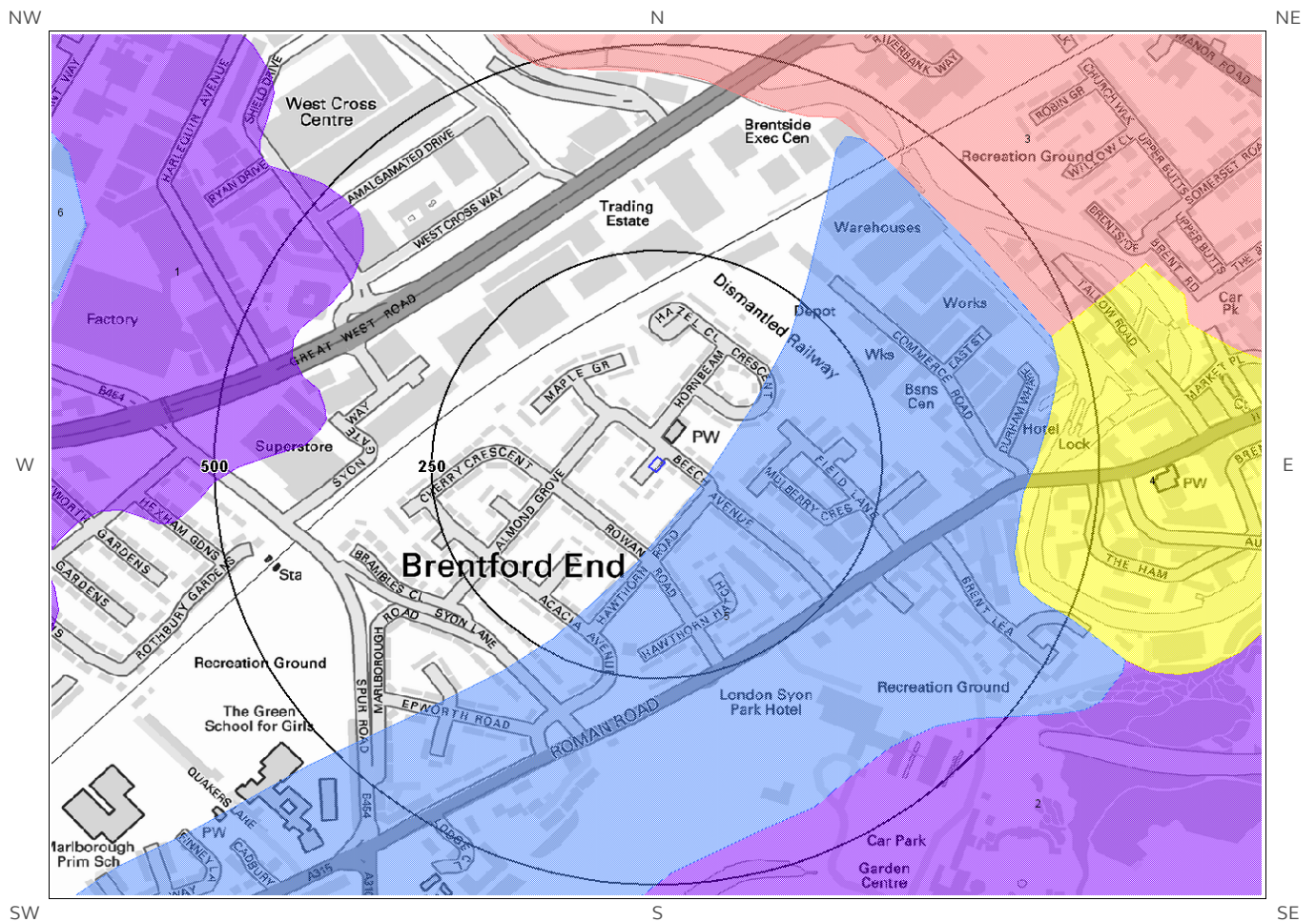
The database has been searched on site, including a 50m buffer.

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

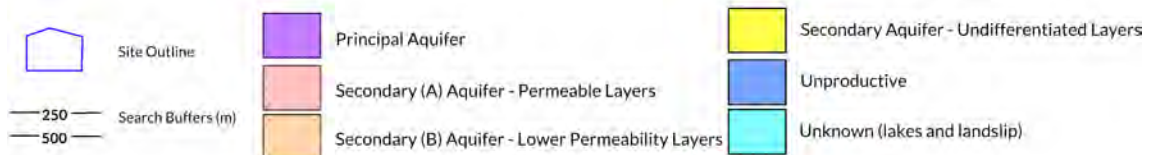
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

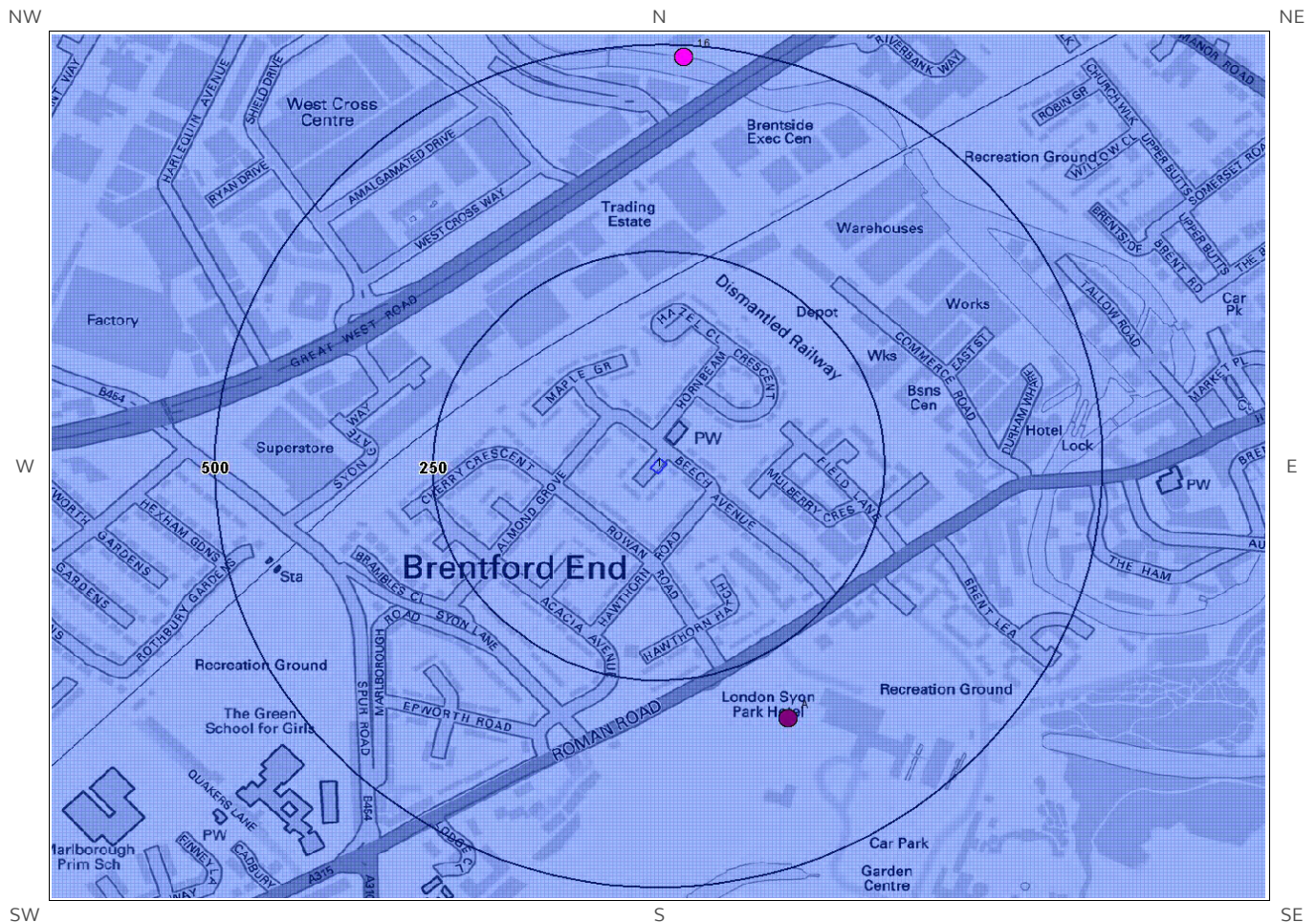
6a. Aquifer Within Superficial Geology



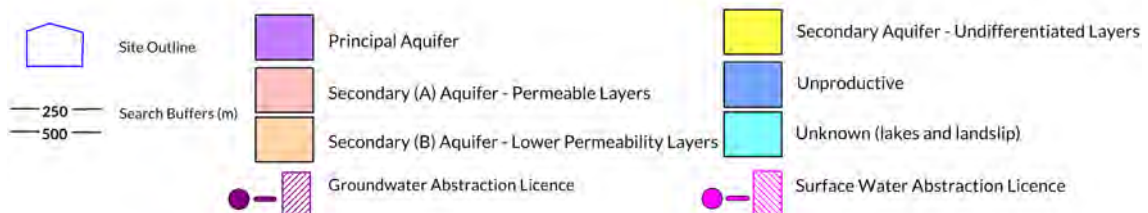
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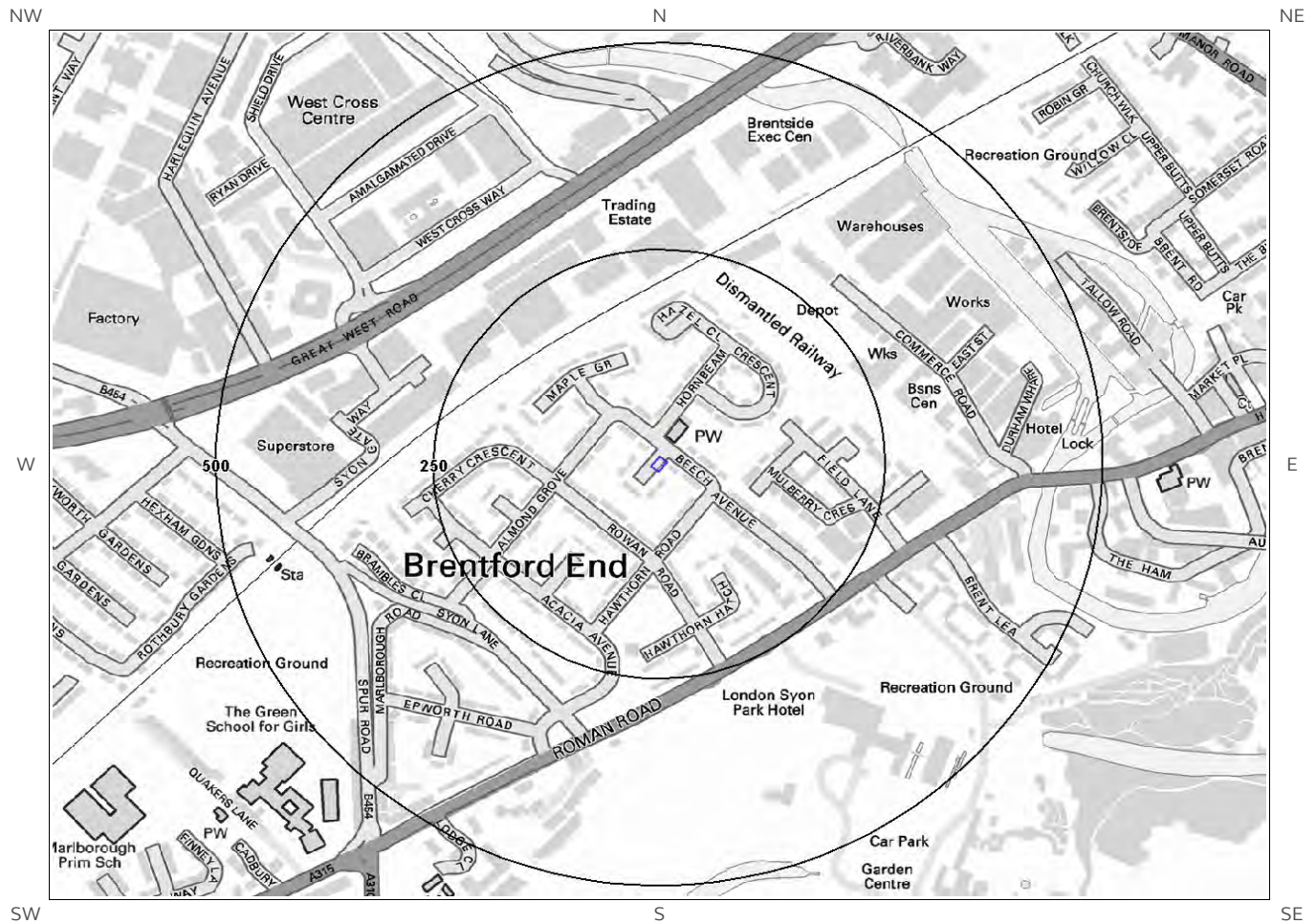
6b. Aquifer Within Bedrock Geology and Abstraction Licences



