FAIRHURST

Manor Road / Richmond

Flood Risk Assessment & Drainage Strategy

Fairhurst

July 2020

1.1.11

1.1.12

Former Homebase, Manor Road, Richmond

Flood Risk Assessment & Drainage Strategy

JULY 2020

126782-RP-C-0001

FAIRHURST

CONTROL SHEET

CLIENT: **Avanton**

PROJECT TITLE: **Former Homebase, Manor Road, Richmond**

REPORT TITLE: **Flood Risk Assessment & Drainage Strategy**

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This document has been prepared in accordance with procedure OP/P02 of the *Fairhurst Quality and Environmental Management System*

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1 Introduction

1.1.1 Fairhurst have been appointed by Avanton to provide engineering services for the project known as Manor Road, Richmond.

1.1.2 The proposed development site is approximately 1.842ha.

1.1.3 The proposed development is located in Flood Zone 1, meaning there is a less than 1 in 1000 year risk of flooding from rivers or seas.

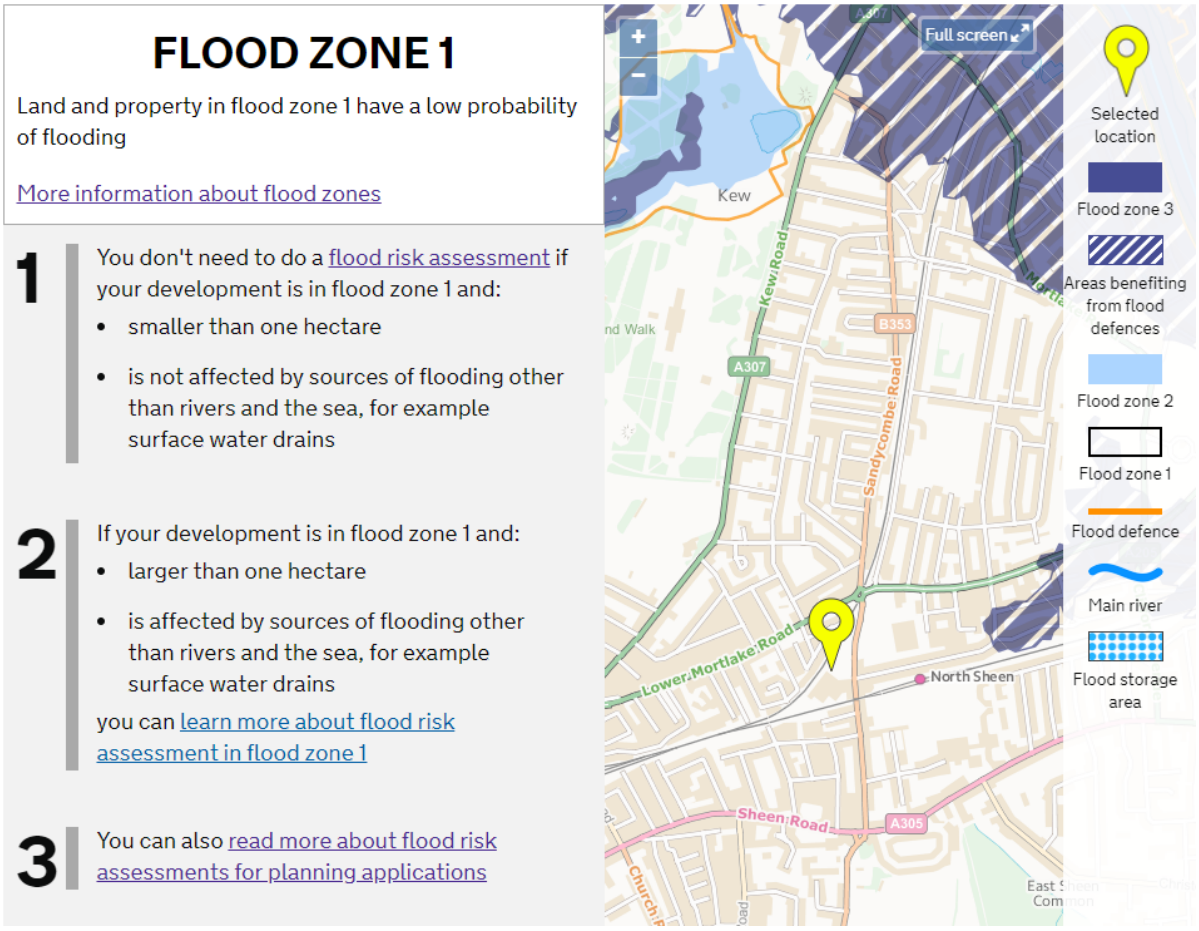


Figure 1 - Flood Risk Maps (Rivers & Seas) - Environment Agency

1.1.4 Under current Environment Agency requirements, a site of this size and Flood Zone classification requires a Flood Risk Assessment to be completed.

1.1.5 The site is located within the boundary of London Borough of Richmond upon Thames Local Planning Authority.

1.1.6 This FRA has been compiled in accordance and guidance of the Richmond Strategic Flood Risk Assessment (SFRA), National Planning Policy Framework (NPPF) and other relevant guides and reports.

1.1.7 Richmond Planning Guidance Chapter 6.2 includes a checklist of information required to accompany a planning application for Drainage and Flood Risk. A copy of this table and where information can be found is included as Appendix A9 to this report.

1.1.8 This Flood Risk Assessment and Drainage Strategy has been prepared by Fairhurst on behalf of Avanton Richmond Development Ltd ('the Applicant') following further amendments to the proposed scheme for the redevelopment of the Homebase store at 84 Manor Road, North Sheen ('the Site').

1.1.9 A planning application for the redevelopment of the Site was submitted to London Borough of Richmond Upon Thames (LBRuT) in February 2019 (ref. 19/0510/FUL) (the 'Original Proposed Development'), and was considered at LBRuT Planning Committee on 3 July 2019. The Planning Committee resolved that they were minded to refuse the Application, however on 29 July 2019 it was confirmed that the Mayor of London would act as the local planning authority for the purposes of determining the application.

1.2 Proposed Amendments

1.2.1 Following review of LBRuT's reasons for refusal and discussions with Officers at the Greater London Authority (GLA) and Transport for London (TfL), the Applicant sought to review the scheme, with the principle aim of increasing the delivery of affordable housing through additional density and addressing other issues raised in the Mayor's Stage 2 Report. Initial scheme amendments were submitted in November 2019 ('the November 2019 Amendments') and increased the overall number of units by 48, primarily through the introduction of a new residential building known as Block E. Following further discussions with TfL and the GLA, it was subsequently agreed that further revisions should be explored in order to deliver an improved scheme, without the need for this additional block.

1.2.2 The proposed changes are described in detail in the accompanying Design and Access Statement Addendum, however, of particular note is the increase in residential units from 385 within the Original Proposed Development to 453 within the Amended Proposed Development. This increases the total number of affordable units by 39 to a total of 173 affordable homes (40% by habitable room taking account of grant funding, increased from 35% as originally submitted). This increase in units and the higher affordable housing provision has been principally achieved through amendments to the height and internal layout in appropriate locations across the Site.

1.2.3 The proposed changes necessitate an amendment to the Application's description of development. The revised description of development (hereafter referred to as the 'Amended Proposed Development') is as follows:

Demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide 453 residential units (of which 173 units will be affordable), flexible retail, community and office uses, provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works.

1.2.4 As a result of the proposed changes, this Flood Risk Assessment and Drainage Strategy has been updated in order to assess the Amended Proposed Development. By way of summary:

The drainage strategy for the Amended Proposed Development include 2 soakaways and 6 blue roofs, a decrease of 1 soakaway and 1 blue roof compared to the Original Proposed Development. This is due to Catchment 1 now draining as per the existing situation. The flood risk for the Amended Proposed Development has not increased compared to the Original Proposed Development.

2 Planning policy

2.1 National planning policy framework & planning practice guidance

2.1.1 The National Planning Policy Framework (NPPF), published in 2012 and as revised in 2019 and the associated Planning Practice Guidance (PPG), published in 2014, identify flood risk as a specific material consideration in the planning process and in the allocation and release of sites for development or re-development.

2.1.2 The NPPF & PPG replaced previous guidance and policy set out in PPS 25: Development and Flood Risk, however much of the technical criteria for Flood Risk Assessments remain largely unchanged. The NPPF seeks to strengthen the co-ordination between land-use planning and development planning and the operational delivery of flood and coastal defence strategy. Through the NPPF, Local Planning Authorities will continue to use their existing powers to guide, regulate and control development in relation to flooding and flood risk. The NPPF places a presumption in favour of sustainable development whilst meeting the challenge of climate change, flooding and coastal change. In accordance with the PPG, inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk through the application of the Exception and Sequential Tests.

2.1.3 The Water Resources Act 1991 [Section 105] requires the Environment Agency to exercise general supervision over all flood defence matters, including flood plains and washlands which accommodate waters during periods of flood. In discharging their functions, the Environment Agency from time to time carries out surveys and flood studies, largely of 'main rivers' within its jurisdiction.

2.1.4 Environment Agency flood maps indicating the extents of the modelled floodplain are provided to Local Planning Authorities, to enable them to make more informed decisions when considering proposed development in flood-susceptible areas. If development is proposed in a flood-susceptible area, or in an area where there is a history of flooding, the Environment Agency, as a statutory consultee in the planning process, will generally recommend that the risk of flooding be formally assessed in accordance with the NPPF, and that a Flood Risk Assessment report is produced to support the Planning Application. The broader modelled flood extents are also indicated on the Environment Agency's Flood Zone Maps, available through their website.

2.2 Regional planning policy

London Plan (2016)

2.2.1 The London Plan (March 2016) sets out the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20 to 25 years. The plan contains several policies relating to development in relation to flood risk in London.

Policy 5.12 – Flood Risk Management:

2.2.2 The Mayor will work with all relevant agencies including the Environment Agency to address current and future flood issues and minimise risks in a sustainable and cost effective way.

2.2.3 Development proposals must comply with the flood risk assessment and management requirements set out in the NPPF and the associated technical Guidance on flood risk

over the lifetime of the development and have regard to measures proposed in Thames Estuary 2100 and Catchment Flood Management Plans.

a) the development will remain safe and operational under flood conditions;
b) a strategy of either safe evacuation and/or safely remaining in the building is followed under flood conditions;
c) key services including electricity, water etc. will continue to be provided under flood conditions;
d) buildings are designed for quick recovery following a flood.

2.2.4 Development adjacent to flood defences will be required to protect the integrity of existing flood defences and wherever possible should aim to be set back from the banks of watercourses and those defences to allow their management, maintenance and upgrading to be undertaken in a sustainable and cost effective way.

2.2.5 In line with the NPPF and the Technical Guidance, boroughs should, when preparing LDFs, utilise Strategic Flood Risk Assessments to identify areas where particular flood risk issues exist and develop actions and policy approaches aimed at reducing these risks, particularly through redevelopment of sites at risk of flooding and identifying specific opportunities for flood risk management measures.

Policy 5.13 – Sustainable Drainage:

2.2.6 Development should utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy:

a) store rainwater for later use;
b) use infiltration techniques, such as porous surfaces in non-clay areas;
c) attenuate rainwater in ponds or open water features for gradual release;
d) attenuate rainwater by storing in tanks or sealed water features for gradual release;
e) discharge rainwater direct to a watercourse;
f) discharge rainwater to a surface water sewer/drain;
g) discharge rainwater to the combined sewer.

2.2.7 Drainage should be designed and implemented in ways that deliver other policy objectives of this Plan, including water use efficiency and quality, biodiversity, amenity and recreation.

2.2.8 Within LDFs boroughs should, in line with the Flood and Water Management Act 2010, utilise Surface Water Management Plans to identify areas where there are particular surface water management issues and develop actions and policy approaches aimed at reducing these risks.

Intend to Publish London Plan (2019)

2.2.9 The Intend to Publish London Plan was released in December 2019. Policies relating to development in relation to flood risk in London from this document are included below.

Policy SI12 – Flood Risk Management:

Policy SI 12 Flood risk management

A Current and expected flood risk from all sources (as defined in paragraph 9.12.2) across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers.

B Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks. Boroughs should co-operate and jointly address cross-boundary flood risk issues including with authorities outside London.

C Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.

D Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan. The Mayor will work with the Environment Agency and relevant local planning authorities, including authorities outside London, to safeguard an appropriate location for a new Thames Barrier.

E Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.

F Development proposals adjacent to flood defences will be required to protect the integrity of flood defences and allow access for future maintenance and upgrading. Unless exceptional circumstances are demonstrated for not doing so, development proposals should be set back from flood defences to allow for any foreseeable future maintenance and upgrades in a sustainable and cost-effective way.

G Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat.

Policy SI13 – Sustainable Drainage:

Policy SI 13 Sustainable drainage

A Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water run-off outside these areas also need to be identified and addressed.

B Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:

1) rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
2) rainwater infiltration to ground at or close to source
3) rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
4) rainwater discharge direct to a watercourse (unless not appropriate)
5) controlled rainwater discharge to a surface water sewer or drain
6) controlled rainwater discharge to a combined sewer.

2.3 Local planning policy

2.3.1 As part of the Richmond Local Development Plan adopted in July 2018, the council has developed policies to take forward the Core Strategy of the council including *A Sustainable Future.*

2.3.2 Extracts from the LDP relevant to the proposed development and flood risk / water management are given below[1];

[1] Only relevant sections of the policy are included within this report. For full policy and further information, refer directly to the original report.

Policy LP 17 – Green Roofs and Walls:

Policy LP 17

Green roofs and walls

Green roofs and/or brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green / brown roof.

The onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.

The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions.

2.3.3 The policy notes that roof terraces are not classed as living roofs to fulfil this policy and states roofs should be minimum 70% soil / vegetation over a minimum 85mm substrate.

Policy LP 21 – Flood Risk:

Policy LP 21

Flood Risk and Sustainable Drainage

A. All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied. Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table below.

In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted.

Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.

Basements and subterranean developments

B. Basements within flood affected areas of the borough represent a particularly high risk to life, as they may be subject to very rapid inundation. Applicants will have to demonstrate that their proposal complies with the following:

Flood Zone 1	No restrictions on new or extensions to existing basements

Sustainable drainage

C. The Council will require the use of Sustainable Drainage Systems (SuDS) in all development proposals. Applicants will have to demonstrate that their proposal complies with the following:

1. A reduction in surface water discharge to greenfield run-off rates wherever feasible.
2. Where greenfield run-off rates are not feasible, this will need to be demonstrated by the applicant, and in such instances, the minimum requirement is to achieve at least a 50% attenuation of the site's surface water runoff at peak times based on the levels existing prior to the development.

Policy LP 22 – Sustainable Design and Construction:

Policy LP 22

Sustainable Design and Construction

A. Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:

1. Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application.
2. Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption).
3. New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard.
4. Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible).

2.3.4 A number of water saving measures and equipment may be incorporated into developments to comply with the maximum water consumption levels set out in Part A, criterion 2 above:

- There should be full use of water saving devices, water efficient fixtures and fittings.
- Rainwater and grey water recycling (water butts or more complex collection and treatment systems) can significantly reduce water consumption, particular potable water. Grey water recycling will need to be energy efficient.
- Landscaping and gardens should be designed to lower water demand.
- Sustainable Drainage Systems (SuDS), including rainwater harvesting and storage from roofs and other surfaces can significantly reduce demand for water

Policy LP 23 – Water Resources and Infrastructure:

Policy LP 23

Water Resources and Infrastructure

Water and sewerage provision

C. New major residential or major non-residential development will need to ensure that there is adequate water supply, surface water, foul drainage and sewerage treatment capacity to serve the development.

Planning permission will only be granted for developments which increase the demand for off-site service infrastructure where:

1. sufficient capacity already exists, or
2. extra capacity can be provided in time to serve the development, which will ensure that the environment and the amenities of local residents are not adversely affected.

Applicants for major developments will be required to provide evidence in the form of written confirmation as part of the planning application that capacity exists in the public sewerage and water supply network to serve their development.

Any new water supply, sewerage or waste water treatment infrastructure must be in place prior to occupation of the development. Financial contributions may be required for new developments towards the provision of, or improvements to, such infrastructure.

2.4 Strategic flood risk assessment (SFRA)

2.4.1 Local Planning Authorities are required to produce Local Development Frameworks, which are a portfolio of Local Development Documents (LDD) that collectively deliver the spatial planning strategy for the Authority area. The LDDs undergo a sustainability appraisal which assists Planning Authorities in ensuring their policies fulfil the principles of sustainability. Strategic Flood Risk Assessments (SFRAs) are used as the evidence base for planning decisions and form a component of the sustainability appraisal process. Therefore, SFRAs should be used in the review or production of LDDs.

2.4.2 To assist Local Planning Authorities in their strategic land-use planning, SFRAs should present sufficient information to enable Local Authorities to apply the Sequential Test to their proposed development sites: 'Decision-makers should use the SFRA to inform their knowledge of flooding, refine the information on the Flood Map and determine the variations in flood risk from all sources of flooding across and from their area. These should form the basis for preparing appropriate policies for flood risk management for these areas.'

2.4.3 A Strategic Flood Risk Assessment (SFRA) was carried out for London Borough of Richmond upon Thames Council in March 2016.

2.5 Sequential test

2.5.1 The Sequential Approach is detailed within the Planning Practice Guidance and aims to ensure preference is given to land within Flood Zone 1 prior to Zones 2 and 3. It also ensures that flood vulnerability of the Proposed Development is taken into consideration when locating development in Flood Zones 2 and 3.

2.5.2 Where the Sequential Approach shows that it is not possible to locate development in zones of lower flood risk due to other wider sustainability issues; it may be possible to

justify, using the Exception test, that development is still feasible by the management of flood risk.