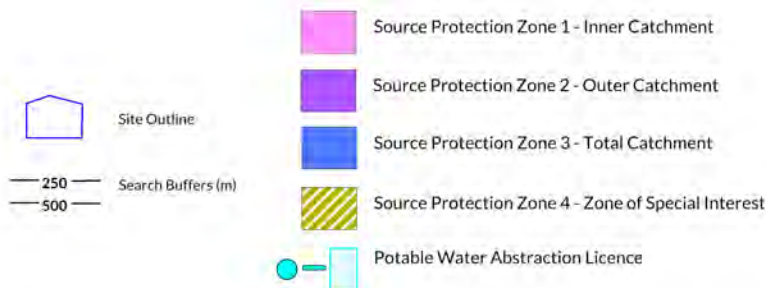
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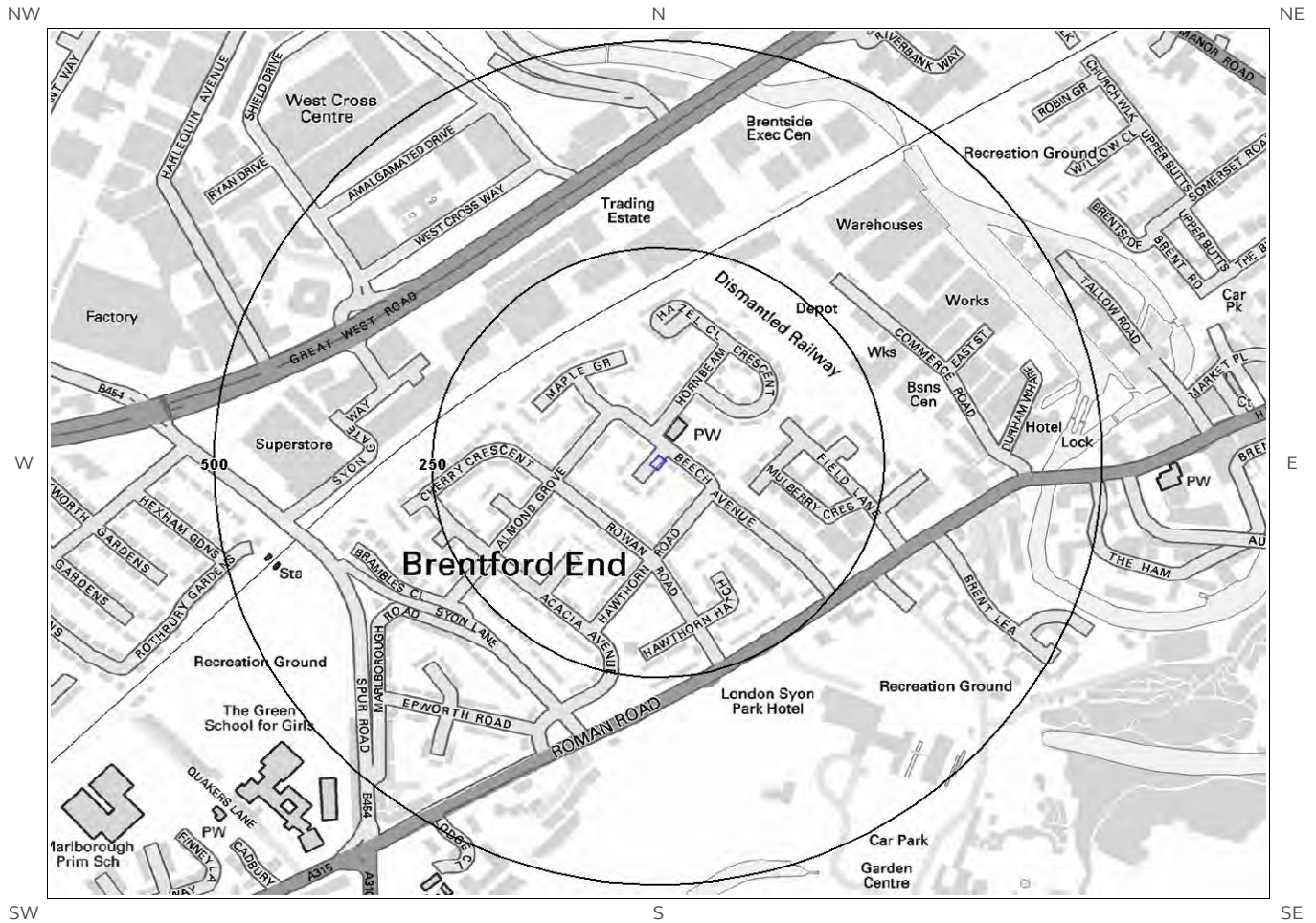
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



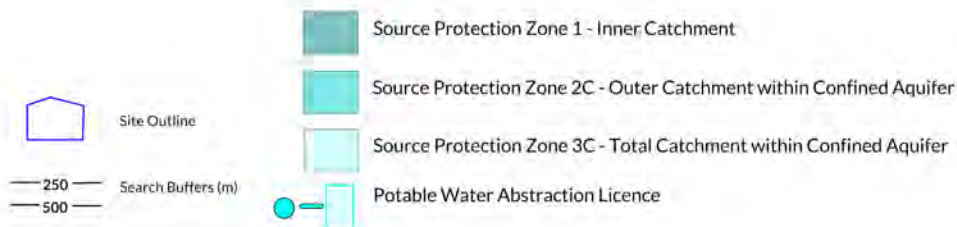
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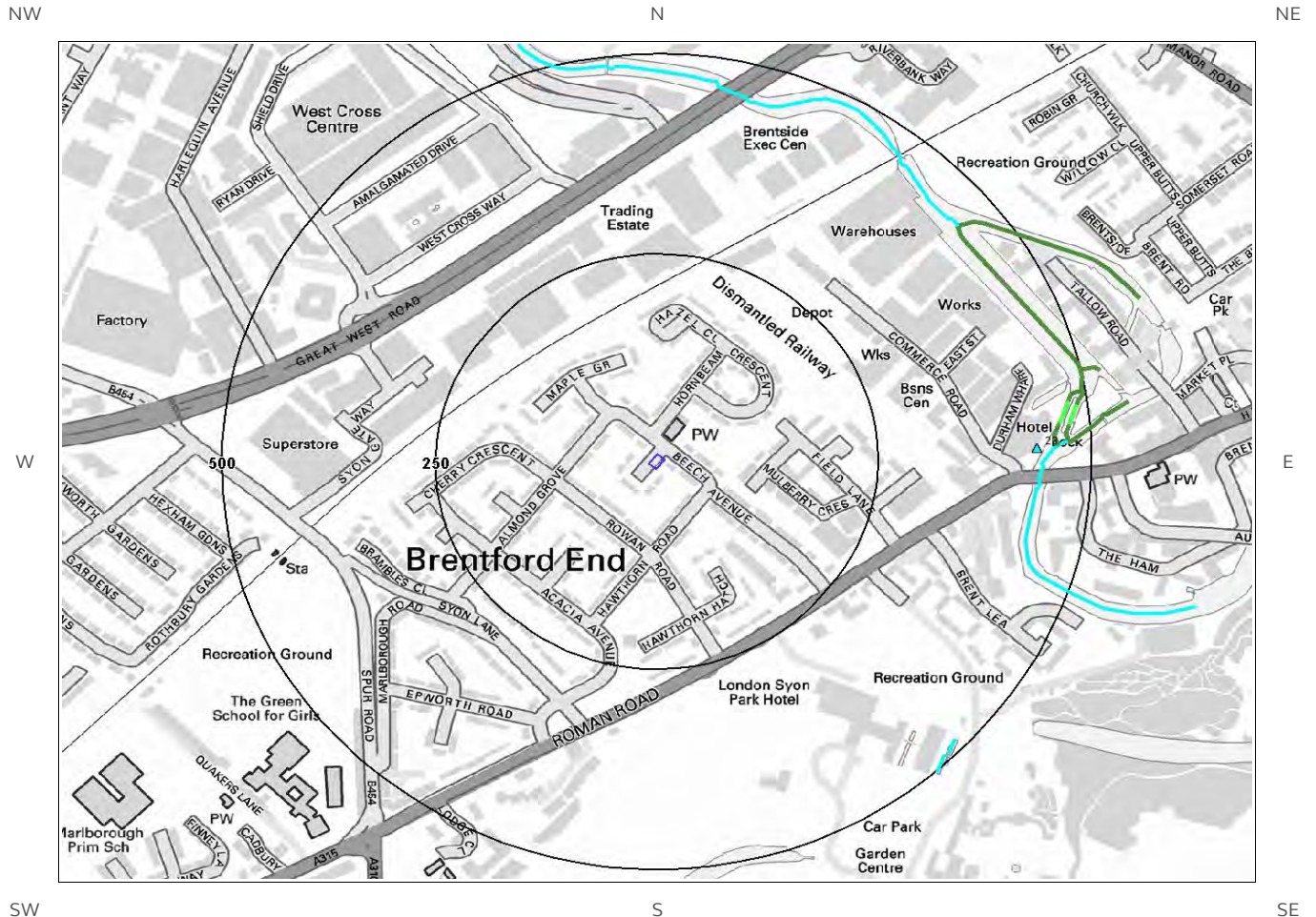
6d. Hydrogeology – Source Protection Zones within confined aquifer



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6e. Hydrology – Watercourse Network and River Quality



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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	49	SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
1	376	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
4	413	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
2	428	SE	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	437	NE	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

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	332	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 (m³): 9,092 Max Daily Volume (m³): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
3A	332	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 (m³): 9,092 Max Daily Volume (m³): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
Not shown	646	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 (m³): 9,092 Max Daily Volume (m³): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
Not shown	646	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 (m³): 9,092 Max Daily Volume (m³): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
Not shown	1662	S	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 (m³): 43,000 Max Daily Volume (m³): 480 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/03/1996 Version End Date:
Not shown	1662	S	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 (m³): 43,000 Max Daily Volume (m³): 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	1705	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 (m³): 43,000 Max Daily Volume (m³): 480 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/03/1996 Version End Date:
Not shown	1819	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 (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:
Not shown	1819	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 (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:
Not shown	1825	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 (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:
Not shown	1825	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 (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:
Not shown	1842	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 (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:
Not shown	1842	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 (m³): 124,300 Max Daily Volume (m³): 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	1900	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 (m³): 15,911 Max Daily Volume (m³): 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	486	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 (m³): 876,000 Max Daily Volume (m³): 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	1184	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 (m³): 20,000 Max Daily Volume (m³): 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	1184	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 (m³): 20,000 Max Daily Volume (m³): 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	1190	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 (m³): 30,000 Max Daily Volume (m³): 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	1190	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 (m³): 30,000 Max Daily Volume (m³): 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
324	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.
400	E	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.
403	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	1260	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	1260	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	1351	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 (GQAHl). 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):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
23	437	E	517297 177321	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: Sample Point NGR	C	C	C	D	D
Not shown	1260	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	1351	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	434 E	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): 16.9
Not shown	434 E	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): 16.9
2	445 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	445	Grand Union Canal	Canal. A manmade	Catchment Area: Cam Ely Ouse and South Level