2.6 CIRIA guidance

2.6.1 CIRIA publication 'C624 Development and Flood Risk – Guidance for the Construction Industry', defines three levels of Flood Risk Assessment which can be undertaken:

FRA Level	Description / Scope
Level 1	**Screening Study** to identify whether there are any flooding or surface water management issues related to a development site that may warrant further consideration. This should be based on readily available existing information, including the SFRA, Environment Agency Flood Map and Standing Advice. The Screening Study will ascertain whether a FRA is required.
Level 2	**Scoping Study** to be undertaken if the Level 1 FRA indicates that the site may lie within an area that is at risk of flooding or that the site may increase flood risk due to increased run-off. This Study should confirm the sources of flooding which may affect the site and should include the following: an appraisal of the availability and adequacy of existing information; a qualitative appraisal of the flood risk posed to the site, and potential impact of the development on flood risk elsewhere; an appraisal of the scope of possible measures to reduce the flood risk to acceptable levels. The Scoping Study may identify that sufficient quantitative information is already available to complete a FRA appropriate to the scale and nature of the development.
Level 3	**Detailed Study** to be undertaken if the Level 2 FRA concludes that further quantitative analysis is required to assess flood risk issues related to the development site. The Study should include: quantitative appraisal of the potential flood risk to the development; quantitative appraisal of the potential impact of development site on flood risk elsewhere; quantitative demonstration of the effectiveness of any proposed mitigation measures.

2.6.2 This Flood Risk Assessment will follow the requirements of a Level 1 Scoping Study.

3 Development description & locations

3.1 Existing surroundings description

3.1.1 The Site is located at Former Homebase Manor Road, Richmond, TW9 1YB as shown in Figure 2. The approximate coordinates at the centre of the site are 518901, 175426.

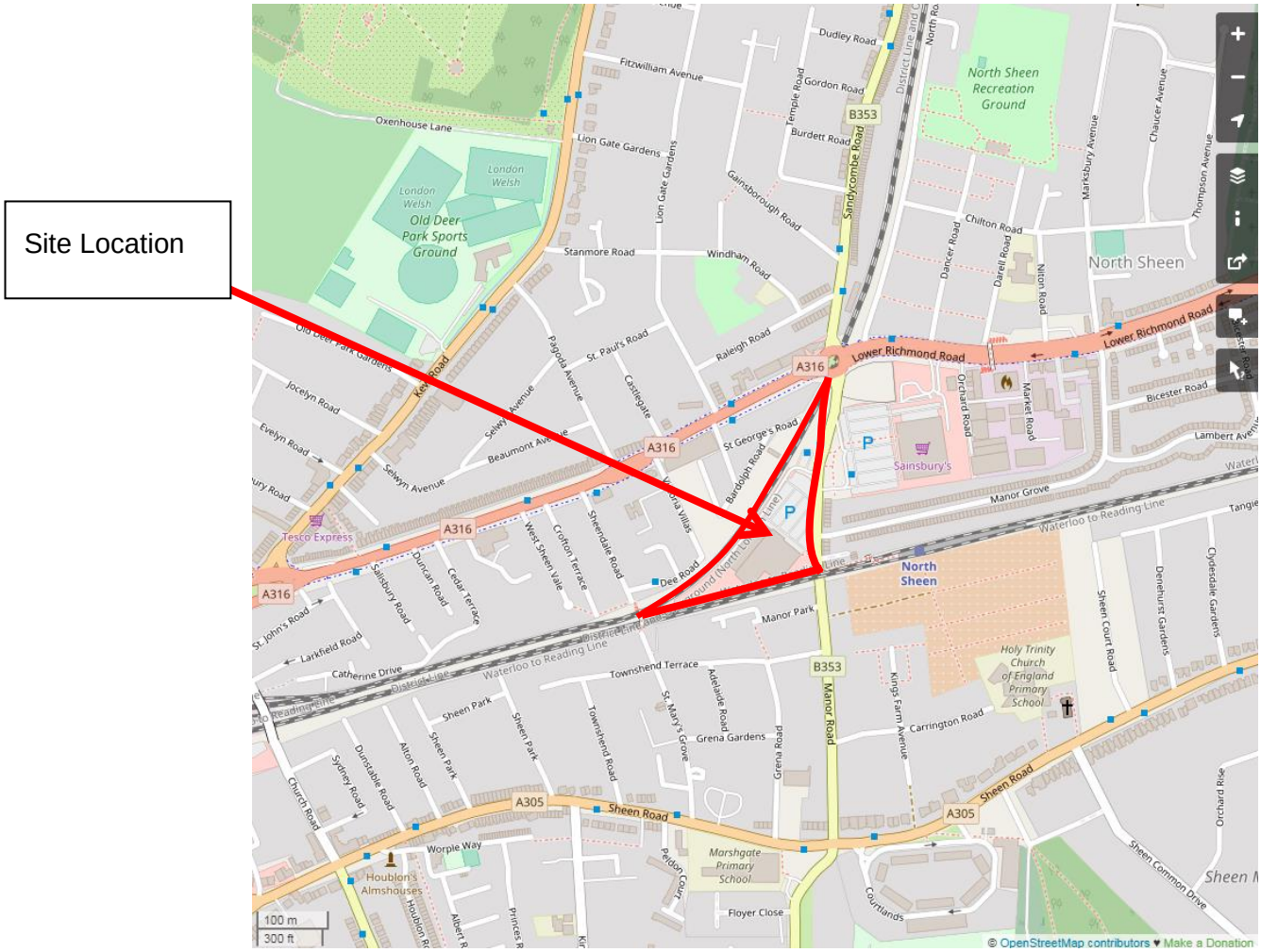


Figure 2 – Former Homebase, Manor Road, Richmond

3.1.2 The site is roughly triangular in shape and bounded to the north and south by merging railway lines and Manor Road (B353) to the east. In the north east corner of the site, Manor Road crosses the railway lines on an elevated roundabout.

3.2 Description of Existing Site

3.2.1 The total site area is 1.842ha which is almost entirely impermeable either (i) under buildings or (ii) paved parking, roads and other hardstanding areas.

3.2.2 In the pre-redevelopment layout, the site is almost fully paved with several small areas of vegetation and trees throughout the site. These can be seen on the Topographical Survey (Point2Surveys Ltd, Drawing No. LS2024/T/01-10 dated August 2018) included as in Appendix A1 to this report.

3.2.3 The Topographical Survey indicates the site to be approximately 7mAOD at the east of the site, sloping to approximately 6mAOD at the south west of the site. The south west of the site is contained by a retaining wall with the railway alongside the site at approximately 7.3mAOD.

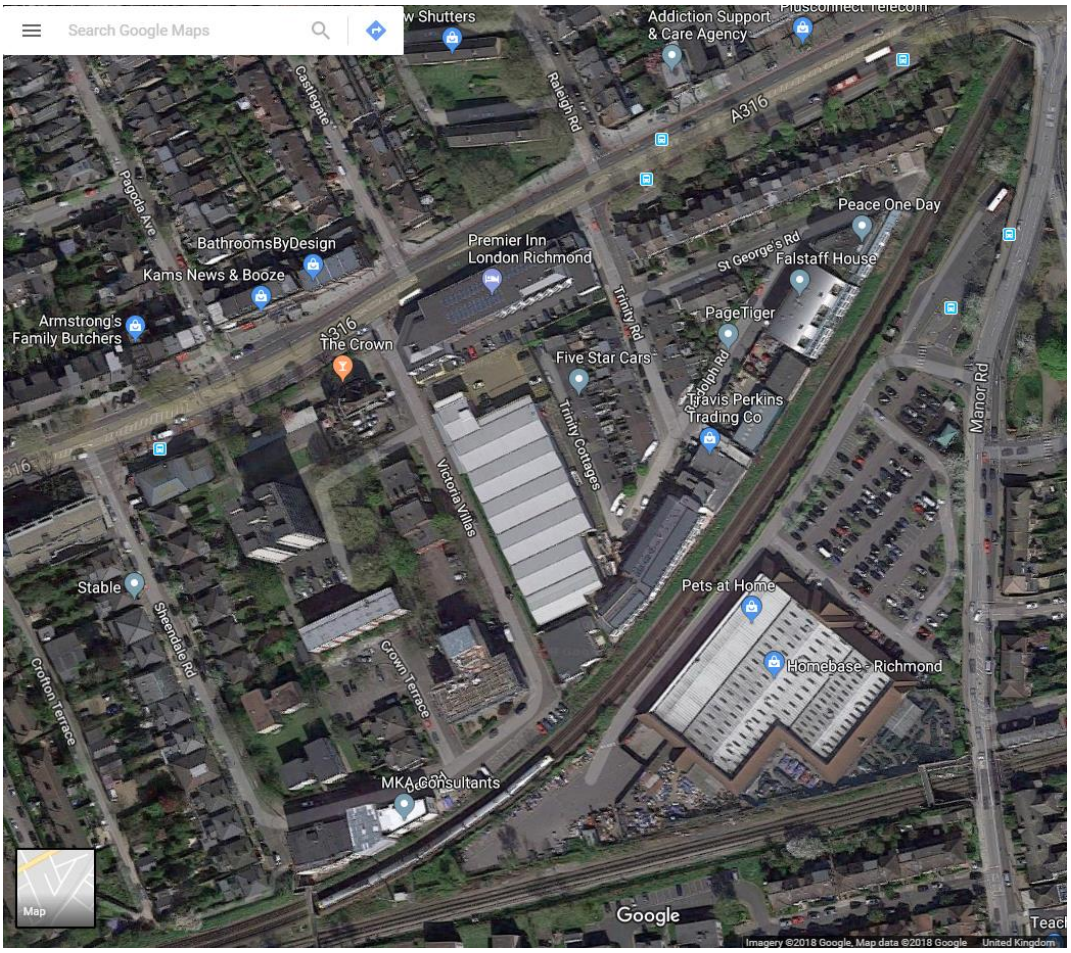


Figure 3 – Satellite imagery of the site (via Google Maps

3.3 Existing geology & groundwater protection

3.3.1 At the time of writing, no intrusive geotechnical testing had been completed however a Preliminary Geotechnical Risk Assessment (PRA) has been completed using a site walkover and desk study review of nearby boreholes.

3.3.2 Boreholes near the site identified made ground over sands and gravels underlain by clay. Groundwater was also identified in these boreholes.

3.3.3 Ground conditions can vary greatly over short distances and intrusive tests will be required to confirm the conditions of the site. These have been commissioned and results are awaited.

3.3.4 DEFRA (Department for Environment Food and Rural Affairs) publish groundwater and drinking water source protection zone maps online through Magic Map. A search on the site location identifies no protection zones with the site, see figure below.

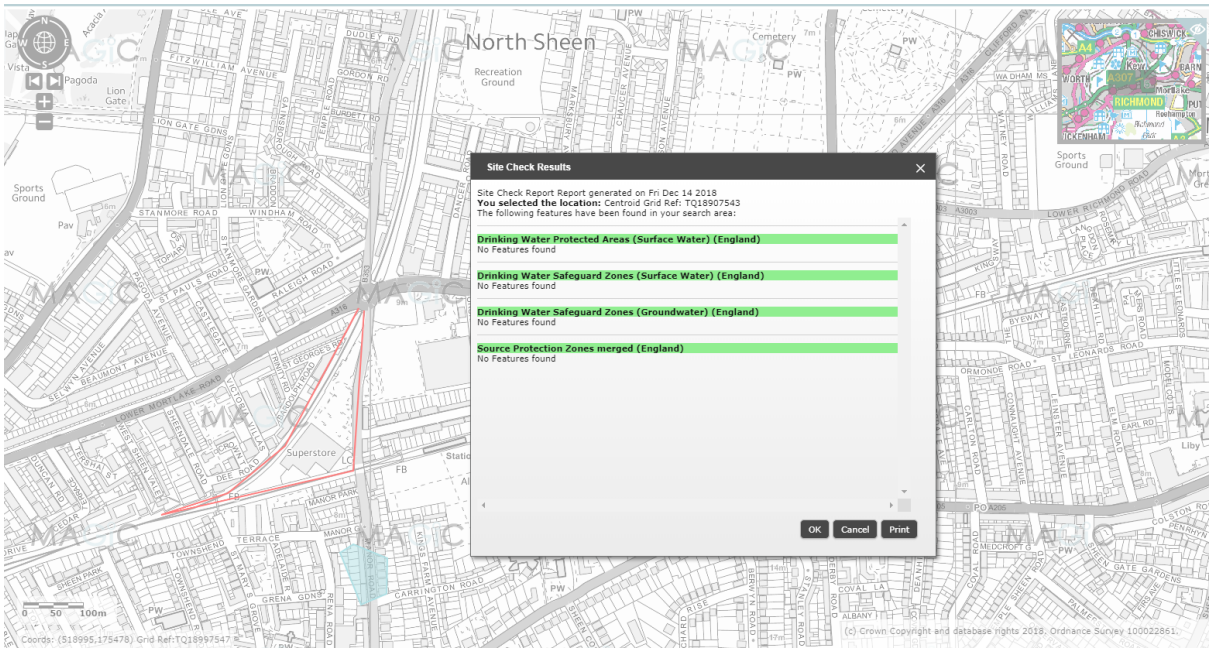


Figure 4 – Groundwater / drinking water source protection zones

3.4 Sequential Test and Exception Test

3.4.1 With reference to Table 2: '*Flood Risk Vulnerability Classification'* in NPPF Planning Practice Guidance, residential development is considered as 'more vulnerable' and Commercial properties are classed as 'Less Vulnerable' in terms of planning issues.

3.4.2 The Sequential Test should be applied to new developments located within a Flood Zone 2, 3 or functional floodplain in order to steer them to areas with a lower risk of flooding. As the proposed development site is located in a Flood Zone 1 (Low Probability of flooding) the Sequential Test is not required.

4 Definition of flood hazard

4.1 Flooding from Rivers

4.1.1 River flooding that occurs when a watercourse cannot cope with the water draining into it from the surrounding land. This can happen, for example, when heavy rain falls on an already waterlogged catchment.

4.1.2 The site is located south of a bend in the River Thames, with the closest point being approximately 1.6km to the east. Environment Agency mapping shows that neither it nor other watercourses pose any significant flood risk to the site.

4.2 Flooding from Sewers (Surface Water Flooding)

4.2.1 Sewer flooding that occurs when sewers are overwhelmed by heavy rainfall or when they become blocked. The likelihood of flooding depends on the capacity of the local sewerage system and the type of sewer (combined or separate) in the local area. Land and property can be flooded with water contaminated with raw sewage as a result. Rivers can also become polluted by sewer overflows. It is difficult to predict and pinpoint; much more so than river or coastal flooding.

4.2.2 The EA Surface Water flood maps identify the potential depths, velocities and hazard rating of surface water flooding during a 30, 100 & 1000 year probability storm events.

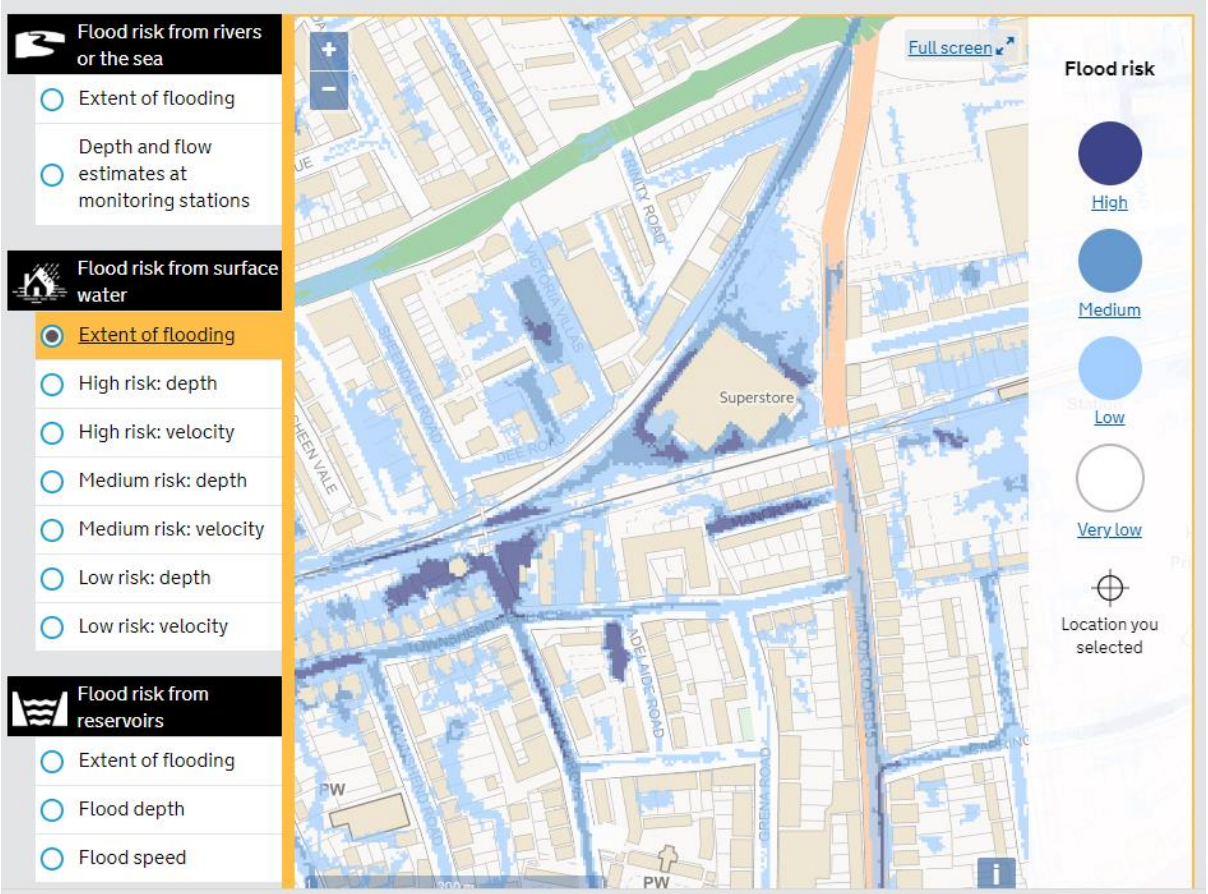


Figure 5 – Flood Risk Maps (Surface Water) - Environment Agency

4.3 Flooding from Groundwater

4.3.1 Flooding from groundwater is defined by BGS as:

"the emergence of groundwater at the ground surface away from perennial river valleys or the rising of groundwater into man-made ground under conditions where the 'normal' range of groundwater levels and groundwater flows is exceeded."

4.3.2 Groundwater modelling is required on site to ascertain the risk of flooding from groundwater.

4.4 Flooding from Artificial Sources

4.4.1 Flooding from artificial sources can be defined as a failure of man-made infrastructure or human intervention that causes flooding. Consideration should be given to features such as reservoirs, canals and lakes where water is retained above natural ground level.

5 Probability of flooding

5.1 Probability of Flooding from Rivers

5.1.1 In accordance with the Environment Agency's indicative flood map, the site is located in Flood Zone 1, which has less than 0.1% annual probability of fluvial flooding (equivalent of 1 in 1000 year return period).

5.1.2 The site is outside of the influence of the Thames Flood defences which are designed to protect against a greater than 1 in 1000 year return period. Therefore there is negligible risk that flooding may occur during extreme future flood events in a breach scenario.

5.2 Probability of Flooding from Sewers / Surface Water

5.2.1 The Environment Agency produces flood risk maps to show the risk of flooding from surface water / sewers (Figure 5 above). These show the site to be at risk of flooding from surface water.

5.2.2 It should be noted that the EA maps are caveated with the guidance note

"due to the difficulty in surface water flooding prediction, maps report property information for the highest risk within 20m of the site"

5.2.3 More accurate information relating to the specific flooding of individual properties by surface water due to sewer surcharge is held by Thames Water.

5.2.4 A search request for this site returned no evidence of surface water flooding of the site due to surcharging events on record. A copy of this search result is contained within the appendices.

5.2.5 Based on this more accurate flooding information, the site is assessed as not at risk of surface water flooding from surcharging sewers.

5.2.6 Properties are at risk of foul water flooding in areas of combined foul and surface water. The local area is served by separate foul and surface water sewers. The site is therefore deemed not to be at risk of flooding of foul water.

5.3 Probability of Flooding from Groundwater

5.3.1 Two BGS borehole records situated in the vicinity of the site (see Figure 6 below) recorded groundwater levels at 3m below ground level (TQ17NE436) and 1.5m below ground level (TQ17NE62). This indicates that the site could be at risk of flooding from groundwater. Groundwater monitoring should be undertaken to confirm groundwater levels on the site in order to more fully assess the risk.

Figure 6 – BGS Borehole locations - BGS

5.4 Probability of Flooding from Artificial sources

5.4.1 The EA maps (7) show a low / no probability of flooding occurring from artificial sources.

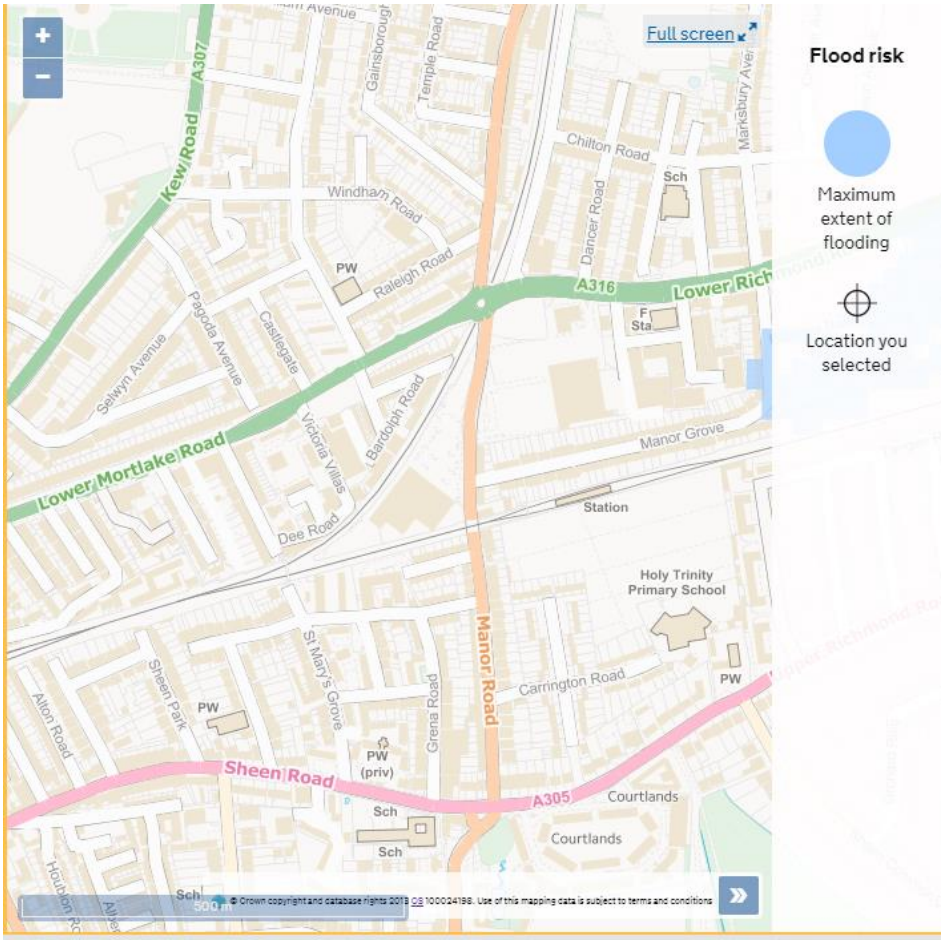


Figure 7 - Flood Risk Maps (Artificial Sources) - Environment Agency

6 Development proposal

6.1.1 The proposed development plans are included as Appendix A4 in this report.

6.1.2 The development proposals include 4No. blocks of mixed commercial and residential units.

6.1.3 It is also proposed that the area at the north of the site is to remain as existing.

6.1.4 The proposed external layout includes small islands of soft landscaping and trees south of the access road into the site.

7 Flood risk mitigation measures

7.1 Groundwater flooding

7.1.1 The proposal to drain the site via infiltration devices as per the predevelopment condition will provide a betterment on the exiting situation as 0.63ha of the site will be blue roof where water will be stored and the run-off limited to 1.5 l/s per building meaning that the development will not increase the risk of groundwater flooding.

7.1.2 To mitigate against potential groundwater flooding an exceedance route has been identified which routes water away from the buildings and road and into low spots around the edge of the site, leaving a safe route of exit for residents. Please refer to Fairhurst drawing 126782-C-4000 which is included as Appendix A6 in this report.

7.2 Surface Water flooding

7.2.1 As discussed in previous sections, it is policy in Richmond for developments to, where possible, reduce the flood risk to the local area and reduce peak runoff rates to greenfield rates (where feasible) using Sustainable Drainage Measures (SuDS).

7.2.2 The proposed development site is currently brownfield land. A utility and drainage survey identified a series of ring soakaways in the existing site car park which it is believed all the surface water south of the access road discharges through. No surface water connection to the Thame Water sewer was identified during any of the site investigations completed to date.

7.2.3 It should be noted that no survey has yet been undertaken for the existing bus layover north of the access road into the site.

7.2.4 The site is split into (i) buildings with roofscapes (approx. 0.63ha) and (ii) ground level landscaping (approx. 0.6ha).

7.2.5 In line with LBRuT policy, green/blue roofs should be incorporated at roof level. Due to the build-up of the soil, this reduces runoff leaving the roof. Smart controls and additional storage can be provided at roof level to limit the roof run-off.

7.2.6 The proposed development includes large areas of hardstanding (approx. 0.58ha). Where possible, these will be constructed of a porous material and with a permeable lined porous subbase. This will allow rainfall to infiltrate to the natural environment.

7.2.7 As the site currently drains via infiltration, it is assumed the local geology is suitable for infiltration drainage. Infiltration tests in accordance with BRE365 have been commissioned and the results are awaited to confirm this and the infiltration rate for design.

7.3 Climate change

7.3.1 An allowance within the drainage network should be made to accommodate climate change.

7.3.2 The Environment Agency (EA) publishes tables of anticipated climate change based on river basin districts for different design life lengths.

River basin district	Allowance category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Thames	Upper end	25%	35%	70%
	Higher central	15%	25%	35%
	Central	10%	15%	25%

Figure 8 - Peak river flow allowances by river basin district (use 1961 to 1990 baseline), source: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances, Aug 2018

7.3.3 The proposed development lies within the Thames district and the upper end allowance for the 2050's should be applied.

7.3.4 Based on the table above and current guidance, this advises an allowance of 35%. This allowance has been reflected in any surface water calculations.

8 Surface Water Drainage

8.1 Existing private drainage

8.1.1 The existing site contains surface and foul water drainage serving the existing retail store (to be demolished as part of the proposed works).

8.1.2 A topographical and drainage survey (see appendices) shows the drainage network including conveyance features and soakaways south of the access road into the site. Due to the scale of the proposed development, it is not anticipated that any of the existing drainage within the site will be suitable for reuse in this area. This includes the existing soakaways that cannot remain in their current location within the proposed development. Further surveys are required to determine whether any existing drainage within the site north of the access road can be reused.

8.2 Existing surface water runoff

8.2.1 The current site is brownfield land with negligible soft landscaping.

8.2.2 The existing surface water runoff rates have been calculated using the Wallingford Procedure for various return periods. The results are summarised in the table below and the full calculations are included in Appendix A5 to this report. For comparison, the site greenfield equivalent rates are also given.

Return Period	Greenfield Rates		Brownfield Rates
	Runoff / ha (l/s)	Runoff (site) (l/s)	Runoff (site) (l/s)
1yr	1.3	2.4	281.9
30yr	3.5	6.4	663.9
100yr	4.9	8.9	841.2

8.3 Proposed surface water runoff

8.3.1 It is proposed to drain the majority of the site using infiltration devices on the site, subject to confirmation of suitable infiltration rates.

8.3.2 It is also proposed that the area to the north of the site, where there is no development, will drain as per the existing situation. This is subject to a further CCTV survey of drainage in that area.

Greenfield Runoff

8.3.3 Pending the infiltration results, the site has also been assessed to consider the possibility of a connection to the public sewer network for the case of unfavourable infiltration results being reported.

8.3.4 The site has been assessed using *Quick Storage Estimates* in MicroDrainage software to estimate the required volumes to attenuate the site to existing greenfield runoff rates for various storm return periods.

8.3.5 Further to the *Quick Storage Estimates*, a *Source Control* calculation has been carried out for each of the proposed tanks. The MicroDrainage Source Control calculations are included in Appendix A5 within this report.

8.3.6 The estimated volume for the 100yr + 35% climate change storm is shown in the table below as the maximum attenuation that would be required to match greenfield runoff. The MicroDrainage calculations are included in Appendix A5 within this report.

Return Period	Flow Limit (l/s)	Volume (m^3)
100yr + 35% Climate Change	8.9	1485

8.3.7 It is anticipated that this would be attenuated using a combination of above ground blue / green roofs and below ground tanks. Complex flow controls would be used to flow match different storm return periods.

8.4 Sustainable Drainage Systems (SuDS)

8.4.1 Sustainable Drainage Systems (SuDS) aim to reduce runoff rates by mimicking the natural environment and discharge routes.

8.4.2 The SuDS Manual (CIRIA C753) provides guidance on the different types of SuDS components and how they can be used.

8.4.3 The table below summarises the SuDS components as listed in the SuDS manual and indicates their suitability for use on the proposed development.

SuDS Feature	Description		Suitability / comment
Rainwater harvesting	Rainwater harvesting is the collection, storage, treatment (where necessary) of rainwater runoff from roofs and other impermeable areas for reuse within the site. In addition to reducing volume runoff from the site, they can reduce the water demand of the site delivering climate resilience and sustainability benefits		Although not proposed, this is suitable for irrigation and external uses within the site, subject to requirements of the landscape architect. Building constraints do not allow for dual potable and non-potable water supply pipes to units within the buildings. Suitable treatment should be used in accordance with specialist guidance.
Green/Blue roofs	Green/Blue roofs are areas of living vegetation included on the roofscape of buildings. They can be either extensive or intensive and accessible or non-accessible. The plant and soil reduces the rate of discharge extending the time between rainwater falling on the roof and reaching the rainwater outlet / drain. They also provide ecological and visual benefits.		This is suitable for use in the development and have been proposed for the site. Extensive sedum roofs are suitable for non-accessible roof areas. Intensive landscaped roofs are suitable for amenity areas on podiums / select roofs.
Infiltration systems	Infiltration systems hold water and allow it to percolate back into the ground as it would naturally in permeable areas. These can either be traditional shallow soakaways or deep bore soakaways. Their suitability depends on the soil permeability. Due to the effect of water on structural stability, these need to be sited sufficient distances from buildings / foundations. These can reduce volume runoff from sites and contribute to recharging groundwater		This is proposed for the site pending results of infiltration tests.
Proprietary treatment systems	Proprietary treatment systems are manufactured products to remove specified pollutants from runoff. These can reduce downstream maintenance requirements and provide additional benefit, if required, by receiving watercourses / discharge locations.		Catchpits will be included to reduce silt build up within pipes and drainage components. There is no special protection to the discharge destination and therefore additional treatment (on discharge) is not required.
Filter strips	Filter strips are uniformly graded gently sloping strips of grass or vegetation to treat runoff by slowing down flows, promoting sedimentation and infiltration.		These are suited for large open spaces and therefore not suitable for use on the proposed development.
Filter drains	Filter drains are shallow trenches filled with gravel to attenuate, treat and convey surface water runoff. They can convey / attenuate only or, depending on		The proposed landscaping plan does not include areas of gravel paths / surfacing.

SuDS Feature	Description		Suitability / comment
	site conditions, allow infiltration direct to the ground.		
Swales	Swales are shallow flat bottomed channels to convey, infiltrate (where possible) and treat surface water runoff. They can enhance site design and provide biodiversity enhancements. They are often used to drain roads, paths or car parks. Swales can replace traditional pipes as a means to convey flows and used as part of a SuDS train of elements.		Swales are most suitable along roads with large verges or car parks surrounded with vegetation. They are not suitable for use on the proposed development.
Bioretention systems	Bioretention systems including rain gardens are shallow landscaped depressions to treat and store runoff using engineered soils and vegetation. They provide amenity and visual benefit alongside additional climate benefits. They are usually used for containing / managing frequent storm events.		These require areas of open space suitable for frequent flooding / surface water storage. These are not suitable for use with the intensity of the proposed development.
Trees	Trees help protect the environment in a number of ways including reducing runoff rates through interception of rain water in their canopies, and promoting infiltration in permeable / soft landscaping as well as the visual benefit they provide to the area.		Trees are proposed to be included within soft landscaped areas of the development.
Pervious pavements	Pervious pavements provide pavement surfaces suitable for pedestrian / trafficked applications whilst allowing runoff to permeate through their structure. This provides filtration benefit to treat runoff. Pervious pavements can be used to collect, treat and convey flow only, or if site condition permit, allow infiltration to the ground direct from their base.		These may be suitable within the development subject to detailed design. Site conditions are not suitable for full infiltration however these can facilitate partial infiltration. Additional benefits to the development of pervious pavements will be to convey flows – reduce the number of drains and pipes required, and attenuation - reducing the size of underground storage tanks required.
Attenuation storage tanks	Attenuation storage tanks temporarily hold back water for gradual release or reuse at a controlled rate to reduce the peak runoff rate. These can be in the form of above ground tanks (blueroofs), below ground geocellular / concrete tanks or oversized pipes.		The sedum greenroofs / landscaped greenroofs are proposed to include podium storage crates to attenuate water at roof level. Below ground tanks for storage / infiltration is proposed to increase available storage as required and discharge surface water.

SuDS Feature	Description		Suitability / comment
Detention basins	Detention basins are landscaped depressions which are normally dry except for during and immediately after storm events. These attenuate flows through controls on the outfalls to store rainwater upstream in networks providing treatment and amenity benefits. With careful design, these can be used for leisure / amenity uses during normal / dry periods.		These are suitable for large open spaces. These are not suitable for use with the intensity of the proposed development.
Ponds & wetlands	These are similar to detention basins, however they are designed to have a permanent level of water within them to provide biodiversity and amenity benefits.		These are suitable for large open spaces. These are not suitable for use with the intensity of the proposed development.
Red – Not suitable; Orange – May be suitable; Green - Suitable			

8.5 Drainage hierarchy

8.5.1 In accordance with the Flood Risk and Sustainable Drainage policy LP 21, the development should follow the drainage hierarchy.

8.5.2 The table below summarises the hierarchy and how the proposed drainage strategy complies with the drainage hierarchy.

Stage		Suitability / comment
Store rainwater for later use		This may be suitable for some attenuated water subject to landscape architect requirements. This is not considered to be a viable solution for the main discharge due to the volumes of water required for irrigation.
Use infiltration techniques such as porous surfaces		This is proposed for the site pending infiltration test results.
Attenuate rain water in ponds or open surface features		The intensity of the proposed development is not suitable for open water features
Attenuate rainwater by storage in sealed features or tanks		Attenuation (above and below ground) is proposed on the development.
Discharge direct to a water course		There are no water courses within the development that can be used for discharge.
Discharge to a surface water sewer		This may be required subject to infiltration test results. A hybrid solution with infiltration tanks and an overflow connection to the sewer may be required depending on the infiltration rates at the site.
Discharge to a combined sewer		Not required

Stage		Suitability / comment
Discharge to a foul water sewer		Not required.
Red – Not suitable; Orange – possible discharge location; Green – Discharge location		

8.6 Proposed drainage layout

8.6.1 The proposed drainage strategy has been developed in accordance with the relevant policy and guidelines as set out in the Flood Risk Assessment.

8.6.2 The proposed drainage strategy is shown on Fairhurst drawing 126782-C-4000 and is included as Appendix A6 in this report.

8.6.3 The drainage strategy includes blue / green roofs to attenuate roof drainage at source. Low flow orifices are available which can restrict roof run off to low flow rates. Using these will minimise the volume of below ground attenuation required.