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
shown	NE		watercourse for inland navigation.	Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
3	447 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	447 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	450 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	450 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
5	452 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	452 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
6	457 E	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): 10.9
Not shown	457 E	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): 10.9
7	461 E	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): 10.9
8	461 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	461 E	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): 10.9
Not shown	461 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)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): 15.8
9	464 E	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	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): 9.9
Not shown	464 E	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	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): 9.9
10	471 E	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): 10.9
Not shown	471 E	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): 10.9
11	473 E	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): 11.3
Not shown	473 E	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): 11.3
12	475 E	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	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): 13.9
Not shown	475 E	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	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): 13.9
13	478 E	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): 14.5
Not shown	478 E	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): 14.5
14	485 SE	-	Inland river not influenced by normal tidal action.	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): 2.5
Not shown	485 SE	-	Inland river not influenced by normal tidal action.	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): 2.5

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
15	488 E	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
16	488 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 shown	488 E	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	488 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
17	491 SE	-	Inland river not influenced by normal tidal action.	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): 2.4
Not shown	491 SE	-	Inland river not influenced by normal tidal action.	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): 2.4
18	496 E	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	496 E	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
19	500 E	-	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): 8.1
Not shown	500 E	-	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): 8.1

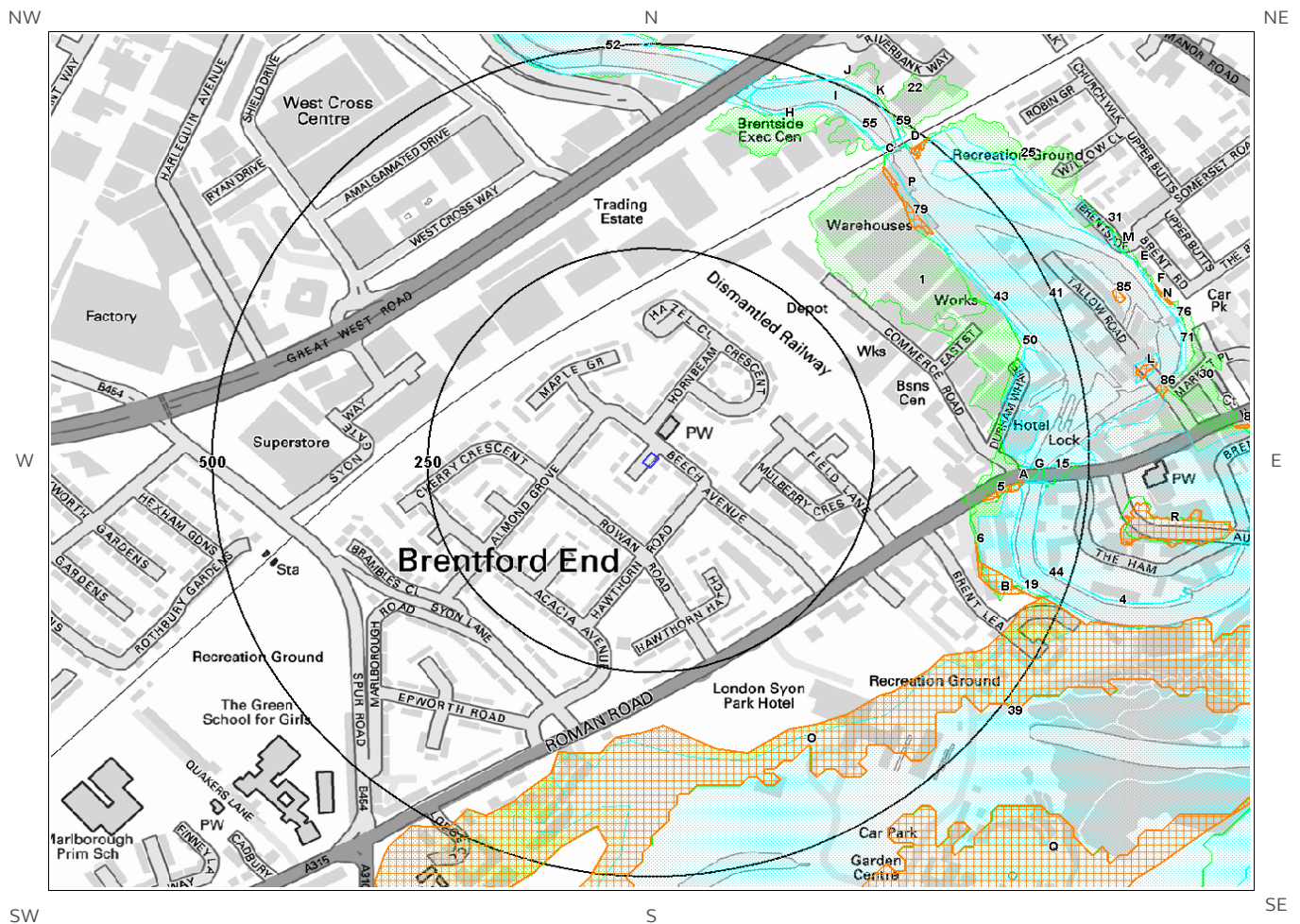
6.11 Surface Water Features

Surface water features within 250m of the study site

None identified

Database searched and no data found.

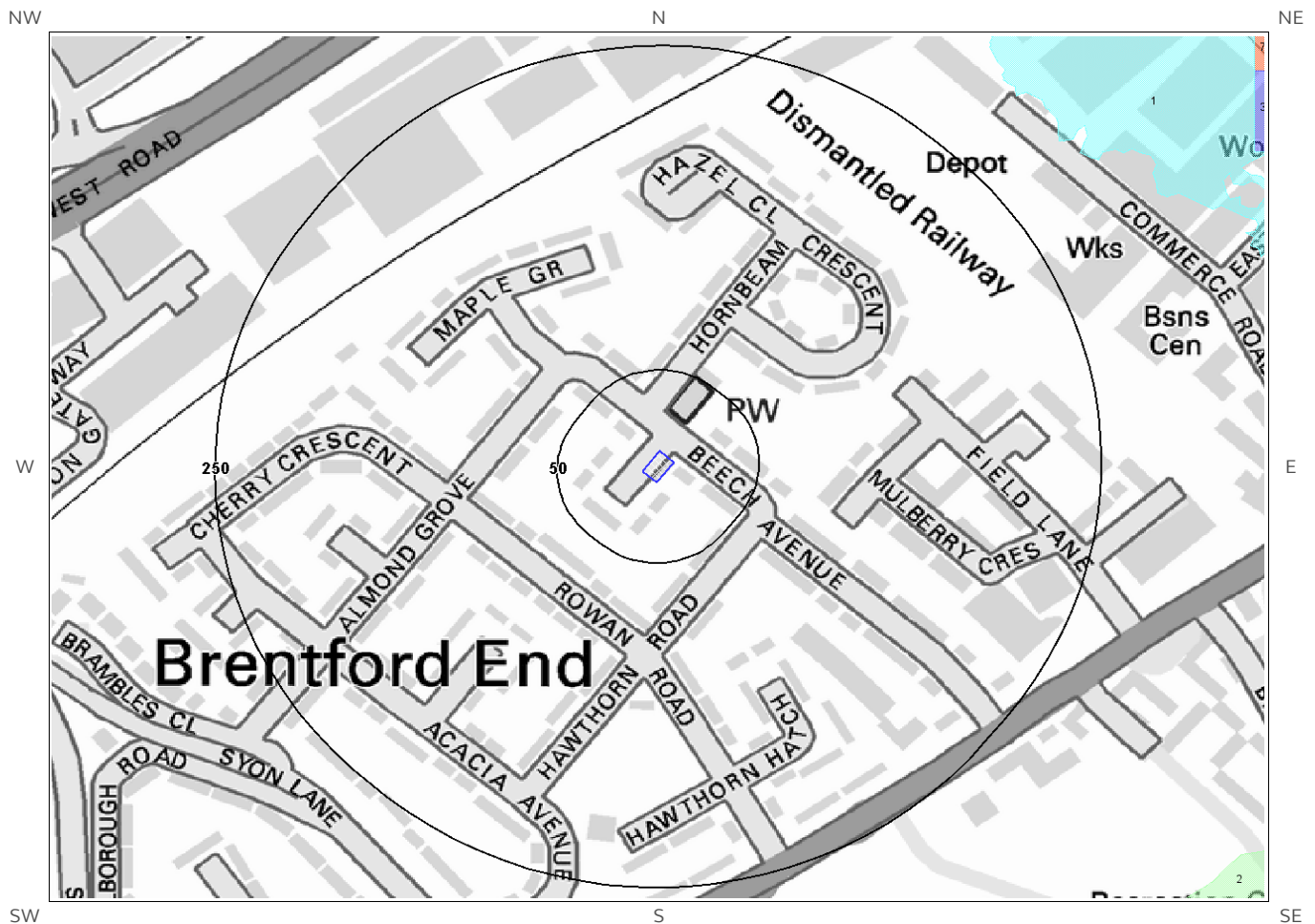
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



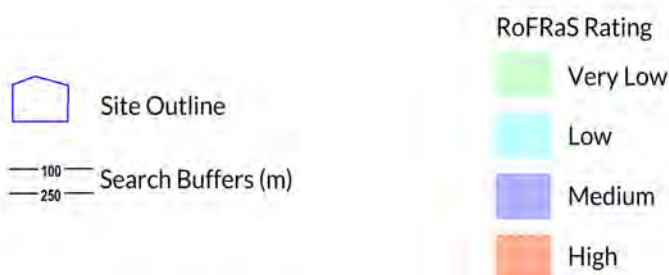
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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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

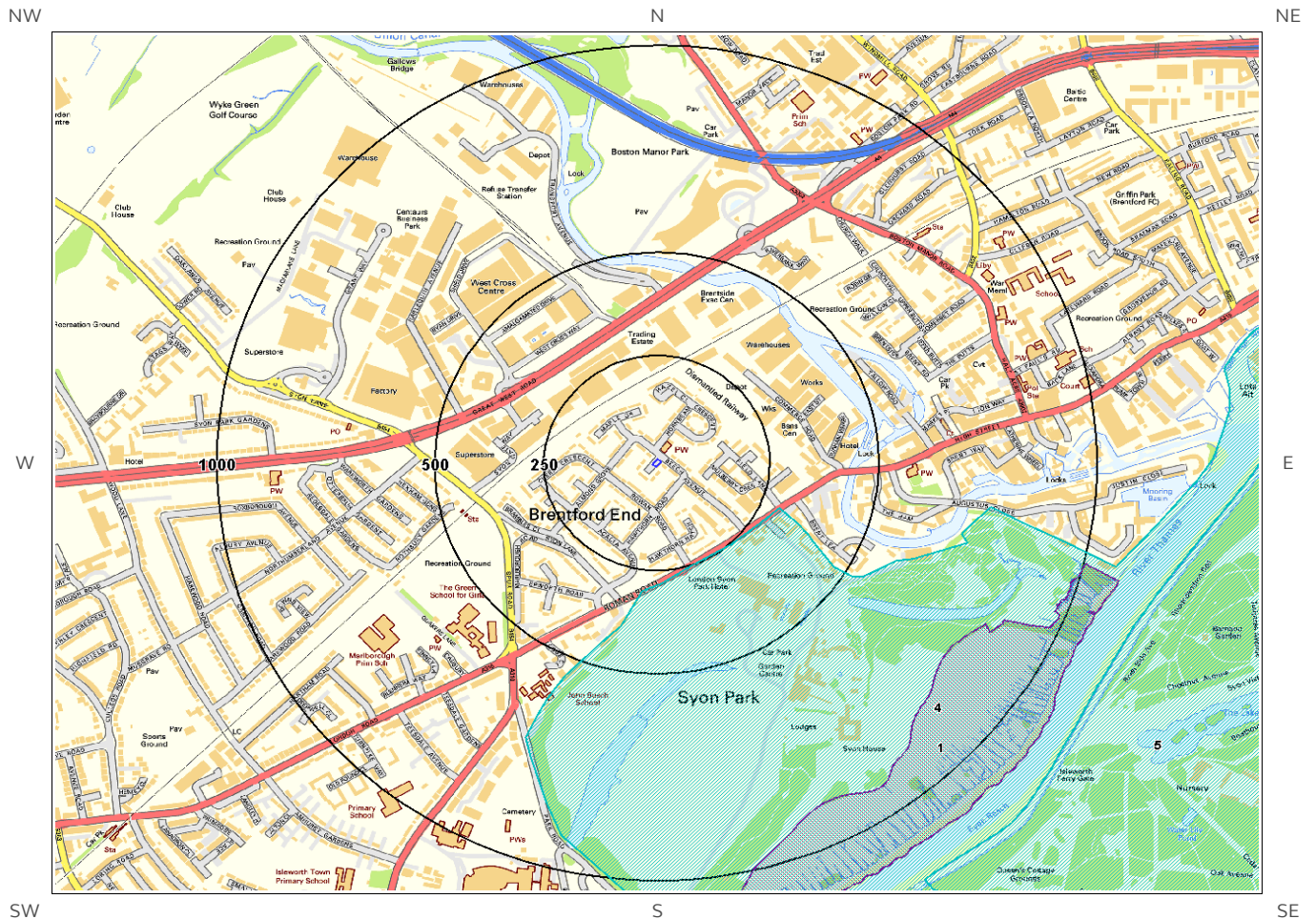
British Geological Survey confidence rating in this result