8.6.4 Below ground infiltration and attenuation tanks are proposed to attenuate and discharge surface water.

Infiltration

8.6.5 The Geotechnical Preliminary Risk Assessment (included in Appendix A2) states;

Soakaways may be feasible within the granular Kempton Park Gravel Formation; however, given the potential for contamination identified, further risk assessments may be required to ensure that these do not result in increased mobilisation of potential contamination. Furthermore, BGS borehole logs have identified a groundwater table from c.1.5m bgl and the shallow depth to groundwater may preclude the use of soakaway drainage.(Report Fairhurst 126782-R1.6)

8.6.6 This was written prior to the receipt of the survey showing the current site draining to soakaways.

8.6.7 Based on the current site drainage regime and the geotechnical conclusions, it is determined the site may be suitable for infiltration drainage. Pending the result of the site specific testing, infiltration rates have been assumed based on conservative estimates for the anticipated soil conditions.

Soil condition	Typical Infiltration Rate Range (m/hr)
Gravel	0.1 - 1
Sands	0.1 – 100

8.6.8 For the preliminary drainage strategy, a conservative rate of 0.5m/hr has been used.

8.6.9 The infiltration tanks draining hardstanding areas on-site have been modelled in MicroDrainage using Source Control, and are included as in Appendix A5 within this report.

8.6.10 The site is bounded by Network Rail land who typically require any infiltration devices to be minimum of 10m from their land boundary.

8.6.11 The tank size should be confirmed following the results of the infiltration tests.

8.6.12 As part of the infiltration tests, groundwater monitoring should also be completed to confirm there is a minimum of 1.0m below the base of the infiltration device and the maximum groundwater level.

Connection to the Public Water Sewer / Overflow

8.6.13 If the infiltration results prove unsuitable for infiltration discharge, a new connection may be required to the Thames Water sewer.

8.6.14 Dependant on the infiltration rates, this may be for all discharge (limited to greenfield rate) or partial discharge as an overflow.

The table below shows the volume of attenuation required on site if the site is to solely discharge to Thames Water sewers at greenfield rates.

Return Period	Flow Limit (l/s)	Volume (m^3)
100yr + 35% Climate Change	8.9	1485

8.6.15 A preplanning application has been submitted to Thames Water to confirm capacity in the network should this be required. Thames Water have advised that as the site currently drains via infiltration, they will not fully assess the site for a sewer connection prior to completion of infiltration tests.

8.6.16 Thames Water have indicated if infiltration drainage is not possible, they may consider a new connection restricted to the lower of greenfield runoff rate and 5l/s subject to Lead Local Flood Authority agreement.

8.6.17 A copy of Thames Water's response to the preplanning enquiry is included in Appendix A3 within this report.

8.7 Drainage Form

8.7.1 London Borough of Richmond upon Thames has developed a drainage assessment form for developers to complete.

8.7.2 A completed copy of this form is included in Appendix A8.

9 Foul Water Drainage

9.1 Existing drainage

9.1.1 The existing site is served by a network of private drains and connects to the Thames Water foul sewer as shown on the surveys in the south east corner of the site.

9.2 Proposed drainage

9.2.1 Due to the extents and type of the proposed development, the existing drainage network within the site will not be suitable for reuse due to the layout of the pipes / proposed buildings.

9.2.2 It is proposed to maintain the existing connection between the final private manhole and the Thames Water sewer and connect the proposed site via this existing connection.

9.2.3 Due to the scale of the development, there will be an increase in peak foul flow from the site. A preplanning application has been submitted to Thames Water to confirm capacity in the network. Thames Water have confirmed there is currently capacity in the network for the proposed foul water requirements.

9.2.4 A copy of the Thames Water's response is included in the appendices of this report.

10 Drainage maintenance

10.1.1 As with all engineering systems, SuDS networks require a maintenance regime to be established and followed to ensure it acts as designed.

10.1.2 The SuDS Manual, CIRIA C753 provides guidance on the general maintenance requirements for different SuDS elements.

10.1.3 Typical drainage maintenance schedules are included as Appendix A7 in this report. These should be updated as required during detailed design to reflect the constructed drainage system's requirements.

11 Conclusions

11.1.1 The proposed development is 1.842ha in Flood Zone 1.

11.1.2 A proportion of existing site drains to soakaways and does not connect to the surface water sewers.

11.1.3 A surface water drainage strategy using blue / green roofs and attenuation / infiltration tanks is proposed to manage surface water on the site including an allowance for climate change.

11.1.4 A detailed drainage design based on the strategy and comments in this report should be developed. By implementing these measures, surface water will be managed on site and not increase downstream flood risk.

11.1.5 By implementing these measures, surface water flood risk has been managed and the site is deemed to be not at risk of surface water flooding.

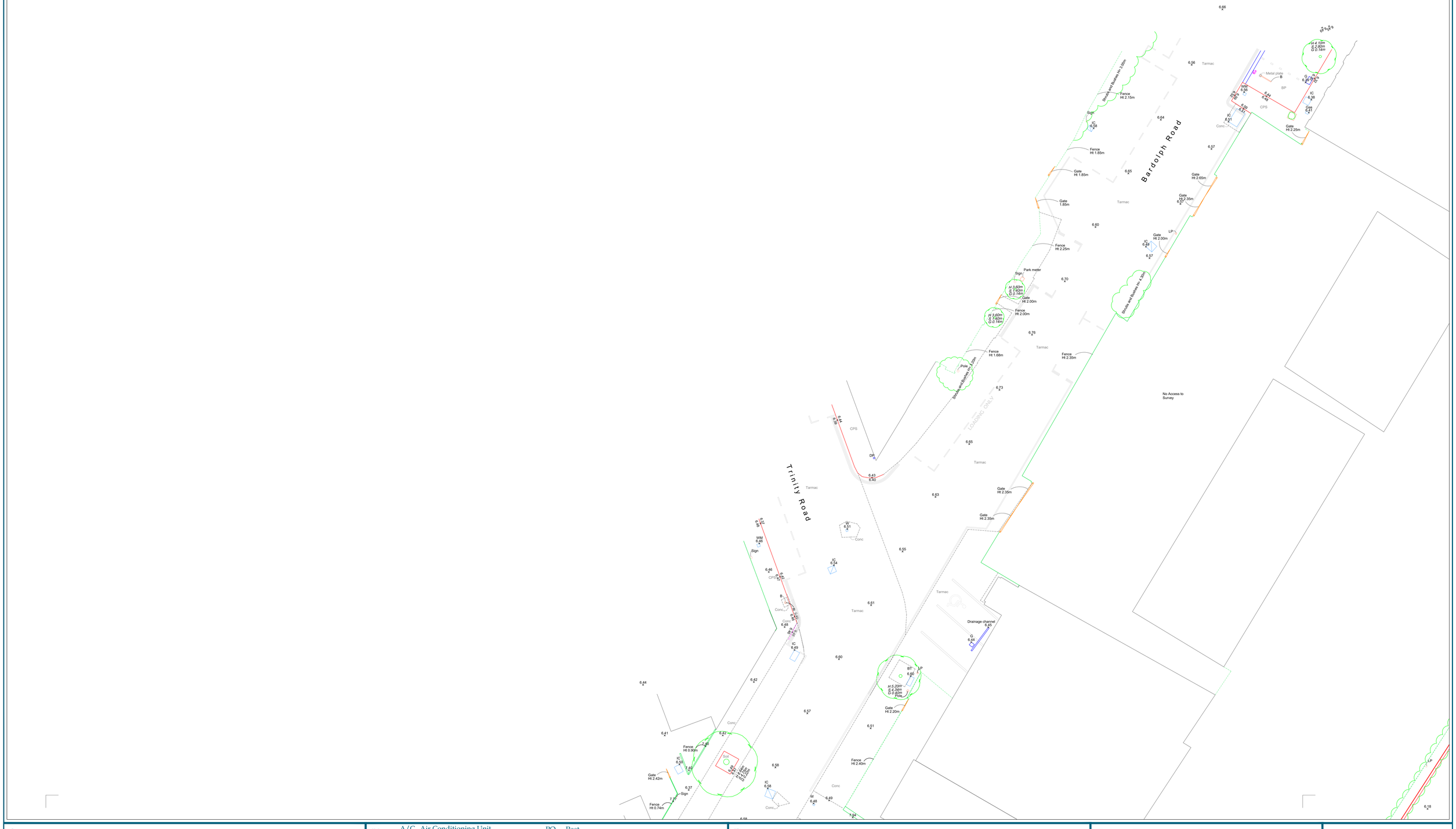
11.1.6 Flood routing and indicative areas of flooding have been identified along the western and southern boundary of the site which leave a safe route of exit for residents onto the road along the eastern boundary of the site should groundwater flooding occur.

11.1.7 A connection to Thames Water sewers may be required for surface water if unsuitable infiltration results are recorded on the site.

11.1.8 A foul water drainage strategy will be developed using the existing connection from the site to the public sewer network.

A.1 Surveys

- Topographical survey
- Utility Survey
- Drainage CCTV Survey



Sources:

Levels are related to Ordnance Survey Datum via GPS Observations

Survey location is related to Ordnance Survey Grid via GPS Observations.

All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Stations:

STN01 - 518899.719, 175472.891, 6.147
STN02 - 518970.579, 175484.687, 6.586
STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit
B	Bollard
BP	Brick Paving
BT	BT Inspection Cover
CATV	Cable Television Inspection Cover
CPS	Concrete Paving Slab
DK	Dropped Kerb
DP	Down Pipe
EL	Eaves Level
FH	Fire Hydrant
G	Gully
GP	Gate Post
IC	Inspection Cover
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IRS	Illuminated Road Sign
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S/O	Smoke Outlet
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TP	TacCPS Paving
W	Water Inspection Cover
WM	Water Meter

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S5	S6	S7
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Project: Homebase, Richmond

Title: Topographic Survey
Sheet 1

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Date: August 2018

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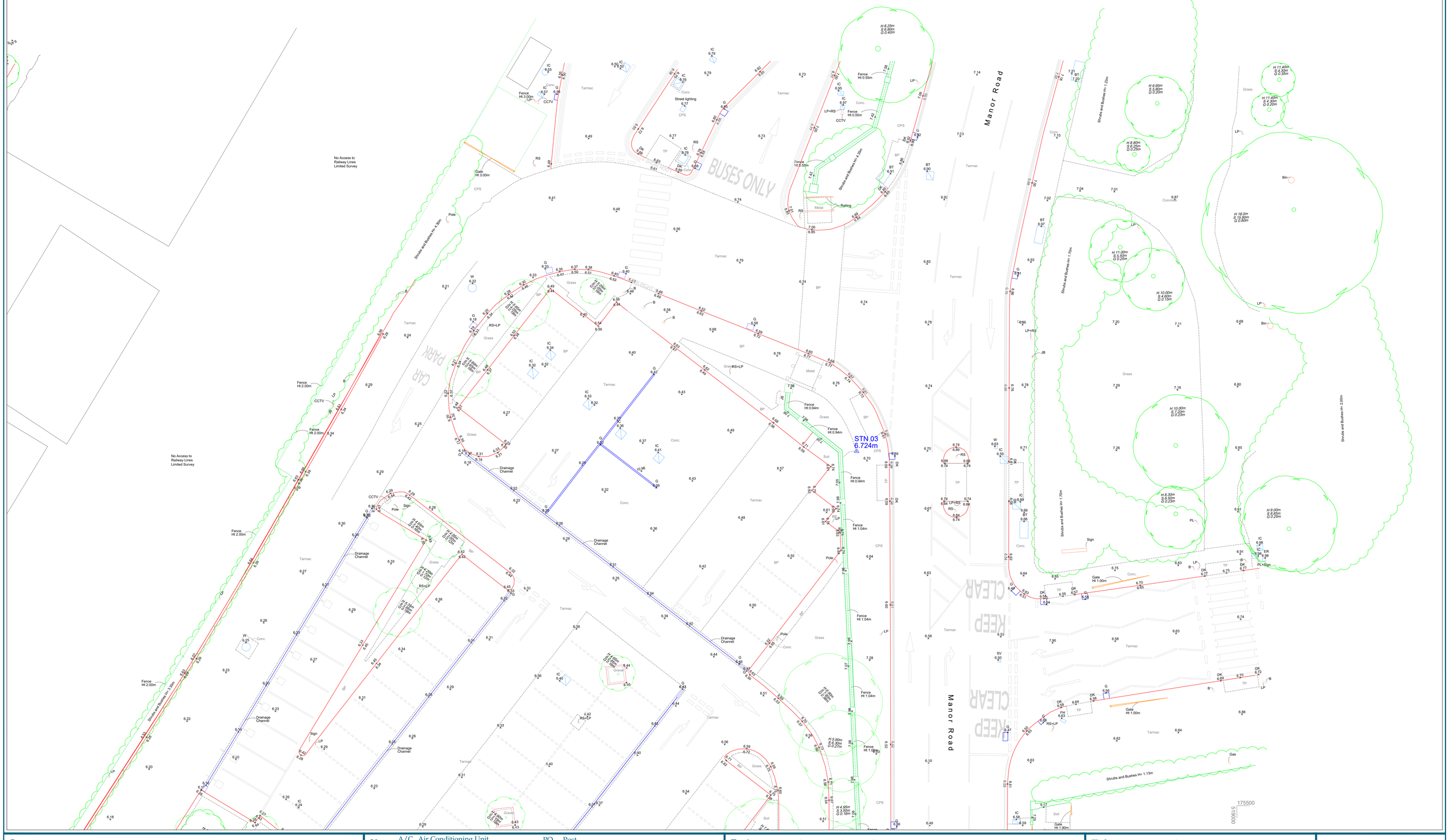

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Indicative

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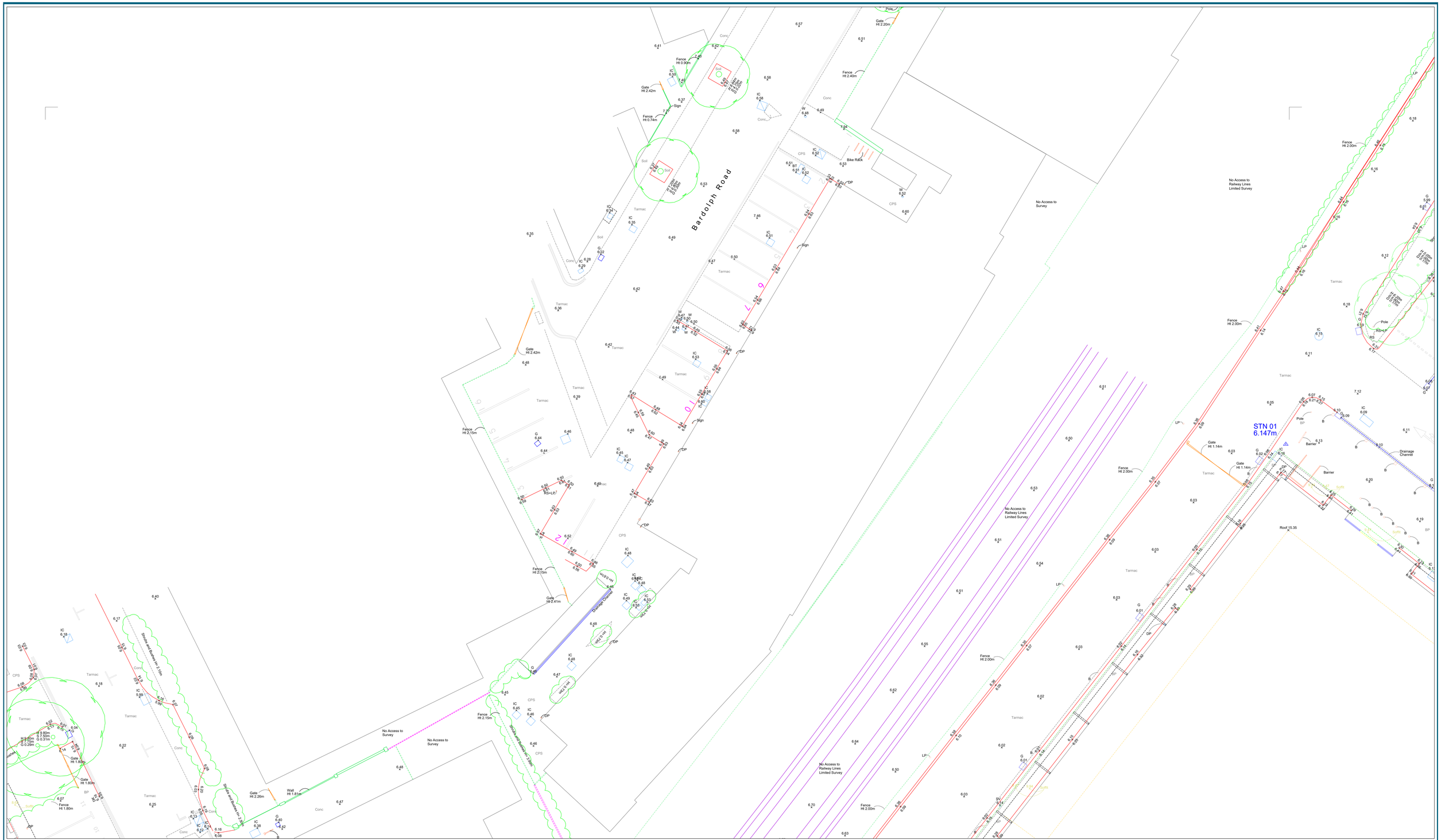

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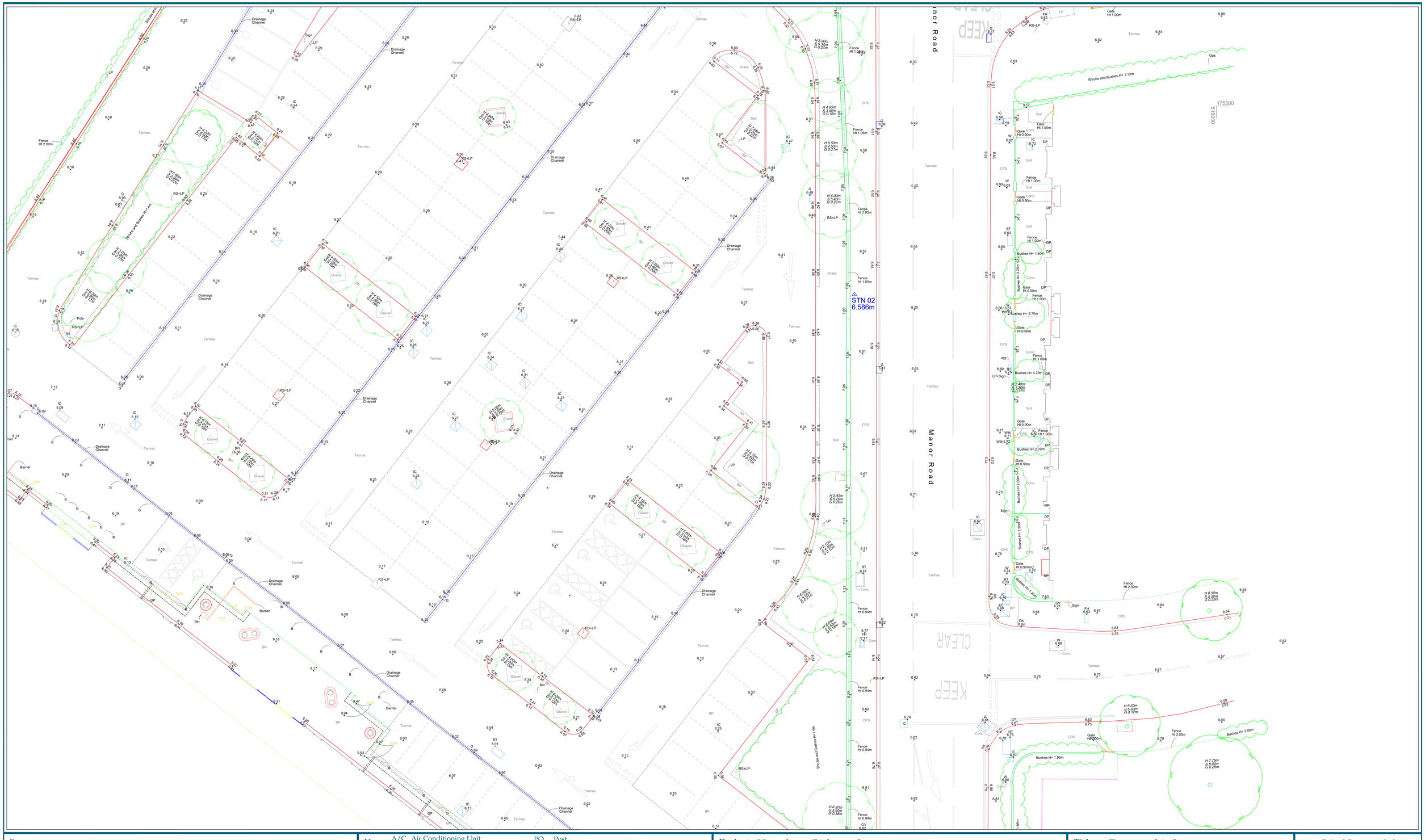

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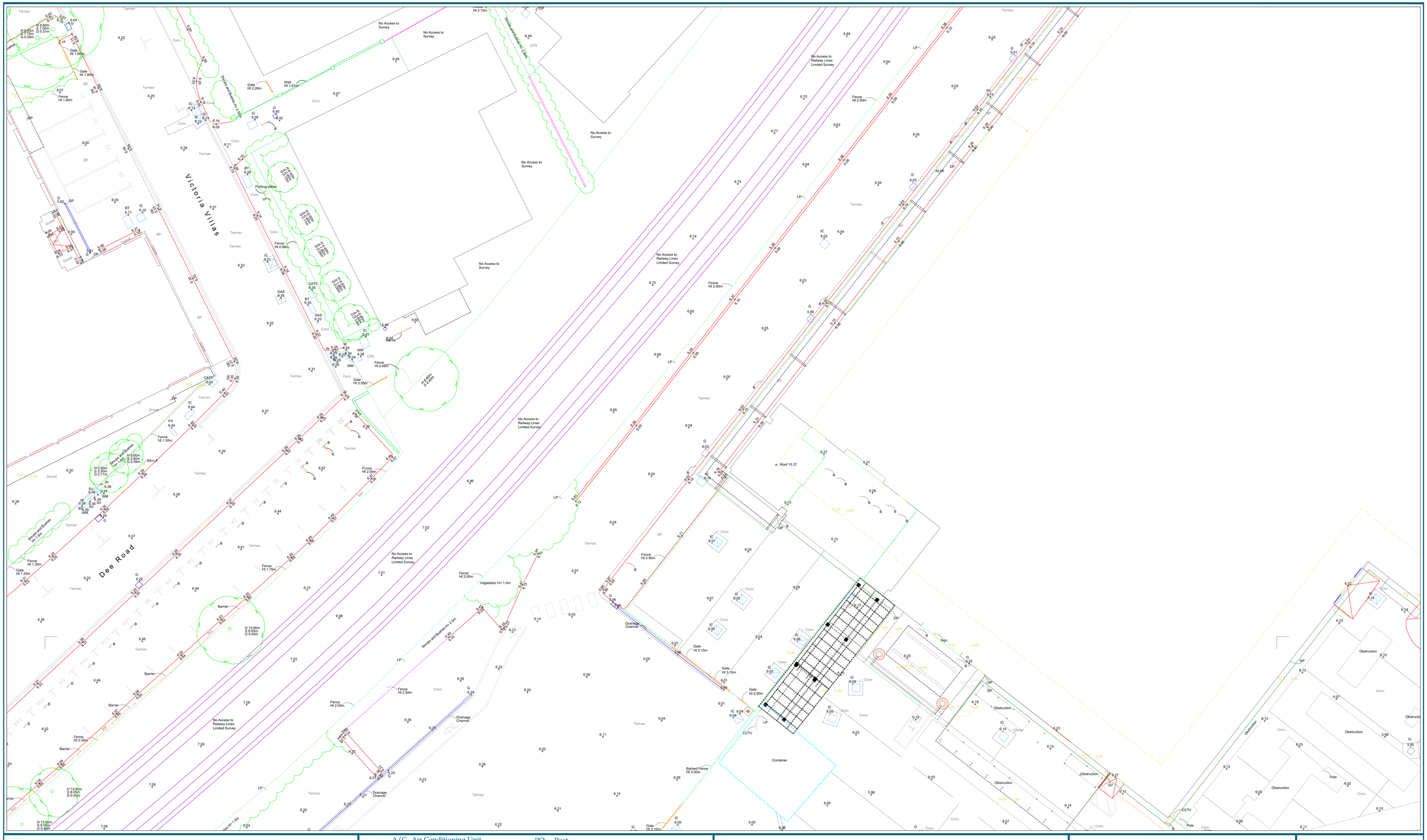

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STN01 - 518899.719, 175472.891, 6.147
STN02 - 518970.579, 175484.687, 6.586
STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit
B	Bollard
BP	Brick Paving
BT	BT Inspection Cover
CATV	Cable Television Inspection Cover
CPS	Concrete Paving Slab
DK	Dropped Kerb
DP	Down Pipe
EL	Eaves Level
FH	Fire Hydrant
G	Gully
GP	Gate Post
IC	Inspection Cover
ILB	Illuminated Bollard
IRS	Illuminated Road Sign
JB	Junction Box
LP	Lamp Post
MH	Man Hole Cover
PB	Post Box
PL	Pavement Light
PO	Post
RL	Ridge Level
SRFC	Surface Change
S/O	Smoke Outlet
SV	Stop Valve
TCB	Telephone Call Box
TP	TacCPS Paving
W	Water Inspection Cover
WM	Water Meter

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 6

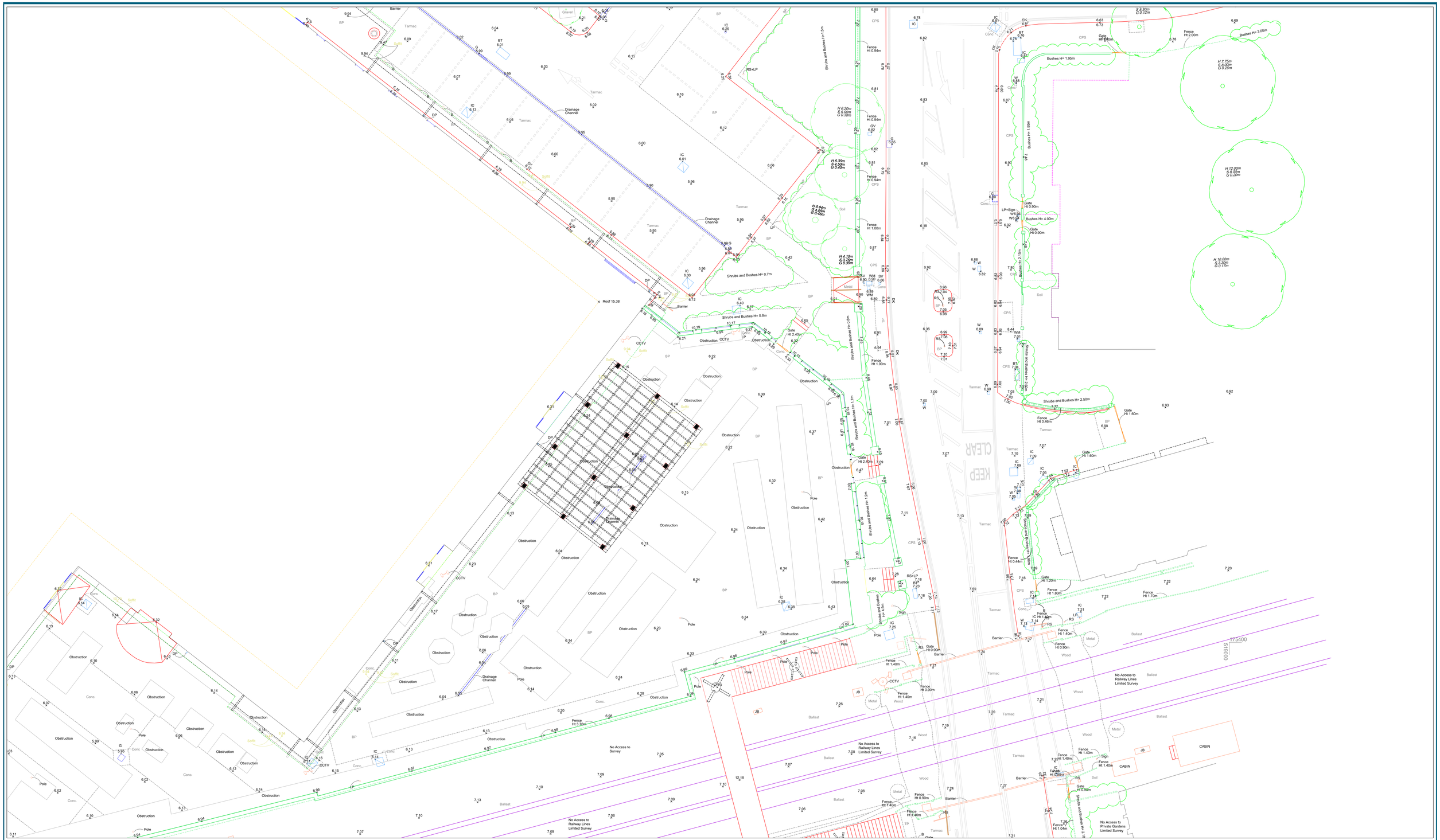
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/06**



Sources:

Levels are related to Ordnance Survey Datum via GPS Observations

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	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 7

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17 Slingsby Place,
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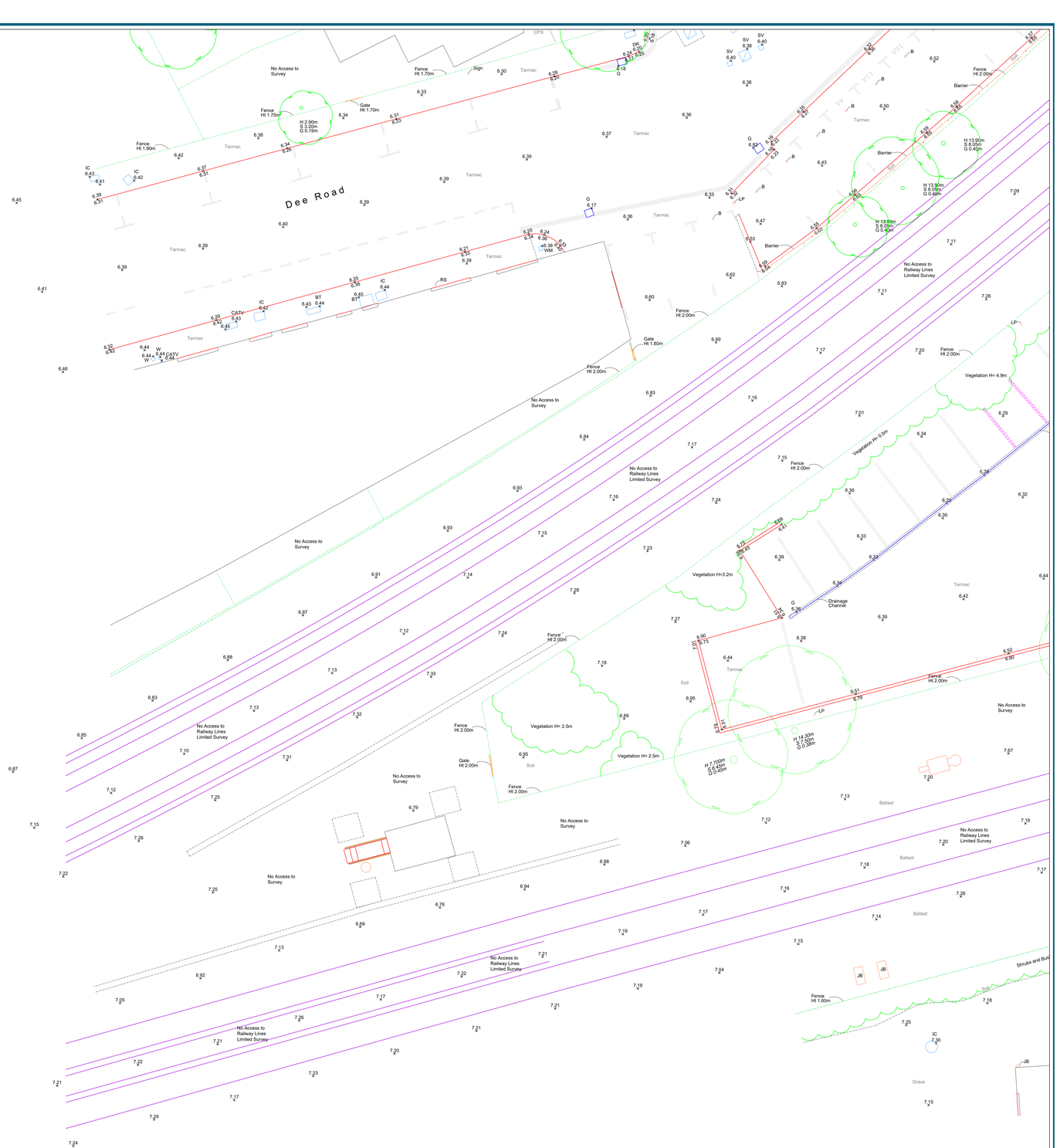
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/07**



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	S1	S2
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S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 8

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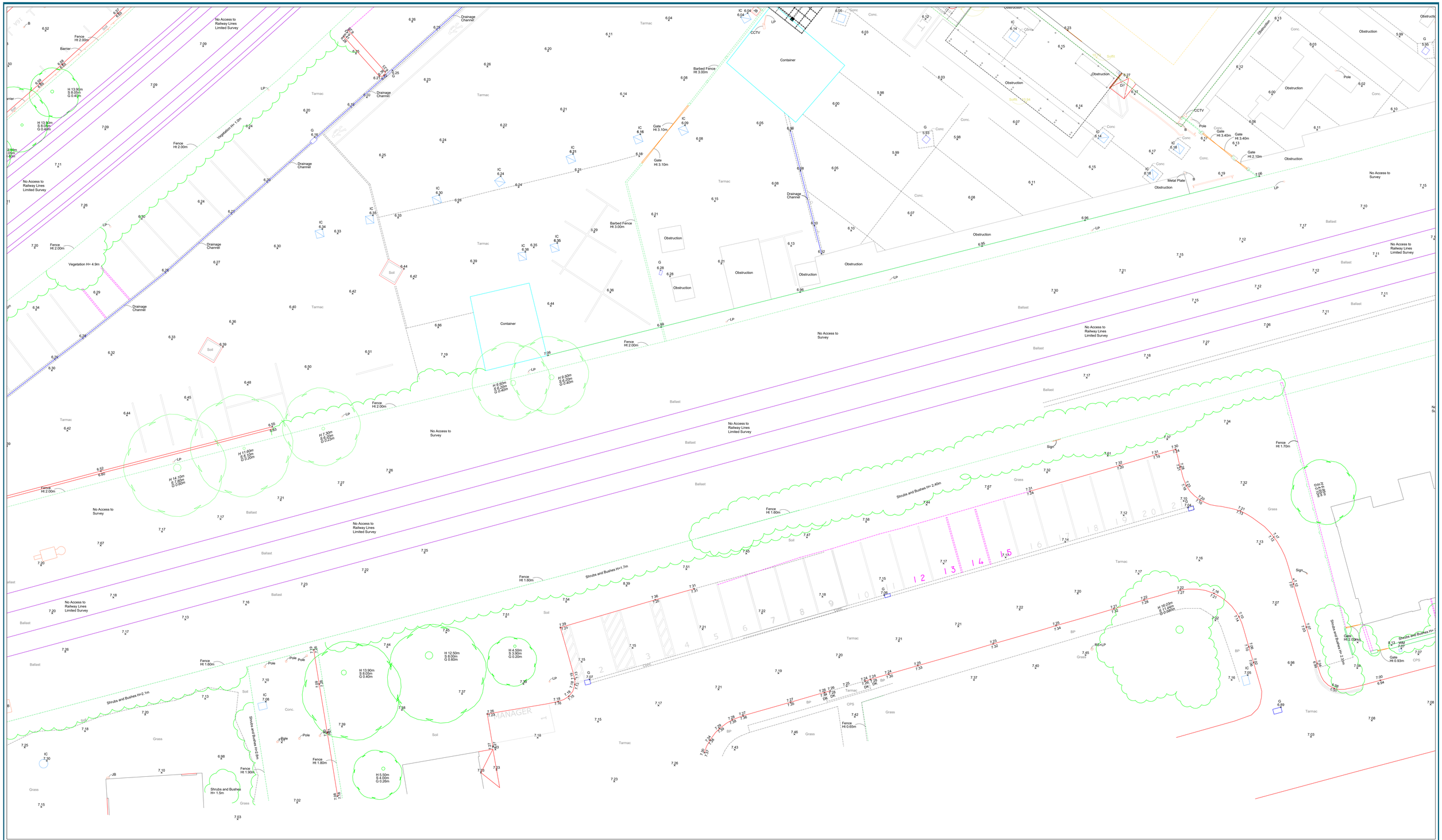
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/08**