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



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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	802	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:

2

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	1280	N	Blondin Nature area	Natural England
Not shown	1323	S	Isleworth Ait	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
4	247	SE	Royal Botanic Gardens, Kew Buffer Zone	Historic England
5	1139	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

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

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Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506

Web: www.environment-agency.gov.uk

Email: enquiries@environment-agency.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

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200 Lichfield Lane
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Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority

Authority: London Borough of Hounslow
Phone: 020 8583 2000

Web: <http://www.hounslow.gov.uk/>

Address: Civic Centre, Lampton Road, Hounslow, London, TW3 4DN

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
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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>

Arcadis Consulting UK Ltd

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

Groundsure
Reference:

GS-6449721

Your Reference: 14032643

Report Date 8 Nov 2019

Report Delivery Method: Email - pdf

Geo Insight

Address: GARAGES ADJACENT 48, 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

Address: GARAGES ADJACENT 48, BEECH AVENUE, BRENTFORD, TW8 8NH
Date: 8 Nov 2019
Reference: GS-6449721
Client: Arcadis Consulting UK Ltd

NW N NE

W E



SW S SE

Aerial Photograph Capture date: 20-Apr-2015
Grid Reference: 516854,177304
Site Size: 0.0168ha

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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 landslide 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?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslide 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

3.1 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 property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

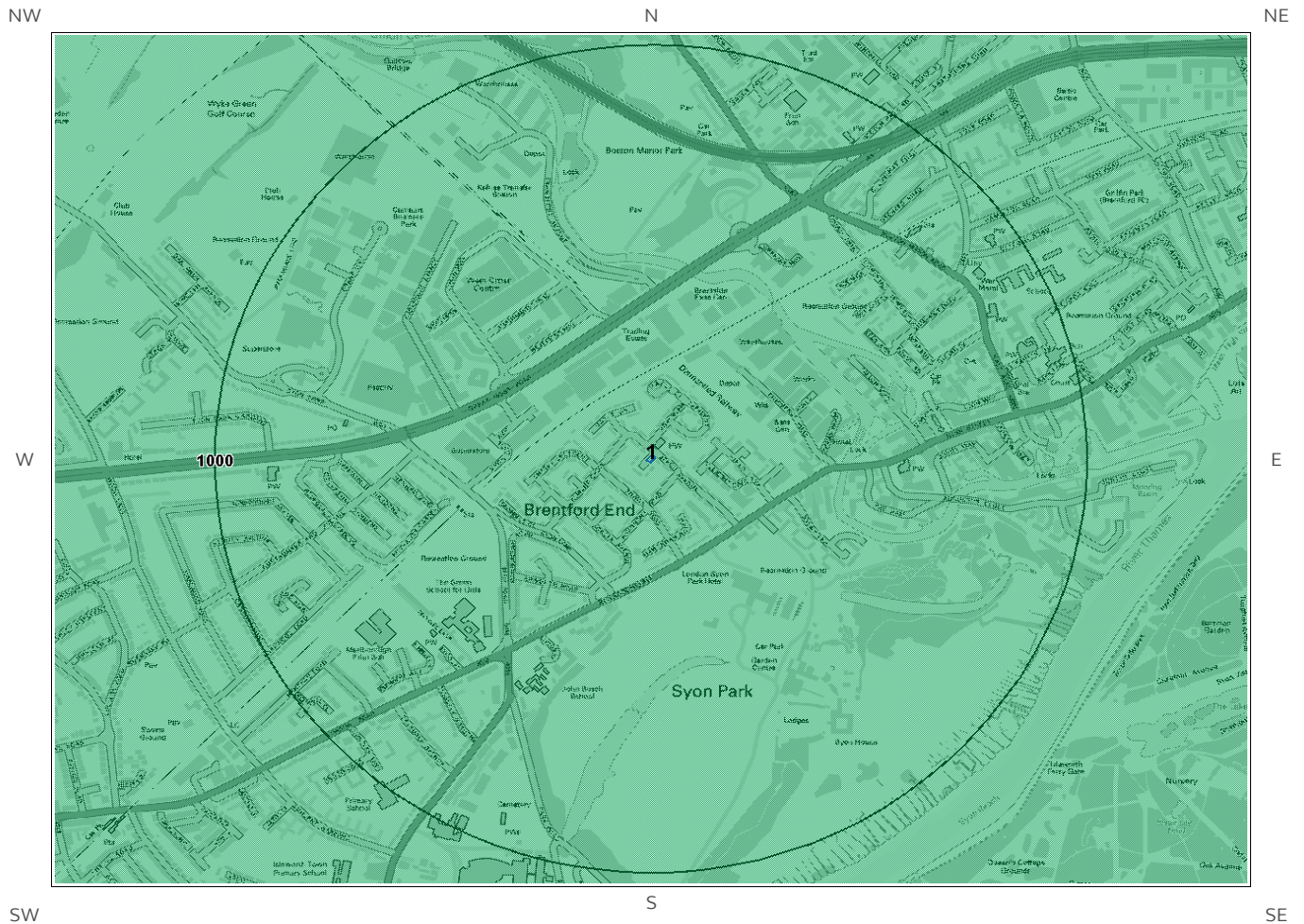
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	24	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	3

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

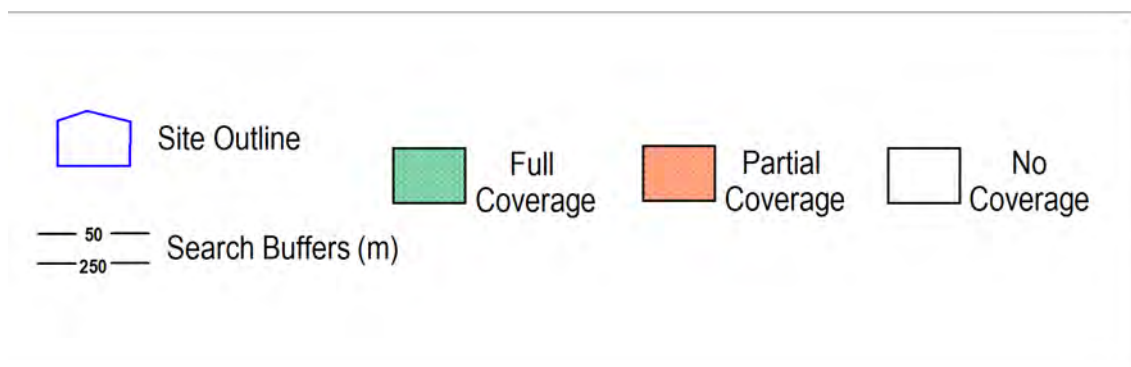
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	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	1		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	1	1	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	9	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	1843.0	Some deposits are mapped	Full	Full	No coverage

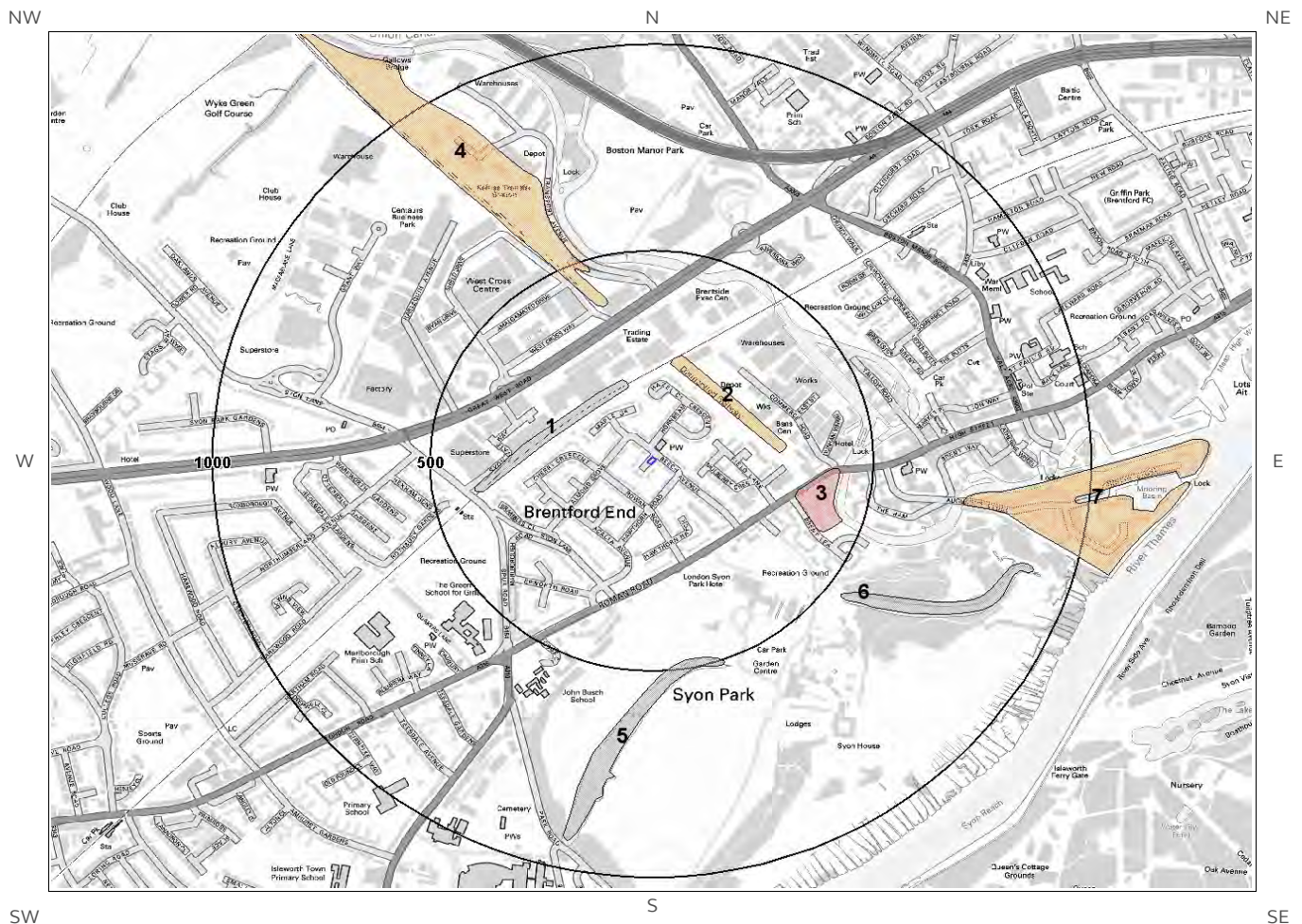
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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)



Artificial Ground Legend

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	Site Outline		Made Ground (undivided)		Disturbed Ground (undivided)
	Search Buffers (m)		Worked Ground (undivided)		Landscaped Ground (undivided)
			Infilled Ground		Reclaimed Ground

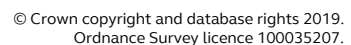
1. Geology 1:10,000 scale

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	170.0	NW	WGR-UNKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
2	199.0	NE	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
3	331.0	E	WMGR-UNKNOWN	Infilled Ground	Unknown/unclassified Entry
4	383.0	N	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
5	479.0	S	WGR-UNKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry



Site Outline

Search Buffers (m)

500

1000

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	49.0	SE	LASI-Z	Langley Silt Member - Silt (unlithified Deposits Coding Scheme)	Silt
2	376.0	W	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
3	413.0	E	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
4	428.0	SE	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

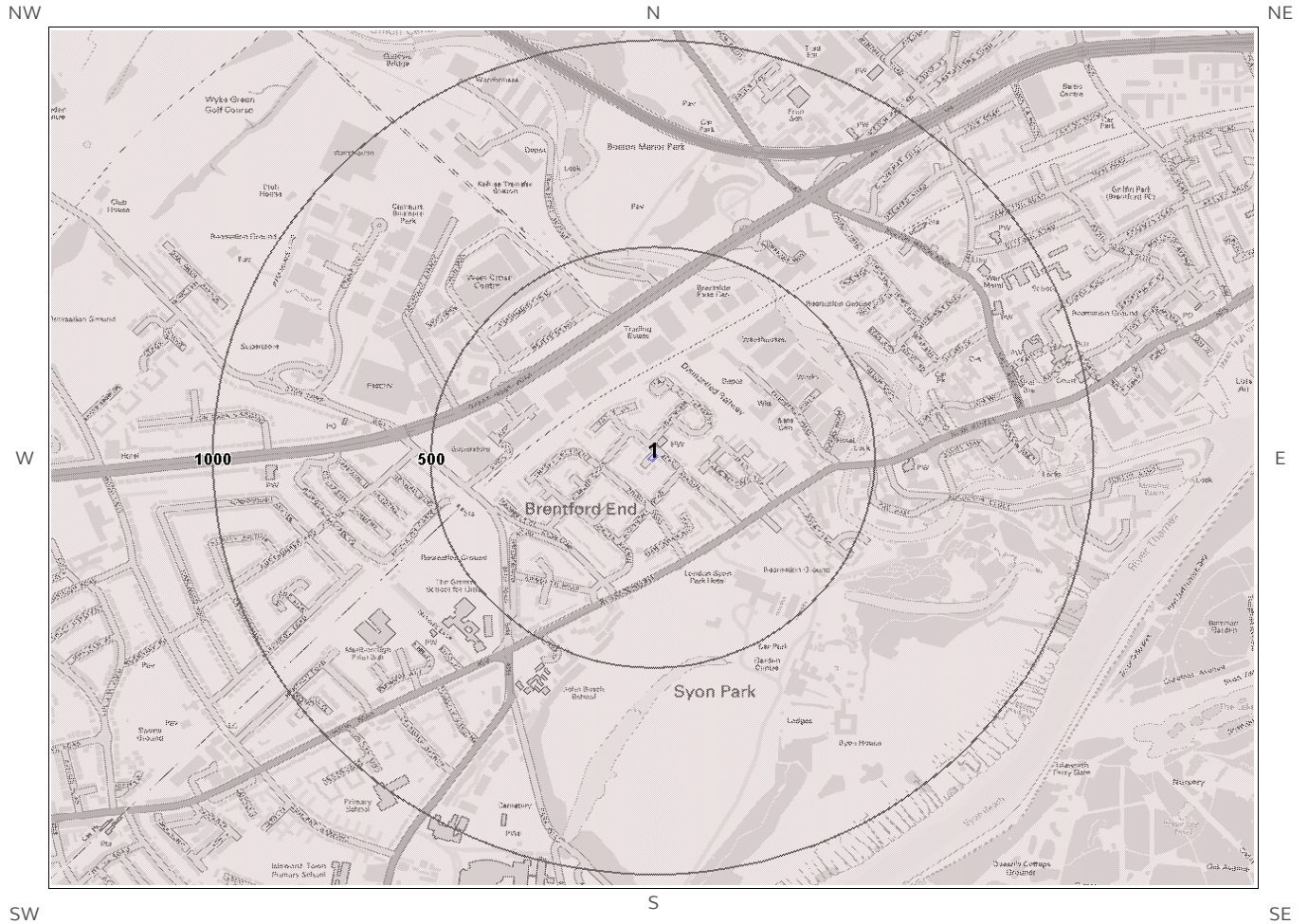
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

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

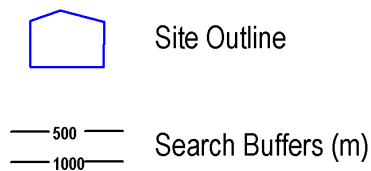
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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



Bedrock and linear features Legend

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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.

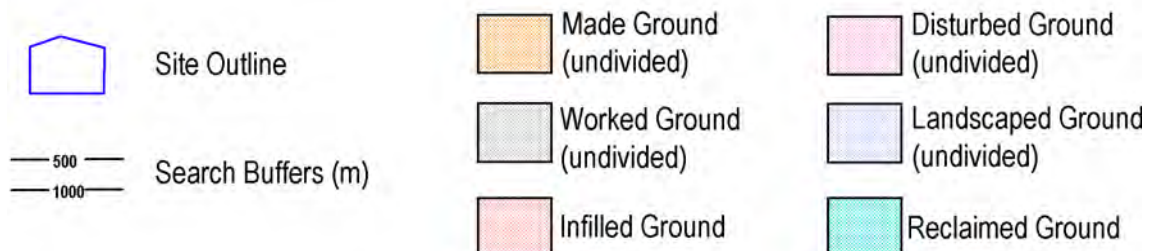
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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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

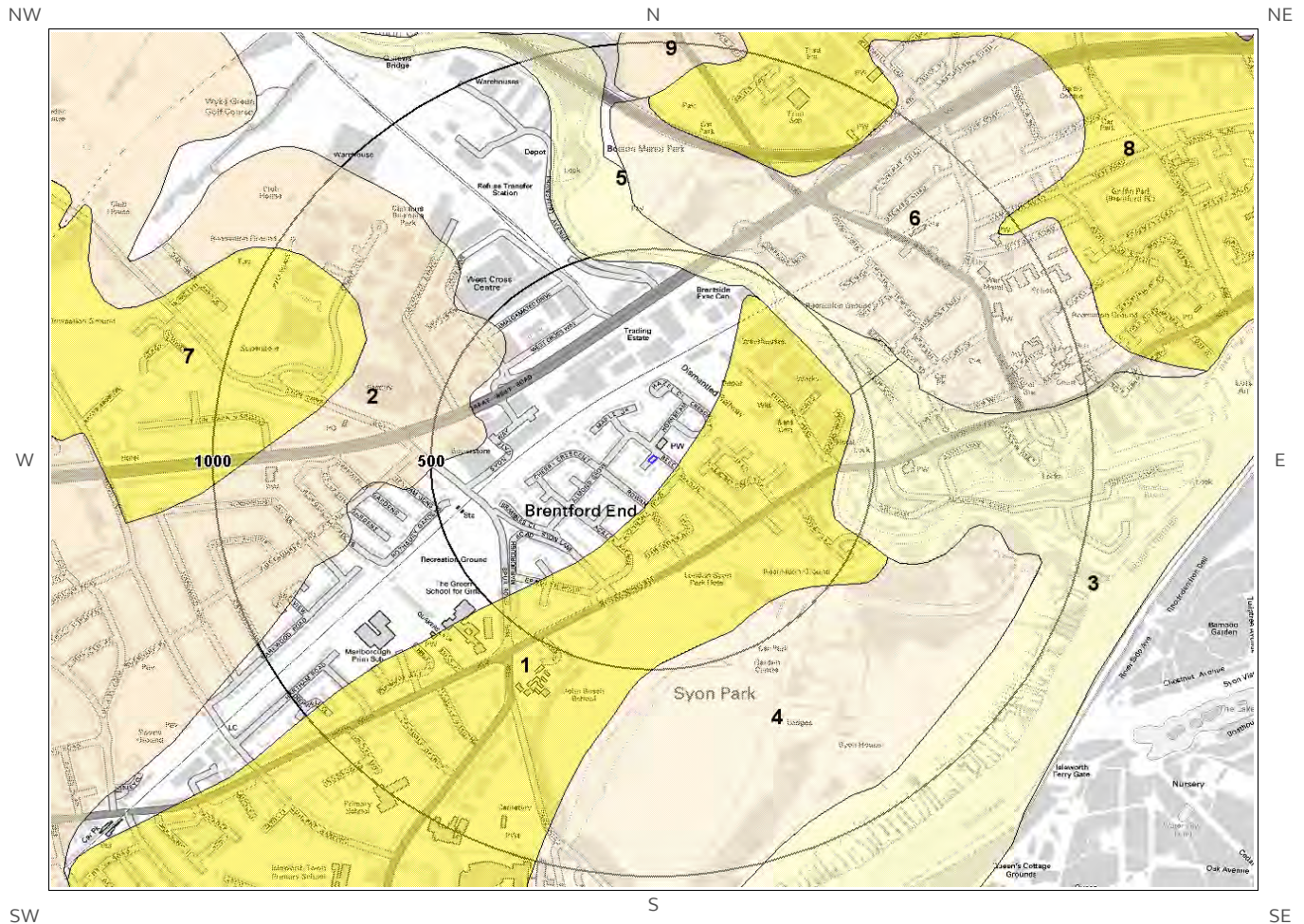
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	170.0	NW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
2	198.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	331.0	E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
4	383.0	N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
5	464.0	S	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

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.

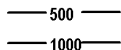
2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline



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	49.0	SE	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT
2	376.0	W	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL
3	413.0	E	ALV-XCZSP	ALLUVIUM	CLAY, SILT, SAND AND PEAT
4	428.0	SE	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
5	437.0	NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
49.0	SE	Mixed	Low	Very Low

2.2.3 Landslip

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

Database searched and no data found.

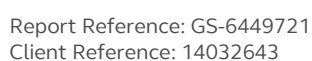
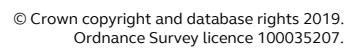
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

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, 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

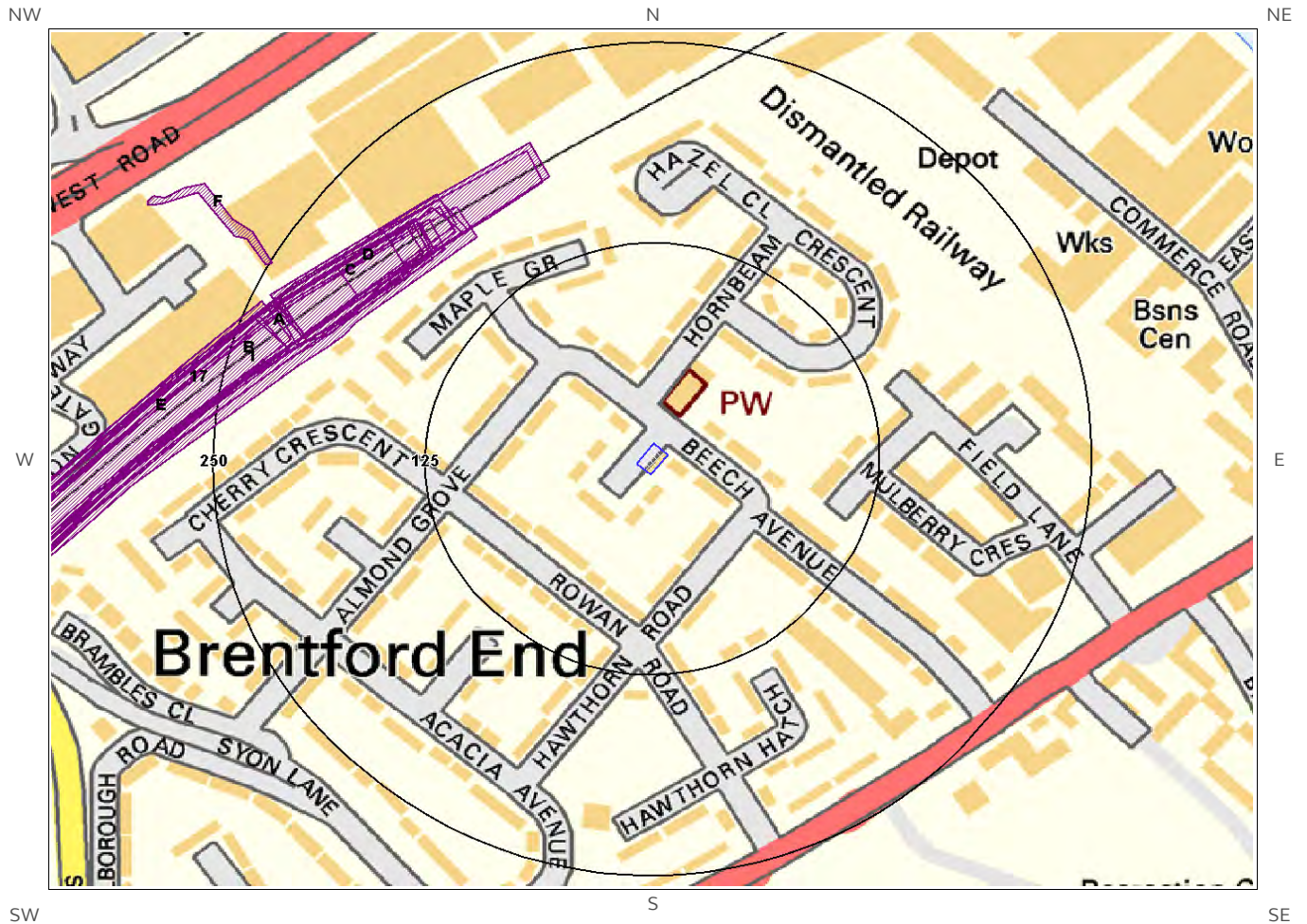
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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