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	S1	S2
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S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 9

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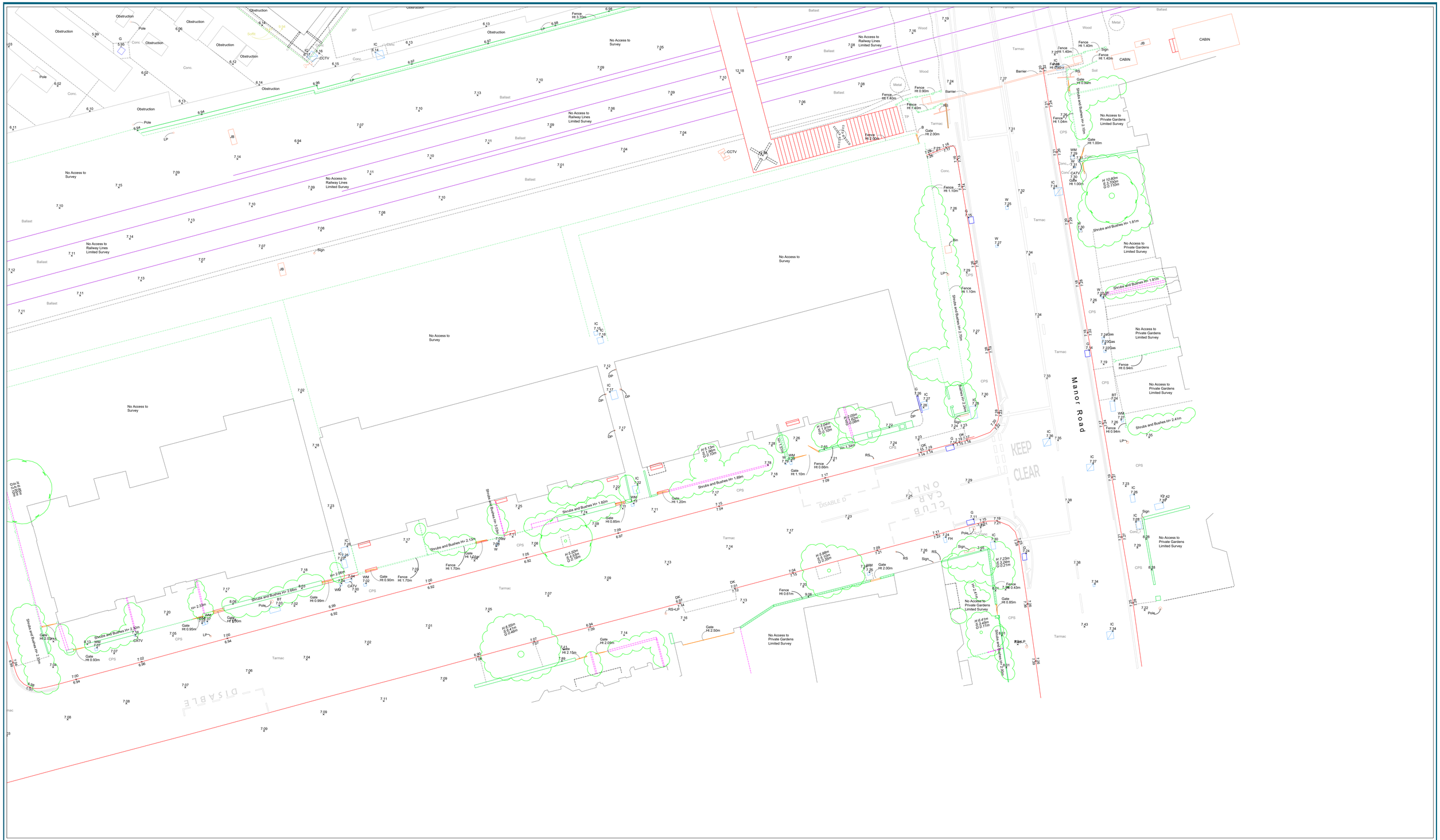
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/09**


Manor Road
KEEP CLEAR
DISABLED ONLY
CAR CLUB ONLY
No Access to Survey
No Access to Railway Lines Limited Survey
No Access to Private Gardens Limited Survey
Obstruction
Pole
Fence Ht 3.70m
Fence Ht 2.00m
Fence Ht 1.40m
Fence Ht 1.10m
Fence Ht 0.90m
Fence Ht 1.04m
Fence Ht 0.66m
Fence Ht 1.70m
Fence Ht 0.61m
Fence Ht 0.43m
Fence Ht 0.94m
Gate Ht 2.00m
Gate Ht 1.00m
Gate Ht 0.90m
Gate Ht 1.10m
Gate Ht 0.85m
Gate Ht 1.20m
Gate Ht 2.50m
Gate Ht 2.05m
Gate Ht 2.15m
Gate Ht 0.99m
Gate Ht 0.95m
Gate Ht 0.93m
Shrubs and Bushes Hr= 1.81m
Shrubs and Bushes Hr= 2.41m
Shrubs and Bushes Hr= 1.89m
Shrubs and Bushes Hr= 1.82m
Shrubs and Bushes Hr= 2.13m
Shrubs and Bushes Hr= 2.66m
Shrubs and Bushes Hr= 2.30m
Shrubs and Bushes Hr= 2.10m
Shrubs and Bushes Hr= 1.80m
Shrubs and Bushes Hr= 2.74m
Shrubs and Bushes Hr= 1.32m
Shrubs and Bushes Hr= 2.10m
Shrubs and Bushes Hr= 2.33m
Shrubs and Bushes Hr= 1.73m
CCTV
CATV
LP
JB
BT
WM
IC
DP
RS
RS+LP
Sign
Barrier
CABIN
Metal
Wood
Ballast
Tarmac
Conc.
CPS
Soil
Soffit
Bin
Gas
H 5.13m S 5.13m D 0.10m
H 5.55m S 5.41m D 0.40m
H 6.50m S 6.50m D 0.10m
H 6.41m S 6.41m D 0.41m
H 7.23m S 7.04m D 0.21m
H 10.80m S 3.70m D 0.10m
Mes 1.34m
Mes 1.57m
Mes 1.58m
Mes 1.59m
Mes 1.60m
Mes 1.61m
Mes 1.62m
Mes 1.63m
Mes 1.64m
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Mes 1.66m
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Mes 1.68m
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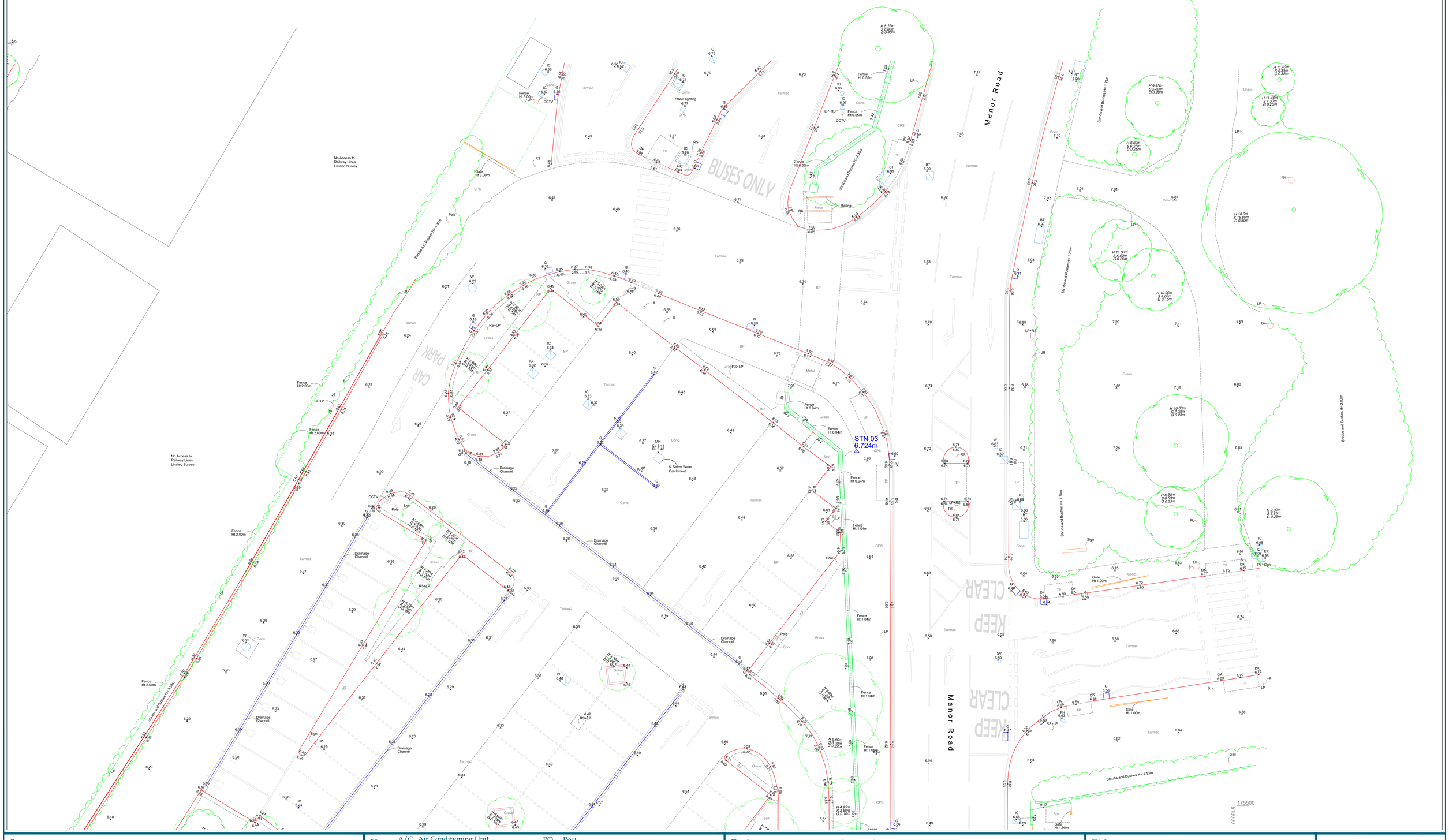
Mes 1.76m
Mes



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S1
S2
S3

Project: Homebase, Richmond

Title: Topographic Survey - Services
Sheet 1

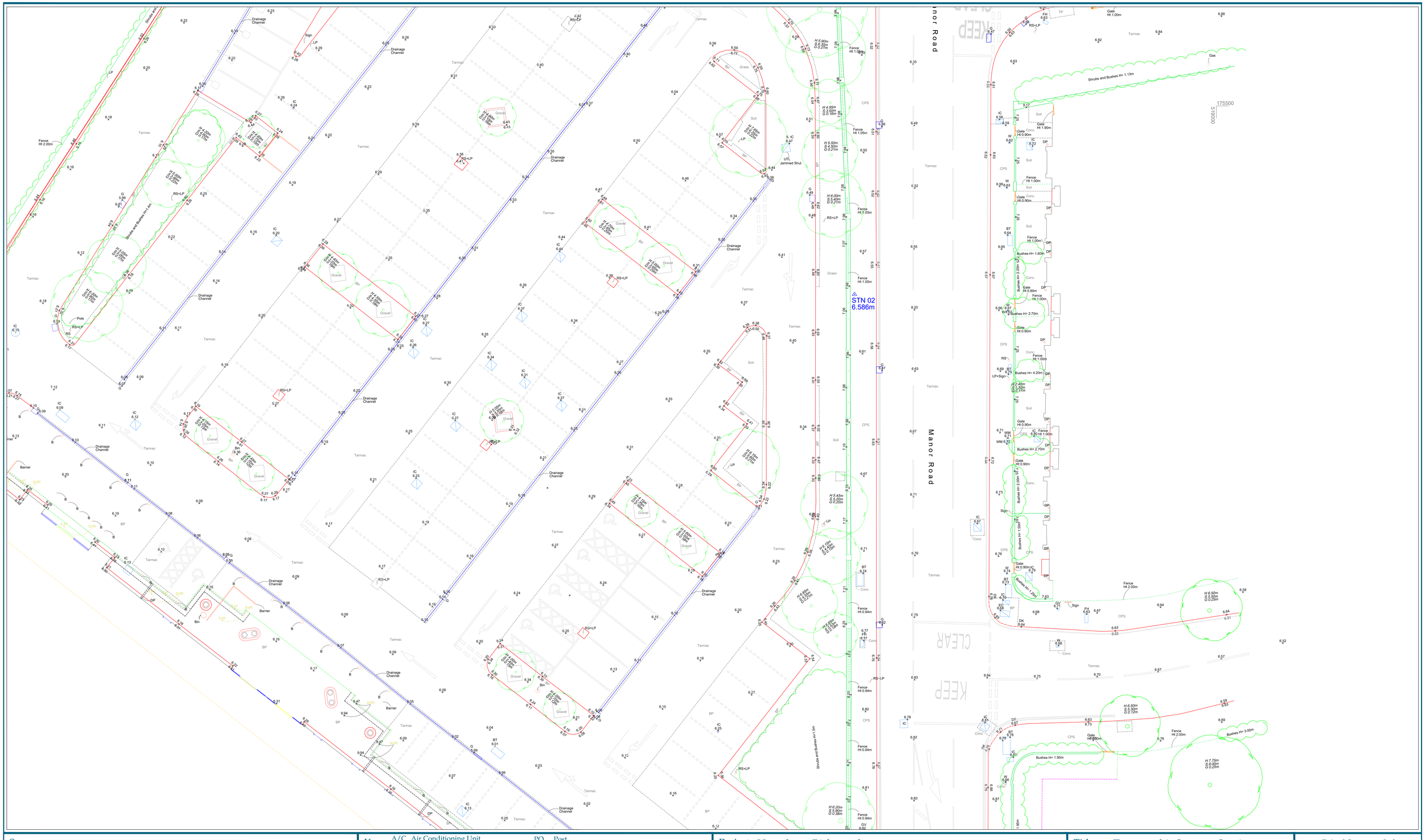
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T_S/01**



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S1
S2
S3

Project: Homebase, Richmond

Title: Topographic Survey - Services
Sheet 2

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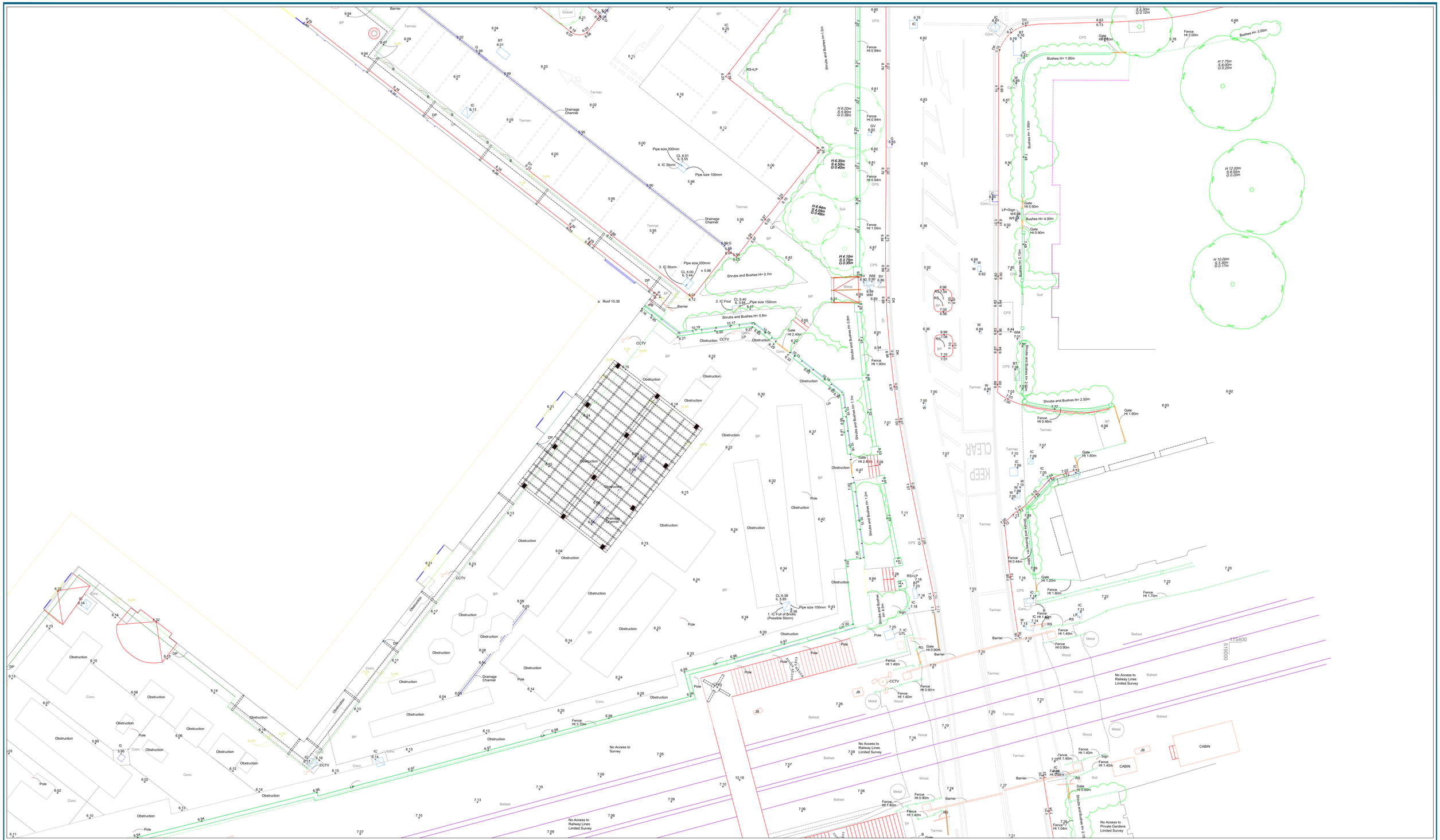
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T_S/02**