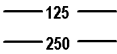


Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | 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	166.0	NW	516464 177232	Cuttings	1865
2A	171.0	NW	516612 177359	Cuttings	1966
3A	171.0	NW	516612 177359	Cuttings	1974
4D	172.0	NW	516687 177423	Cuttings	1933
5A	172.0	NW	516614 177362	Cuttings	1987
6B	173.0	NW	516583 177335	Cuttings	1912
7B	173.0	NW	516587 177333	Cuttings	1894
8C	174.0	NW	516675 177415	Cuttings	1894
9B	175.0	NW	516578 177329	Cuttings	1896
10C	176.0	NW	516682 177422	Cuttings	1912
11B	177.0	NW	516575 177331	Cuttings	1898
12D	179.0	NW	516681 177426	Cuttings	1913
13C	180.0	NW	516677 177419	Cuttings	1938
14B	180.0	NW	516577 177334	Cuttings	1935
15B	182.0	NW	516572 177331	Cuttings	1948
16B	182.0	NW	516572 177331	Cuttings	1948
17	195.0	NW	516562 177327	Cuttings	1961
18E	217.0	W	516536 177305	Cuttings	1938
19E	217.0	W	516536 177305	Cuttings	1912
20E	217.0	W	516574 177333	Cuttings	1933
21E	217.0	W	516574 177333	Cuttings	1894

ID	Distance (m)	Direction	NGR	Use	Date
22E	218.0	W	516534 177312	Cuttings	1913
23F	249.0	NW	516604 177452	Unspecified Ground Workings	1935
24F	249.0	NW	516604 177452	Unspecified Ground Workings	1935

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	799.0	NW	516425 177990	Crushed Rock	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	799.0	NW	516425 177990	Marine Sand & Gravel	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	799.0	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



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.

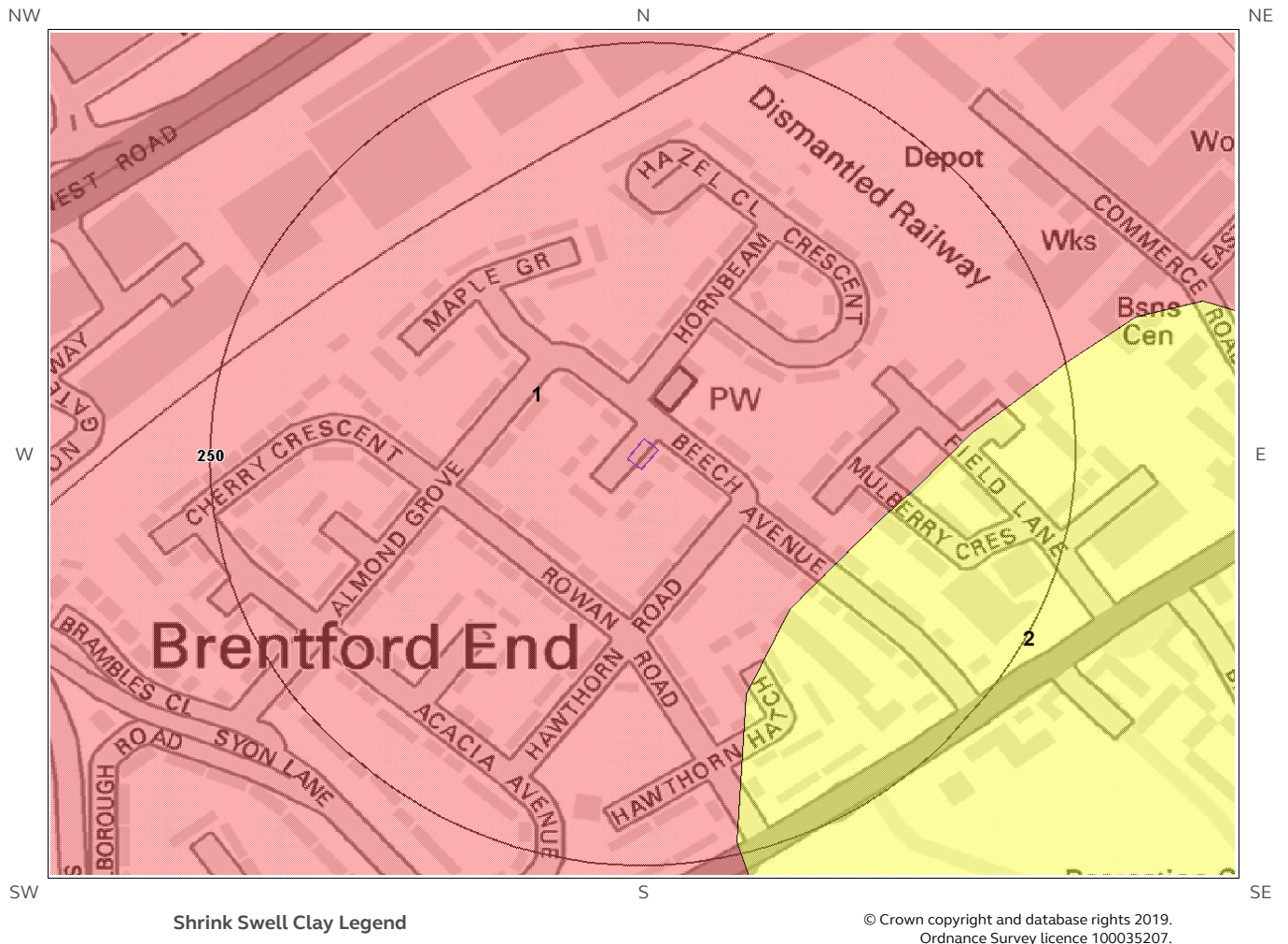
Are there any Clay Mining areas within 1000m of the study site boundary?

No

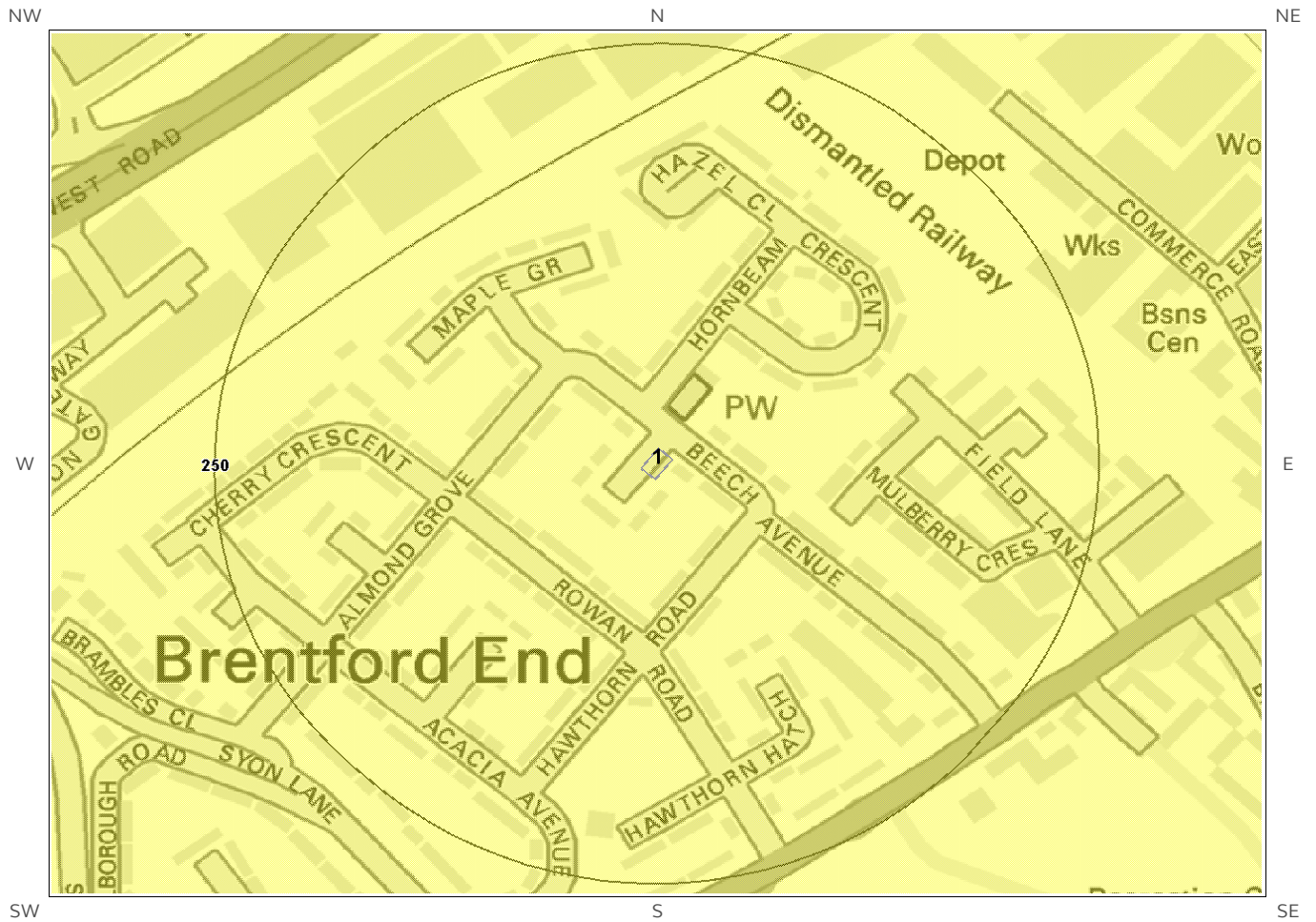
Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