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S1
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S3

Project: Homebase, Richmond

Title: Topographic Survey - Services
Sheet 3

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3rd Floor,
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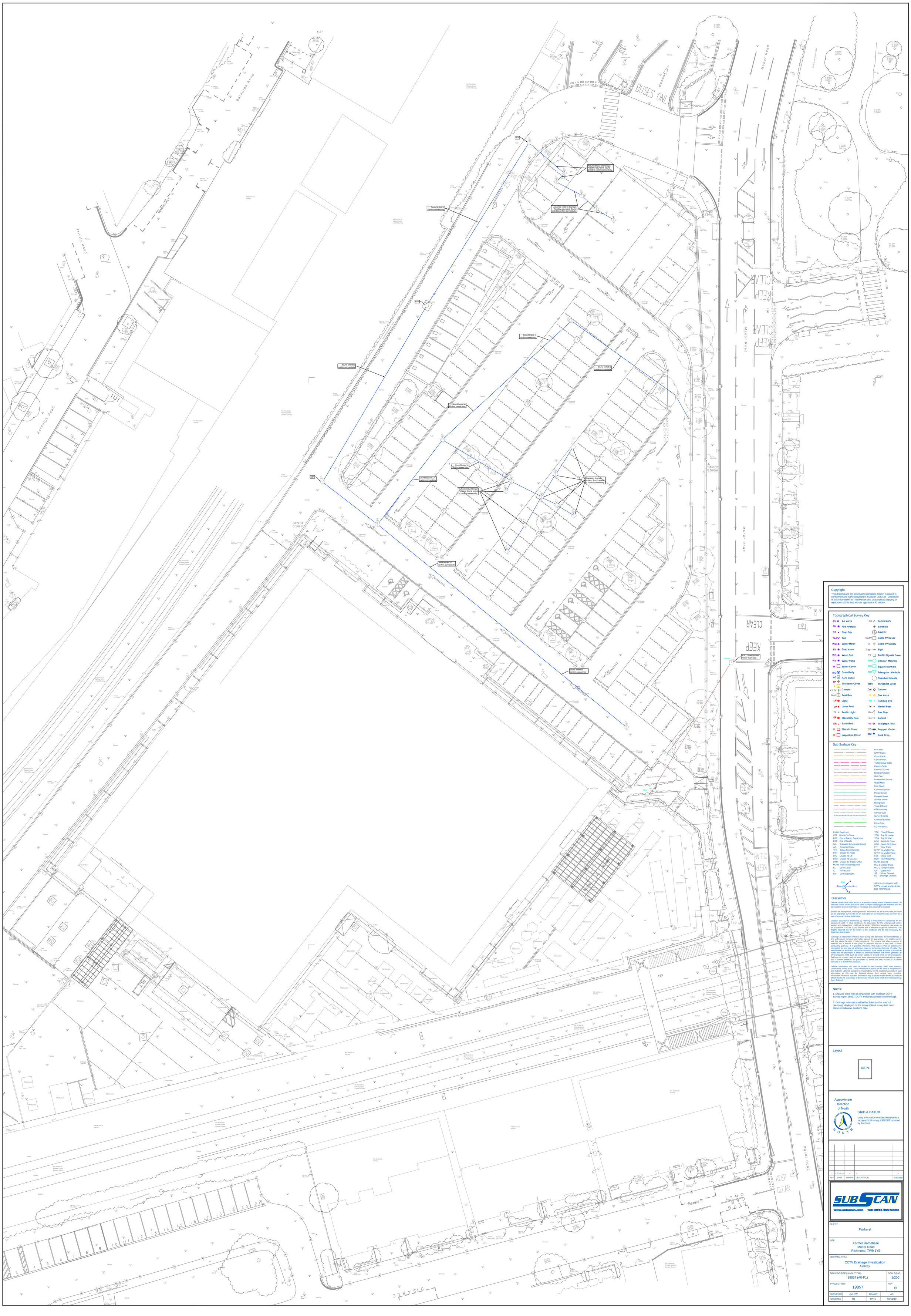
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T_S/03**



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Topographical Survey Key

AV	Air Valve	BM	Bench Mark
FH	Fire Hydrant		Borehole
ST	Stop Tap		Trial Pit
TAP	Tap	CATV	Cable TV Cover
WM	Water Meter	C	Cable TV Supply
SV	Stop Valve	Sign	Sign
WO	Wash Out	TS	Traffic Signals Cover
WV	Water Valve	MH	Circular Manhole
W	Water Cover	MH	Square Manhole
DrG	Drain/Gully	MH	Triangular Manhole
KO	Kerb Outlet		Chamber Extents
TP	Telecoms Cover	THR	Threshold Level
CCTV	Camera	Col	Column
Mail	Post Box	G	Gas Valve
LP	Light	RE	Rodding Eye
LP	Lamp Post	M	Marker Post
TL	Traffic Light	Bus	Bus Stop
EP	Electricity Pole	Bol	Bollard
ER	Earth Rod	TP	Telegraph Pole
E	Electric Cover	TO	Trapped Outlet
IC	Inspection Cover	BD	Back Drop

Sub Surface Key

BT Cable
CATV Cable
Coms Cable
Coms/Power
Traffic Signal Cable
Electric Cable
Electric LVCable
Electric HVCable
Gas Pipe
Unidentified Service
Water Main
Foul Sewer
Combined Sewer
Private Sewer
Pumped Sewer
Surface Sewer
Rising Main
Trade Effluent
GPR Anomaly
Service Duct
Survey Extents
Chamber Extents
Fibre Optic
CCTV Cables

01.00	Depth (m)	TOF	Top Of Fence
UTT	Unable To Trace	TOH	Top Of Hedge
EOT	End of Trace / Signal Lost	TOW	Top Of Wall
EOS	End of Sonde	DOC	Depth Of Cover
S/A	Drainage Survey Abandoned	DOB	Depth Of Bottom
AR	Assumed Route	P.T	Poor Trace
TFR	Taken From Records	N.V.P	No Visible Pipe
UTR	Unable To Raise	N.V.V	No Visible Valve
UTL	Unable To Lift	E.D	Empty Duct
UTM	Unable To Measure	RWP	Rain Water Pipe
UTTF	Unable To Trace Further	BLKD	Blocked
M.A.R	Man Access Required	M.U.D	Multiple Ducts
CL	Cover Level	M.U.C	Multiple Cables
IL	Invert Level	CR	Cable Rise
U/S	Underside/Soffit	AB	Above Ground
		DC	Drainage Channel

Letters correspond with CCTV report and indicate pipe references.

Disclaimer

Service details have been added to a previous survey unless otherwise stated. All services shown on this plan have been surveyed using approved detectors and the connections between manholes, if not traced, are assumed to be direct.

Should the background, or topographical, information for the survey area be based on an Ordnance Survey tile we are not liable for any loss that may arise due to a lack of accuracy in that digital data.

Location accuracy is determined by referring to manufacturer's guidelines for the equipment used. In ideal conditions the accuracies for the underground utilities located and mapped are +/-10% of the depth. Whilst this technique has proven to be successful, it is not 100% reliable and is affected by ground conditions. The depths obtained are for the centre of the conductor and do not necessarily the depth to a duct or pipe.

Although all reasonable effort is made during site detection, the completeness of the underground services information cannot be guaranteed. An electric current will flow along the path of least resistance. This means that when a current is induced into a feature it will 'jump' to adjacent features if they offer a better conducting pathway. It is possible, therefore, that features that are detected by connecting to one type of apparatus may not in fact be that type of utility. The identification of apparatus cannot be assumed to be totally accurate. It should be noted that not all buried services will be detectable. Where they are not made of an electromagnetic field, such as power cables, or around which an electromagnetic field can be induced, such as some water pipes and some communications cables, and it cannot therefore be guaranteed to reveal the exact routes of all buried services or to detect their presence.

Service information can also be shown on the drawings taken from statutory undertakers record plans. This information is shown for the sake of completeness and Subscan UDS Ltd can take no responsibility for the positional accuracy of such information. It is also to be noted that the position of any manhole cover shown on survey information shown as stat plan information may duplicate traced routes but may be offset due to the inaccuracy of the service records from which the information has been digitised.

Notes:

1. Drawing to be read in conjunction with Subscan CCTV Survey repon 19857_CCTV and all associated video footage.

2. Drainage information added by Subscan that was not previously displayed on the topographical survey has been drawn in indicative positions only.

Layout

A0-P1

Approximate Direction of North

NORTH

GRID & DATUM

Utility information overlaid onto previous topographical survey LS2024/T provided by Fairhurst.

REV	DATE	DRAWN	DESCRIPTION	CHECKED
-	-/-/-	--	--	--

SUBSCAN
www.subscan.com Tel: 0844 499 5220

CLIENT: Fairhurst

SITE: Former Homebase, Manor Road, Richmond, TW9 1YB

DRAWING TITLE: CCTV Drainage Investigation Survey

DRAWING REF (LAYOUT TAB)	19857 (A0-P1)	SCALE@A0	1/200
PROJECT REF	19857	REV	Ø
SURVEYED	JM, PW	DRAWN	AS
CHECKED	RJ	DATE	02/11/18

A.2 Geotechnical Reports

- Geo-Environmental and Geotechnical Preliminary Risk Assessment, Ref 126782-R1

FAIRHURST

Manor Road / Richmond

Geoenvironmental & Geotechnical Preliminary Risk Assessment

Fairhurst

July 2020

FAIRHURST

CONTROL SHEET

CLIENT: **Avanton Richmond Development Limited**

PROJECT TITLE: **Manor Road, Richmond**

REPORT TITLE: **Geo-Environmental and Geotechnical Preliminary Risk Assessment**

PROJECT REFERENCE: **126782**

DOCUMENT NUMBER: **R1.6**

STATUS: **ISSUE**

Issue & Approval Schedule

ISSUE 1 FINAL	Name	Signature	Date
Prepared by	F Siemers		01/10/2018
Checked by	C Barber		02/10/2018
Approved by	C Barber		03/10/2018

Revision Record

Rev.	Date	Status	Description		Signature
1	04/12/18	DRAFT	Revision following design freeze.	EY	
				AS	
				AS	
2	03/01/19	ISSUE	Revision following client comment	EY	
				AS	
				AS	

	3	11/10/19	ISSUE	Revision following revised plan	HB	
					AS	
					AS	
	4	05/11/19	ISSUE	Revised following client comment	HB	
					AS	
					AS	
	5	20/11/19	ISSUE	Revised following client comment	HB	
					AS	
					AS	
	6	30/07/2020	ISSUE	Revised following amendment to development layout.	CB	
					NMcS	
					NMcS	

This document has been prepared in accordance with procedure OP/P02 of the *Fairhurst Quality and Environmental Management System*

This document has been prepared in accordance with the instructions of the client, Avanton Richmond Development Limited for the client's sole and specific use. Any other persons who use any information contained herein do so at their own risk.

EXECUTIVE SUMMARY

Current Site Status	The site currently comprises a warehouse structure occupied by a DIY and pets store, positioned to the west of Manor Road, Richmond (Post Code - TW9 1YB).
Assessment Rationale	It is understood that Avanton Richmond Development Ltd. propose to redevelop the former Homebase site, to include: Demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide residential units, flexible retail /community / office uses and provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works. The purpose of this assessment is to review available environmental, historical and geological data to identify potential geo-environmental and geotechnical constraints associated with the proposed development.
Geology & Controlled Waters	The site is reported to be underlain by Made Ground and further underlain by the Kempton Park Gravel Member to c.6m bgl and further underlain by the London Clay Formation. Groundwater is considered to be present in the Kempton Park Gravel Member from c.1.5m bgl. The nearest surface water feature is the River Thames positioned c.1.6km north-west of the site. The Kempton park Gravel Member is classified as a Secondary A Aquifer by the Environment Agency and the London Clay Formation bedrock as an Unproductive Stratum.
Contamination Considerations	This report has identified potential sources of contamination on-site, including those that predate the commercial building, including Made Ground, timber yards, electrical substations, car wash, coal hoppers, fuel depot, power station and car parking. Furthermore, off-site sources of contamination were identified, most notably the former Richmond Gas Works positioned to the north-east of the site beyond Manor Road. Potential risks were assessed against sensitive receptors including human health, building structures and services and controlled waters as the underlying Kempton Park Gravel Member (Secondary A Aquifer). Typically a moderate risk was identified to receptors associated with the proposed development. It is considered that contaminated land planning conditions will be included associated with the development and it is recommended that a ground investigation is undertaken to further quantify potential risks.
Geotechnical Considerations	Potential Geotechnical considerations identified including: • Presence of railway lines adjacent to the south and west of the site. The development will require further consultation with Network Rail following Fairhurst's initial meeting regarding potential for risk to their assets; • Noting that a basement is proposed in the approximate central portion of the site, it is considered that a basement impact assessment will be required in accordance with LBRuT guidance, including assessment of land and structural stability; • It is noted that the site is within a National Grid safeguard zone and additional services are likely to be present associated with the development of the site. Existing services may require removal, capping and diversion associated with the development. Furthermore, it is recommended that full service plans are obtained in advance of any below ground investigation works; • Structural loads are unknown at this stage. Noting proposed development heights of up to 10 No. storeys (plus ground and basement floors), it is considered that loads may exceed traditional shallow foundations (i.e. pads and strips) and foundations may need to be piled. Based on BGS borehole records, it is considered that a piled foundation solution would extend into the London Clay Formation. Foundation design will be subject to structural loads and ground investigation findings; and • The site is within a high risk area with respect to unexploded ordnance. It is recommended that a specialist is consulted prior to any below ground works.

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1.0 INTRODUCTION

1.1 Site Background and Understanding

This Geo-Environmental and Geotechnical Preliminary Risk Assessment has been prepared by Fairhurst on behalf of Avanton Richmond Development Ltd ('the Applicant') following further amendments to the proposed scheme for the redevelopment of the Homebase store at 84 Manor Road, North Sheen ('the Site'). The location of the site is shown on Figure 1.

A planning application for the redevelopment of the Site was submitted to London Borough of Richmond Upon Thames (LBRuT) in February 2019 (ref. 19/0510/FUL) (the 'Original Proposed Development'), and was considered at LBRuT Planning Committee on 3 July 2019. The Planning Committee resolved that they were minded to refuse the Application, however on 29 July 2019 it was confirmed that the Mayor of London would act as the local planning authority for the purposes of determining the application.

Proposed Amendments

Following review of LBRuT's reasons for refusal and discussions with Officers at the Greater London Authority (GLA) and Transport for London (TfL), the Applicant sought to review the scheme, with the principle aim of increasing the delivery of affordable housing through additional density and addressing other issues raised in the Mayor's Stage 2 Report. Initial scheme amendments were submitted in November 2019 ('the November 2019 Amendments') and increased the overall number of units by 48, primarily through the introduction of a new residential building known as Block E. Following further discussions with TfL and the GLA, it was subsequently agreed that further revisions should be explored in order to deliver an improved scheme, without the need for this additional block.

The proposed changes are described in detail in the accompanying Design and Access Statement Addendum, however, of particular note is the increase in residential units from 385 within the Original Proposed Development to 453 within the Amended Proposed Development. This increases the total number of affordable units by 39 to a total of 173 affordable homes (40% by habitable room taking account of grant funding, increased from 35% as originally submitted). This increase in units and the higher affordable housing provision has been principally achieved through amendments to the height and internal layout in appropriate locations across the Site.

The proposed changes necessitate an amendment to the Application's description of development. The revised description of development (hereafter referred to as the 'Amended Proposed Development') is as follows:

Demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide residential units (Class C3), flexible commercial, business and service uses (Class E), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works.

As a result of the proposed changes, this Preliminary Risk Assessment has been updated in order to assess the Amended Proposed Development. The most recent development plans are provided as Appendix A and Fairhurst can confirm that no significant changes or differing conclusions have been drawn based on the amended plans.

1.2 Scope and Objectives

Pre-application discussions have been undertaken with the London Borough of Richmond Upon Thames (LBRuT) between July and December 2018 (ref.18/P0135/PREAPP), which identifies the site would be subject to the LBRuT local plan policy 10, which with respect to land contamination states '*The Council promotes, where necessary, the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds.*' Furthermore, the council state that their '*records indicate that the site and surrounding area has been subject to former potentially contaminative land uses and so a Land Contamination Assessment would be required.'*

The purpose of this assessment is to review available environmental, historical and geological data to identify potential geo-environmental and geotechnical constraints associated with the proposed development. This report includes the development of a preliminary conceptual site model and qualitative risk assessment assuming a proposed residential led end use in order to support the planning application and inform planning decision conditions. This report has been undertaken in accordance with industry best practice document CLR11 'Model Procedures for the Management of Land Contamination' and BS10175:2011:A2:2017 in relation to the scope of a desk based study.

This report should be updated and refined should development plans change.