6.2 Landslides map

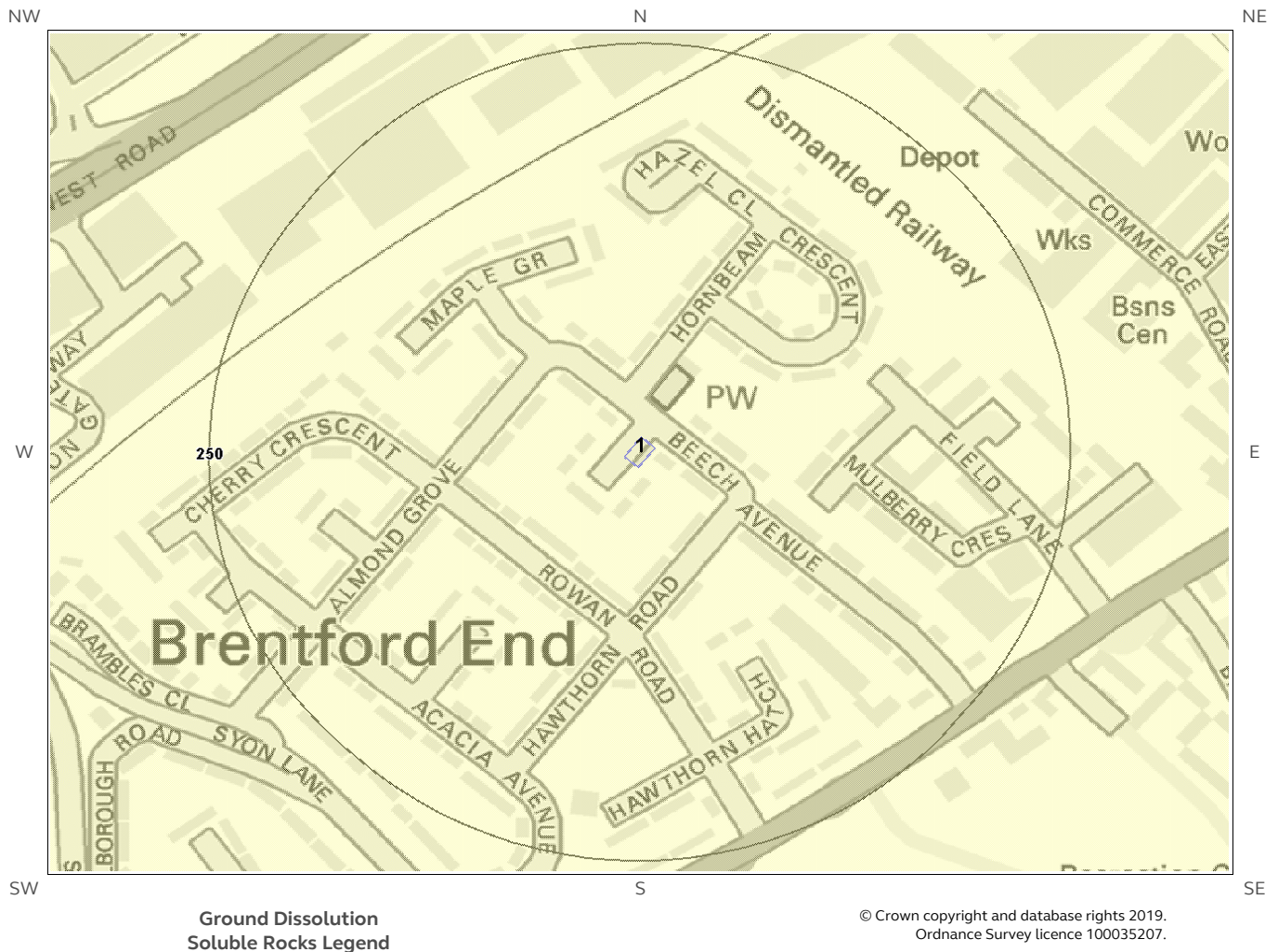


Landslides Legend

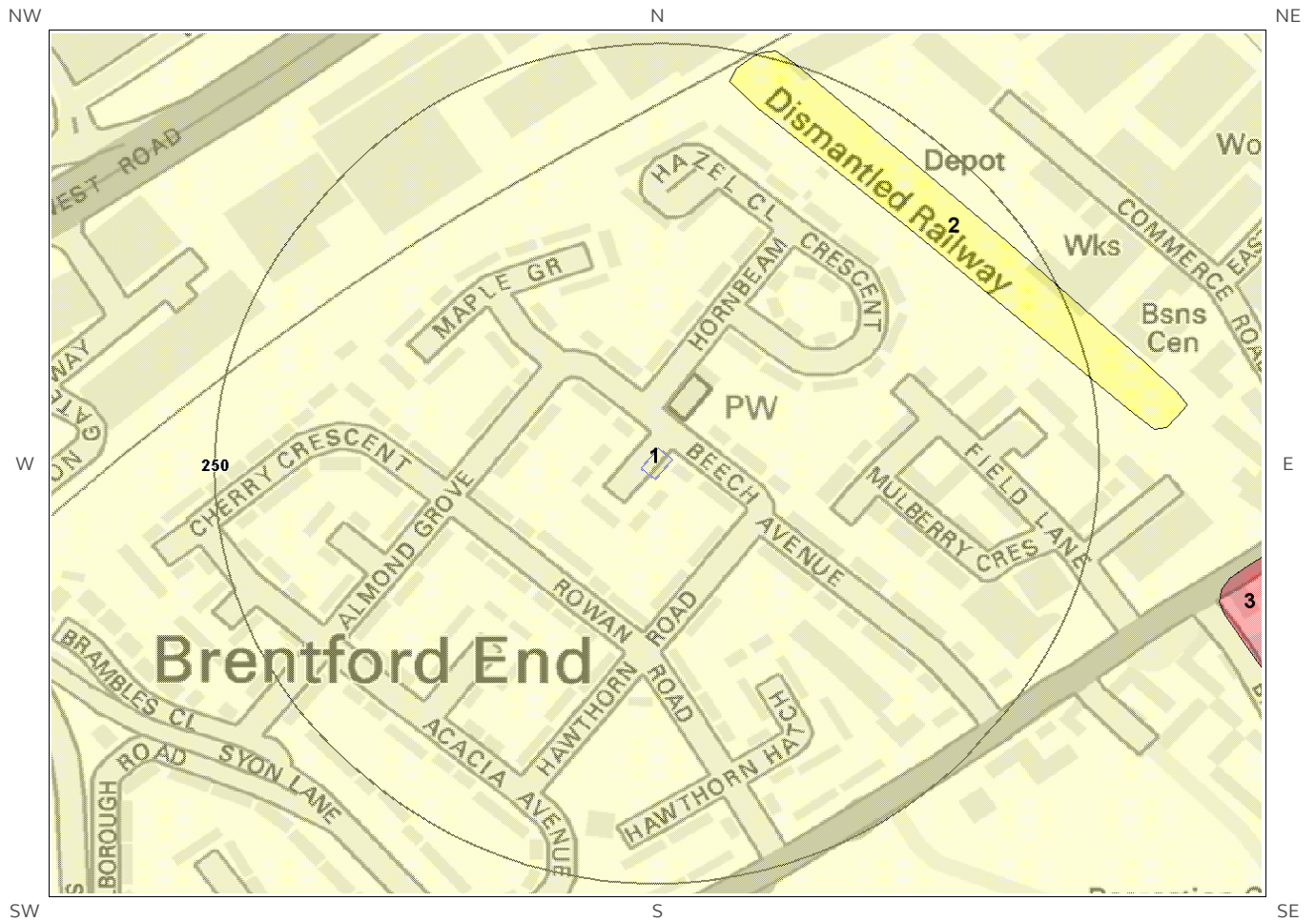
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6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

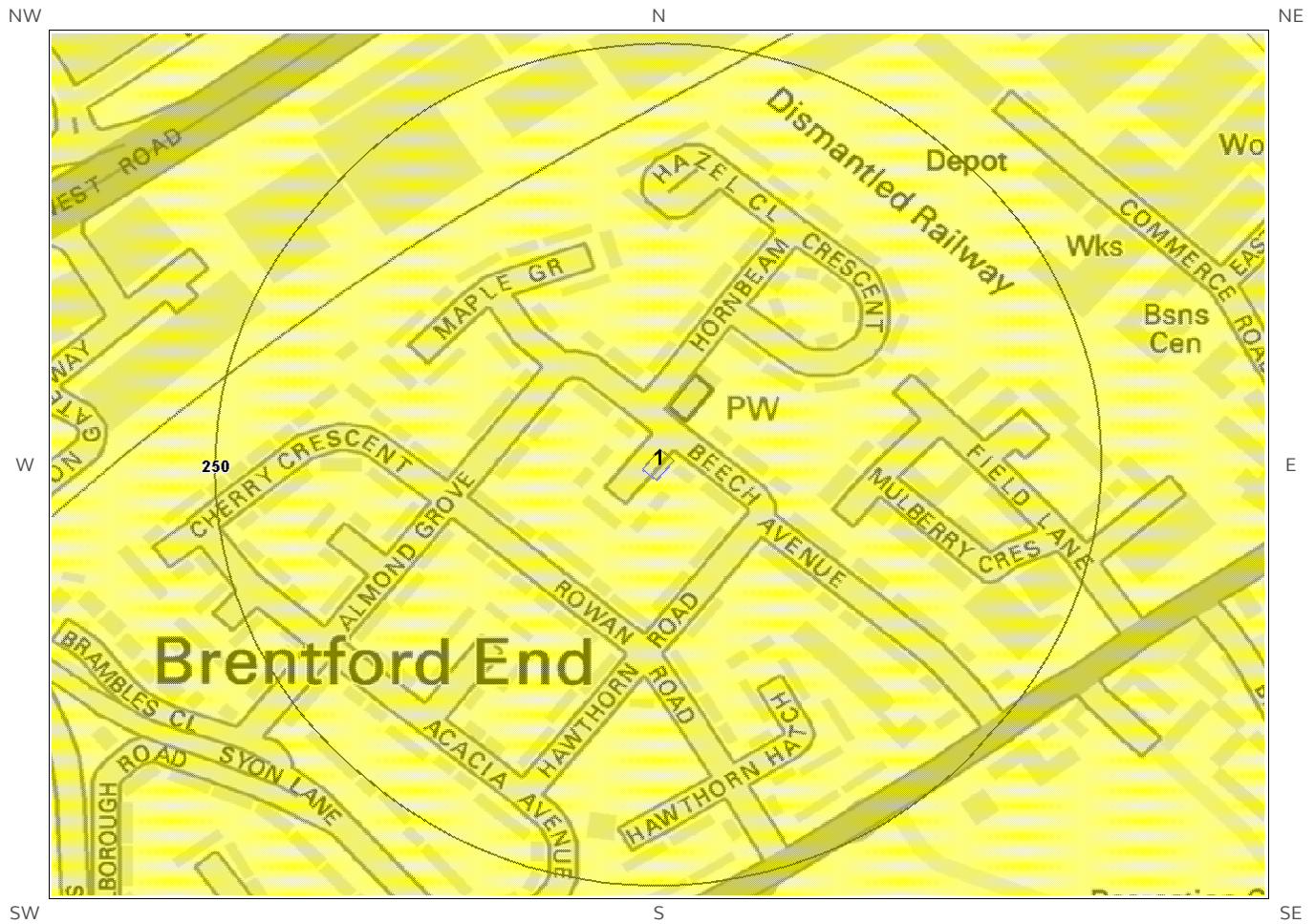


Compressible Deposits Legend

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6.5 Collapsible Deposits map

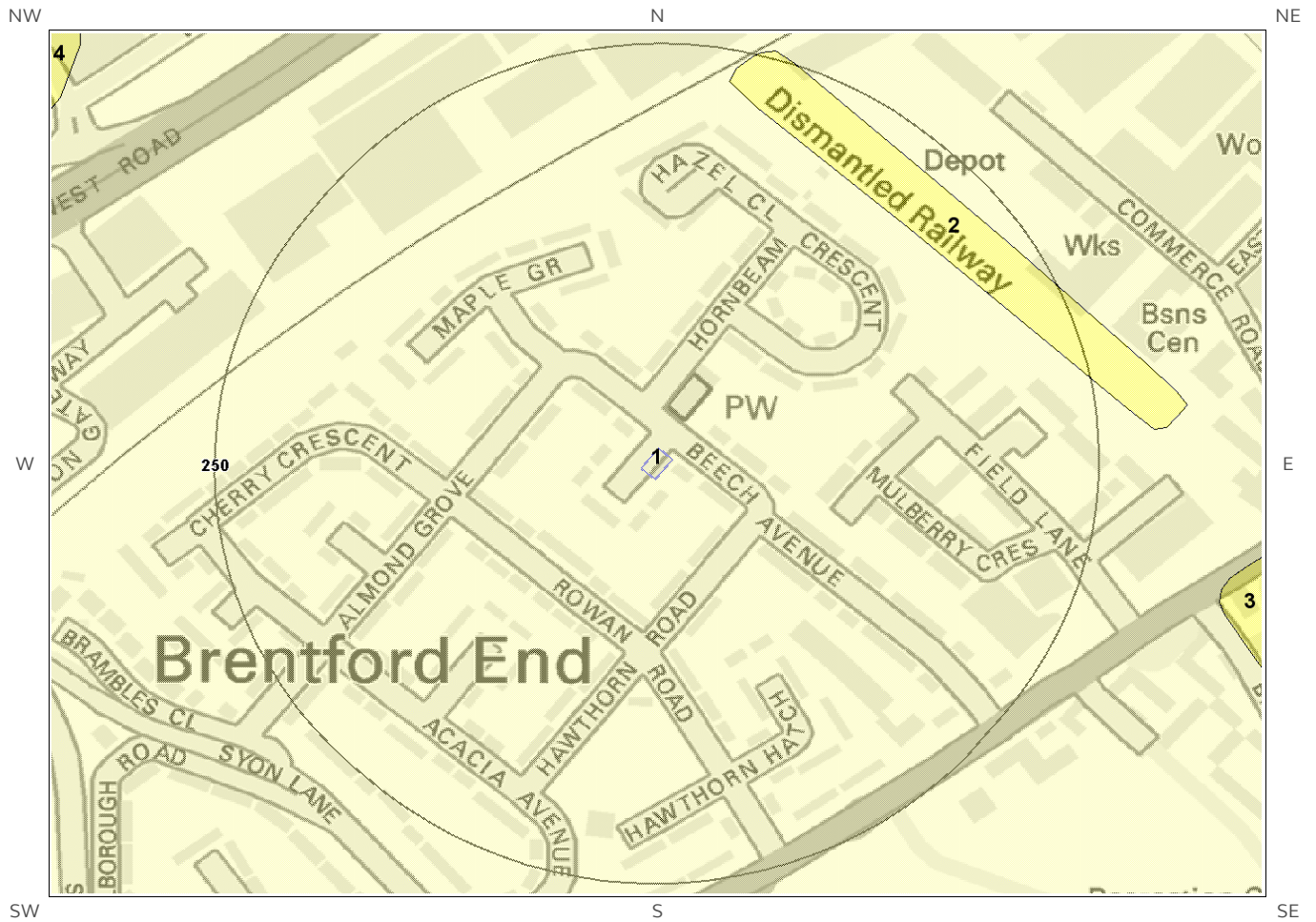


Collapsible Deposits Legend

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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:

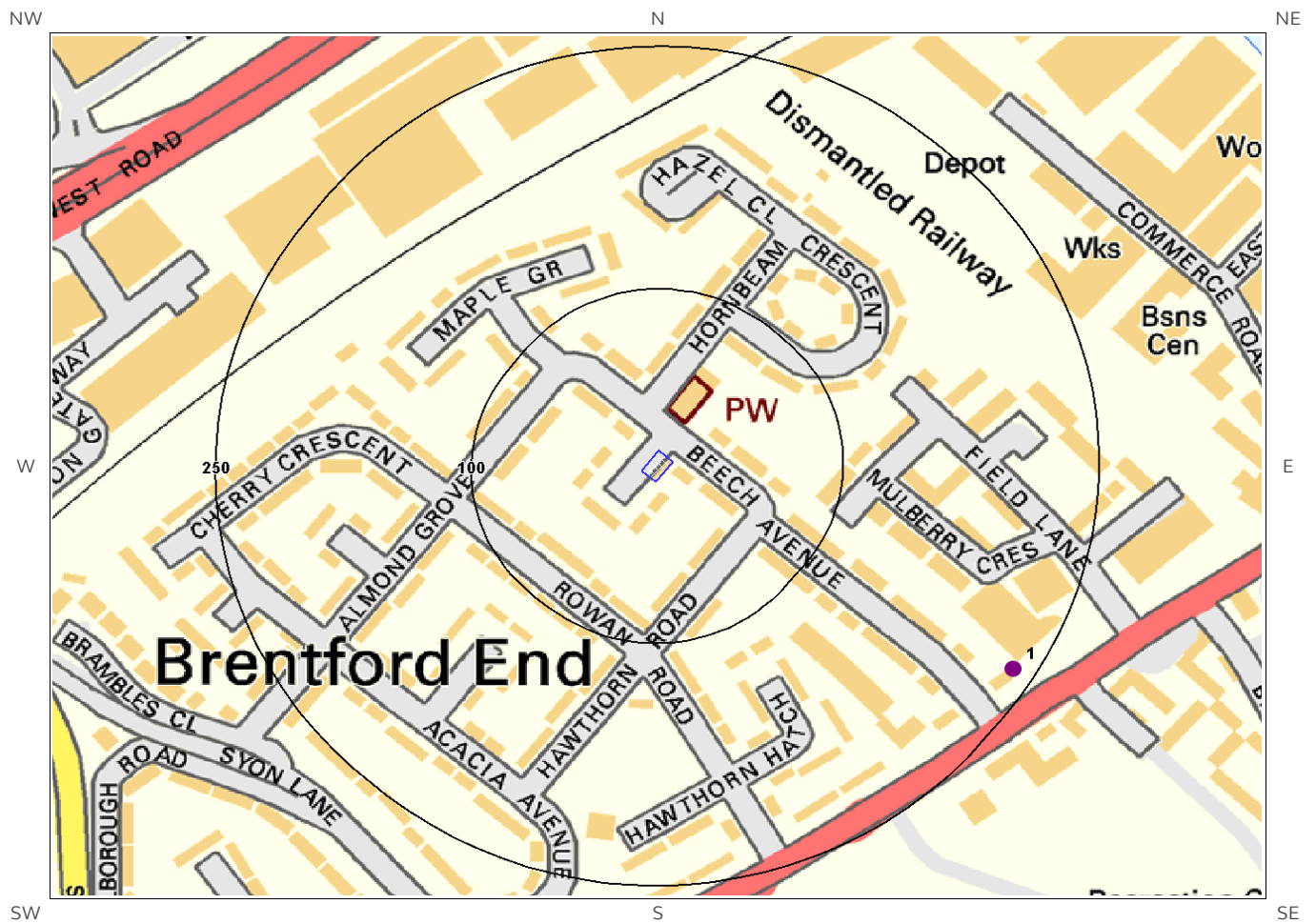
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

6.6 Running Sands

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

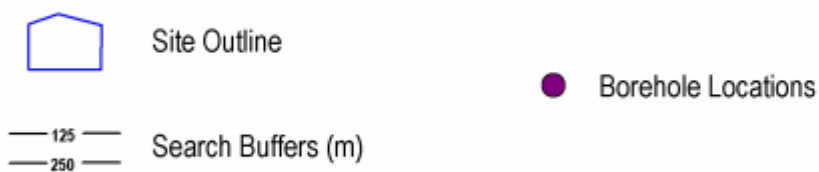
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due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

7 Borehole Records map



Borehole Records Legend

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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:

1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	237.0	SE	517060 177180	TQ17NE138	9.04	52 LONDON ROAD BRENTFORD

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/580783

8 Estimated Background Soil Chemistry

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

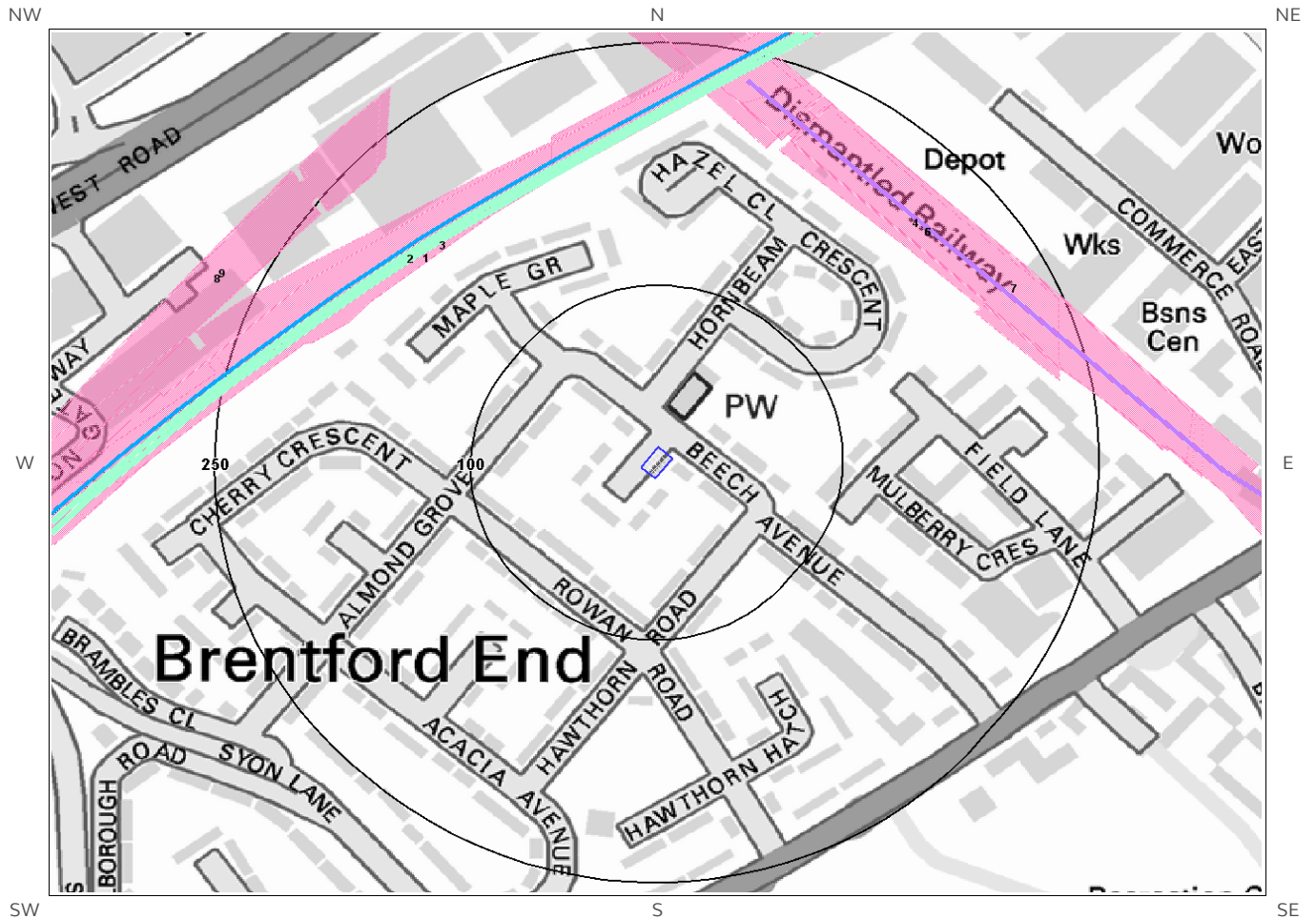
2

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
49.0	SE	London	No data	No data	No data	No data	No data

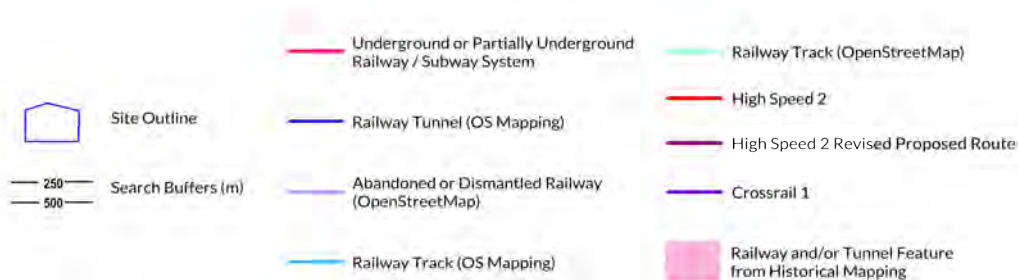
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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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	173	NW	n/a	Railway	1915
2	173	NW	n/a	Railway	1936
3	173	NW	n/a	Railway	1880
4	179	NW	n/a	Railway	1897
5	183	N	n/a	Railway	1872
6	183	N	n/a	Railway	1915
7	194	NE	n/a	Railway	1935
8	237	NW	n/a	Railway	1915
9	238	NW	n/a	Railway	1870

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
206	NE	Razed
206	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
176	NW	Hounslow Loop Line	rail
176	NW	Hounslow Loop Line	rail
179	NW	Hounslow Loop Line	rail
179	NW	Hounslow Loop Line	rail
184	NW	Not given	Multi Track
184	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

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Telephone: 08444 159 000
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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LE12 6HX



The Coal Authority

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Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



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<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
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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	 ARCADIS <small>Design & Consultancy for natural and built assets</small>	
REFERENCE:	10030793	SITE NAME:	48 Beech Avenue	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR	T: 0161 245 8700 F: 0161 245 8701
Plate 1 – Garages front looking southeast					
Plate 2 – Garages front looking northeast.					

CLIENT:	London Borough of Hounslow	DATE:	11/2019	 ARCADIS Design & Consultancy for natural and built assets	
REFERENCE:	10030793	SITE NAME:	48 Beech Avenue	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR	T: 0161 245 8700 F: 0161 245 8701
Plate 3 – Hardstanding and structure detail					
Plate 4 – Garage frontage looking south					

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