1.3 Sources of Information

The following sources of information have been reviewed and were utilised in the preparation of this report:

(i) Published Geological and Environmental Information

- British Geological Survey (BGS), South London, Geological Map Sheet 270 – Solid and Drift Edition, 1:50,000, 1998;
- BGS online map viewer and borehole records (bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html) (accessed 01/08/2018);
- Bomb Sight (bombsight.org version 1.0) (accessed 01/08/2018);
- Magic, DEFRA (magic.defra.gov.uk/MagicMap.aspx) accessed 01/08/2018);
- Public Health England UK Map of Radon Risk (ukradon.org/information/ukmaps) (accessed 01/08/2018);
- Long term flood risk information, (flood-warning-information.service.gov.uk/long-term-flood-risk/map) (accessed 01/08/2018); and,
- London Borough of Richmond Upon Thames Planning Portal (accessed 16/07/2020).

(ii) Envirocheck Information

Site Specific Envirocheck Report (Reference 142584674_1_1) dated October 2017. This report is included as Appendix B.

(iii) UXO Information

- Zetica Unexploded Bomb Risk Map (London, South-West), (zetica.com/, accessed 01/08/2018); and
- Landmark / Alpha Associates Detailed Unexploded Ordnance (UXO) Threat and Risk Assessment (References 190053937_1 and P7115 respectively), dated January 2019. This Report is included within Appendix C.

(iv) Consultations

The Environment Agency, the London Borough of Richmond Upon Thames, Network Rail, Transport for London and London Overground were contacted, with regards to any information they may hold in respect to the environmental setting of the site and surrounding area.

Where responses have been received from consultees, these have been summarised in Section 3.0 of this report. Records of the correspondence are included in Appendix D.

2.0 SITE SETTING AND HISTORY

2.1 Site Description

The site is located approximately 0.6km north-east of Richmond town centre, in south-west London and is centred on National Grid Reference 518890, 175430 (approximate post code TW9 1YB). The site is accessed via Manor Road, which bounds the site to the east.

The site is approximately triangular in shape, covering an area of approximately 1.8Ha and is currently occupied by a retail warehouse building (Homebase) in the central third, with associated car / bus parking in the north-eastern third and storage areas in the south-western third of the site.

The site is bound to the north west and south by railway lines and to the east by Manor Road, as detailed further below.

2.2 Site Survey Walkover

A site walkover was undertaken on 8th August 2018 by a Fairhurst Geo-Environmental Engineer. A photographic record and photograph location plan are included as Appendix D. We understand that there have been no material changes at the site since the walkover was undertaken.

On-site

The following features were noted on-site:

- ***Area 1: Car Parking and Bus Stand***

  The northern portion of the site was occupied by car parking (Photo 1), with areas of soft landscaping and planters locally present across the car parking and along the western and eastern (Photo 2) boundaries, including mature trees, grass and shrubs. Vehicle access to the site was gained from Manor Road (Photo 3) to the north-east and pedestrian access can additionally be gained from this road to the south-east. A bus stand was noted to the north of the access road. Following amendments to the proposed development since the walkover was undertaken, it is understood that this area is now within the site boundary. No evidence of re-fuelling or tank storage was identified (Photo 16).

  Ground level was typically laid to tarmac hardstanding or brick paving in car spaces; although an area in the north of the site was surfaced with paving slabs with drainage covers identified in a layout possibly indicative of an interceptor (Photo 4) and a vent pipe (Photo 5) was noted nearby, positioned within soft landscaping. Online aerial imagery[1] indicates that a car wash company operates within the car park at this location; however, a sign identified during the walkover, detailed that this company had moved to a new location.

  Along the north-western boundary of the site (adjacent and south-west of the bus stand) was an electrical substation (Photo 3); however, this feature could not be assessed visually as it was surrounded by a visual screen, nor was there any information on the insulating materials used.

- ***Area 2: Homebase and Pets at Home Shops***

  The central portion of the site was occupied by a warehouse style structure, used by Homebase (a home and garden DIY store) and Pets at Home (pet store, grooming and veterinary). Homebase occupied the eastern two thirds of the store and included a mezzanine in the rear of the store and an outdoor garden centre in the south-eastern corner of the site. Pets at Home occupied the remaining western third of the structure.

  To the west of the building was an access road trending from the car park to the delivery area in the south-western portion of the site (Photo 6).

  In the south-eastern corner of the site was a small brick structure access from Manor Road to the east of the site (Photo 7). Based on signage, it is assumed that this structure is occupied by Southern Gas Networks; however, this could not be confirmed.

- ***Area 3: Delivery Yard***

  The south-western third of the site was occupied by the following land uses:

  - The majority of this area was laid to tarmac hardstanding, with soft landscaping of grasses, shrubs and mature trees along the southern and north-western site boundaries (Photo 8);

[1] google.co.uk/maps accessed 09/08/2018

- To the rear of Pets at Home was a delivery yard; although no access was gained to this location. Air conditioning units and commercial waste bins were identified in this area;
- To the rear of Homebase was a delivery yard area laid to concrete hardstanding in good condition (Photo 9). Store goods were kept in this area in addition to propane and butane gas canister storage (Photo 10), assumed waste paint storage (Photo 11) and 3no storage containers, one of which was detailed as housing fireworks. Outside of the fenced off delivery area was an area of waste storage, storage containers, gas canisters and pallets (Photo 12); and
- In the south-western corner of the site was an area of soft landscaping raised c.0.5m from site level with rough shrub, grass and trees. Fly tipping of tyres, cushions, rubbish, plastics and turf was observed in this area (Photo 13).

Off-site

The following features were identified immediately adjacent to the site:

- ***Manor Road***

  Manor Road bounds the site to the east and is set at approximately 1m above existing site level in the southern portion and bisected from this by a gently sloped area of landscaping. Manor Road trends in a northerly and southerly direction from the site. To the north, it ramps up towards the Lower Richmond Road / A316 roundabout approximately 130m north of the site (Photo 14). At this location, the District / Overground railway line passes beneath the roundabout. Adjacent to the south-east of the site, it passes a level crossing and continues to trend in a southerly direction.

  The following further features are identified along Manor Road:

  - Beyond to the south-east and south (latter beyond the railway line) is residential housing, typically as identified as assumed traditional build 2-storey terraced housing (all of which identified c.15m from the site boundary);
  - To the south-east of the site and south of the railway line is an area of allotment gardens (Photo 15) (c.50m from the site boundary);
  - To the north-east of the site and east of Manor Road is a Sainsbury's supermarket and associated petrol station (c.50m from the site boundary). Additionally, is an area of assumed Southern Gas Network infrastructure (c.150m north-east from the site), which is assumed to be associated with the former Richmond Gas Works detailed further in Section 2.4;
  - At the roundabout where Manor Road meets the Lower Richmond Road / A316 is a BP Petrol filling station and car dealership / workshop (c.170m north of the site).

- ***National Rail (south)***

  A railway line operated by National Rail bounds the site to the south (Photo 17), trending east to west at this location. This was visually identified as being at approximately 0.5-1.0m above existing site level and is bisected from the site by a gently sloped area of landscaping. Further features identified associated with this railway included:

  - Adjacent to the south-east of the site was a footbridge, over the level crossing at Manor Road (Photo 18). The footprint of this bridge appeared to extend into the Homebase garden centre (Photo 19), causing a step in the otherwise straight site boundary; and
  - Adjacent to the south-west of the site was National Rail infrastructure (Photo 20), which appeared to be accessible from the on-site delivery yard area and bisected from the site by a fence.

- ***District / Overground Railway (west)***

  A District / Overground railway line bounds the site to the west and is set at approximately 1.0m above existing site level and is bisected from the site by a gently sloped area of landscaping. West of this railway, land use was typically occupied by residential / office land use with the following additional industrial / commercial activities identified:

  - F.A. Clover & Sons Ltd[2], an industrial painting contractors (positioned c.20m west of the site);

[2]cloverpainting.com/ (accessed 09/08/2018)

- Travis Perkins Trading Co. Ltd, a building materials supplier (positioned c.20m west of the site); and
- Big Yellow Self Storage, a storage facility (positioned c.40m west of the site).

2.3 Topography

A topographical survey was been conducted by Point Surveyors during August 2018 (LS2024/T) and is included within Appendix E. Based on this drawing and the site walkover, the site and surrounding area are noted to be relatively level (generally between 6.0-6.5mOD) with the exception of Manor Road, which increases in height to the north of the site and bridges over the railway line c.200m north of the site. Furthermore, as detailed in the site walkover, the existing railways to the north-west and the south of the site are noted to be set c.1m higher than existing site level.

Information included in the Envirocheck report details the site at approximately 10m AOD, remaining relatively level within 250m of the site. Approximately 1km south of the site, ground level increases to approximately 30m AOD; and decreases gently towards the River Thames at approximately 5m AOD, c.1km north of the site.

2.4 Site History

The historical land use of the site and immediate surroundings has been assessed using Envirocheck Report (Appendix B). Detailed maps for the site and surrounding area have been reviewed and the findings are summarised in Table 1. Features within 250m of the site considered to be potentially contaminative or significant have been detailed, with the exception of significant contamination sources (i.e. landfills / gas holder sites), which if within 500m have been noted.

Table 1 - Historical Map Summary

Dates and Map Scale	On site	Off site (surrounding area)
1867-1872 & 1872 1:1,056 1896-1879 1:2,500 1871-1874 1:10,560 1879-1894 1:2,500	• Site is undeveloped with possible area of trees in south-western portion.	• Railway lines bound the site to south and north west in their current day location and evidence of an associated cutting along the western boundary of the site; • Richmond gas works is c.110m north-east, including 3no gasometers. • A militia barracks is c.160m north-west, with a drill ground c.200m north-west and nursery c.200m north-west. Militia barracks and drill ground are only present at this date.
1896 & 1898-1899 1:10,560 1894-1895 & 1895 1:10,056 1896 & 1898 1:2,500	• A timber yard is present on the southern portion. • A well close to the southern boundary) and unspecified structures are present in the south-eastern portion. • Unspecified structures and a crane are present in the northern portion.	• Further development and expansion at the Richmond gas works, including possibly 2no additional gasometers, which has extended to within c.50m north-east. • A laundry is present c.200m south-west and corporation depot c.200m west. Laundry only identified at this date. • A nursery is present c.100m south, which was last identified in 1913. • A timber yard is present c.100m north and last identified in 1913.
1913 1:2,500 1920 1:10,560	• Unspecified development on-site, although it appears all associated with the timber yard, in addition to sidings along the southern and western boundaries and into the centre of the site.	• Further development on the gas works site, including a smithy c.200m east and area of tanks c.150m east. The smithy is only identified at this date. • A tank is detailed on the nursery site c.200m north-west. The tank is last identified at this date and the nursery in the 1960s.

Dates and Map Scale	On site	Off site (surrounding area)
1934 – 1936 1:2.500 1933 & 1935 & 1938 1:10,560	• No discernible changes.	• An additional gasometer is constructed on the gas works site c.200m east, as well as railway sidings extending onto this site c.150m north.
1946-1947 1:1,250 Aerial Imagery 1940-1950 & 1940-1958 1:10,000 1948 1:10,560	• No discernible changes.	• Only 2no gasometers are identified on the gas works site.
1960 & 1960-1961 1:2,500 1960 & 1960-1972 & 1959-1960 & 1959-1980 & 1960-1974 & 1968-1983 1:1,250 1962-1966 & 1966-1967 1:10,000	• The site is detailed as a depot. • Railway cottages are detailed on the south-eastern corner.	• An area of ruins is detailed c.50m south. • A goods depot and is present c.200m west adjacent to railway sidings. • 3no garages are detailed just beyond c.250m south. • 3no area of works are identified c.250m north-east. • Warehouse buildings / works are detailed c.20m west beyond the railway line. • An electrical substation is detailed c.200m north-west and last identified in the 1990s.
1975-1976 1:10,000 1973-1974 1:1,250 1960-1980 & 1968-1974 & 1973-1988 1:1,250	• Railway sidings are no longer detailed on-site. • Redevelopment of on-site structures, with possible warehouse style structure in central portion. • A fuel depot, electrical substation, coal hoppers and timber yard are detailed on site. Of these only the electrical substation is identified beyond these maps and last identified in the early 1990s.	• The gas works is now identified as a depot. • A works is present adjacent south-west and last identified in the 1990s. • The goods depot c.200m west is no longer present and replaced by a coach repair works. No railway sidings are now identified in this area. • Coal hoppers are detailed adjacent north and only identified at this date. • An electrical substation and builders yard are detailed c.20m north-west. Furthermore, a tank is detailed c.50m north-west adjacent to a warehouse. • A garage and works are detailed c.150m north.
1974-1991 & 1983-1989 & 1983 & 1989 & 1991 & 1992 &1992-1994 1:1,250 1985 1:25,000 1988 & 1992 1:10,000	• Only the timber yard use (and electricity substation) is detailed on-site from the mid-1980s. • From the mid-1990s, car parking is detailed in the northern portion.	• Coach repair works c.200m west are now detailed as a ;'Corporation Depot', which is last detailed at this location in the late 1990s and detailed as redeveloped in 1999. • An electrical substation is detailed c.100m south. • The works c.20m north-west is now detailed as a warehouse. • A tank is detailed on the former gas works site c.110m north-east.

Dates and Map Scale	On site	Off site (surrounding area)
1999 Aerial Imagery 1999 1:10,000	• The site is detailed in its current day layout.	• The gasometers have been removed and much of the infrastructure on the former gas works site has been removed. An area of gas work infrastructure remains c.120 north-east of the site.
2006 & 2017 1:10,000	• No discernible changes.	• A petrol filling station, supermarket and car parking are detailed on the former gas works site. The petrol filling station is c.200m from the site boundary.

3.0 BACKGROUND INFORMATION AND ENVIRONMENTAL SETTING

3.1 Site Geology

The 1:50,000 British Geological Survey (BGS) map for South London (Survey Sheet Number 270, dated 1998) and BGS online map viewer, including borehole records, have been reviewed to provide information on the published underlying geology and ground conditions.

The site is reported to be underlain by superficial deposits comprising Kempton Park Gravel Member (comprising sand and gravel, locally with lenses of silt, clay or peat), which is shown to extend >100m laterally in all directions. This is underlain by bedrock comprising the London Clay Formation (silty sandy clay), which is shown to extend >1km laterally in all directions and is reported to be >50m vertical thickness.

The following BGS boreholes records were reviewed in the vicinity of the site:

- Record TQ17NE436, c.30m west, encountered Made Ground to 0.8m bgl, underlain predominantly by sands and gravels to 6.0m bgl, locally with lenses of soft sandy clay, considered to be indicative of the Kempton Park Gravel and further underlain by stiff clay, considered to be indicative of the London Clay to the base of the hole at 15m bgl. Groundwater was encountered at 3m bgl in superficial soils;
- Record TQ17NE62, c.100m east, encountered Made Ground to 0.9m bgl, underlain predominantly by gravels to 6.1m bgl, considered to be indicative of the Kempton Park Gravel and further underlain by stiff clay, considered to be indicative of the London Clay to the base of the hole at 15.2m bgl. Groundwater was encountered at c.1.5m bgl.

3.2 Mining and Mineral Extraction

The Envirocheck identifies no records of mining, mineral sites or natural cavities within 250m of the site.

3.3 Hydrology and Hydrogeology

The Envirocheck Report indicates that the nearest surface water feature within 500m of the site is a pond, located c.310m south of the site. The OS Water Network Map indicates the presence of possible field drains/ditches flowing in a southerly direction towards the pond, before trending to the east towards the River Thames. The River Thames is positioned approximately 1.4km to the north west and 1.3km to the south east at its closes positions, and generally flows in a easterly or south easterly direction at these locations.

The site is identified as being in a Flood Zone 1 (i.e. low probability of flooding); however, the EA reports a low to high flood risk from surface water locally across the site. It should be noted that this report does not purport to be making a flood risk assessment.

The Environment Agency classifies the Superficial Kempton Park Gravel Member as a Secondary A Aquifer and the London Clay Formation as an Unproductive Stratum. The site is not within a source protection zone, nor are there any groundwater abstractions within 1km of the site.

Groundwater is considered to be present within the Kempton Park Gravel Member based on historical borehole records and likely to be perched above the low permeability London Clay Formation. Regionally, groundwater is considered to flow in a north-easterly direction towards and in hydraulic connectivity with the River Thames, the dominant surface water feature in the vicinity of the site.

The following pollution incidents to controlled waters are detailed by the Envirocheck Report within 250m of the site:

- Category 2 significant incident positioned 210m north-east, dated May 1989. The pollutant is reported as unknown oils and no further information (including receiving water) is provided; and
- Category 3 minor incident positioned 250m north-east, dated December 1991. The pollutant is reported as unknown oils and no further information (including receiving water) is provided.

One discharge consent is present within 250m of the site, for discharge of groundwater to the River Terrace Gravels. This was issued in April 1998 and revoked in November 1999 and positioned 140m north-east of the site at the ‘depot and former gas holder station'.

3.4 Landfilling and Waste Activities

No areas of registered or historical landfills are identified within the Envirocheck Report within 500m of the site, nor any licensed waste management facilities / transfer sites. Furthermore, no areas of infilled land are identified within 500m.

3.5 Radon

According to the Public Health England, the site is located in a lower probability radon area where <1% of homes are estimated to be at or above the action level and no radon protection measures are required.

3.6 Unexploded Ordnance Risk

Zetica regional unexploded bomb risk mapping (London – Southwest) indicated that the site is within a moderate risk with respect to unexploded ordnance in the vicinity of the site.

Online mapping indicates however that 4no high explosive bombs fell during WW2 within c.250m of the site, positioned between c.40 and 150m west of the site. It should be noted that only bombs during the Blitz (October 1940 – June 1941) are recorded on this mapping.

A Detailed Unexploded Ordnance (UXO)Threat and Risk Assessment undertaken by Alpha Associates (Ref P7115) on behalf of Landmark (190053937_1) identified high risk across the site and that further mitigation measures would be required during intrusive activities. It is therefore recommended that a specialist is consulted prior to any below ground works. A copy of the report is included within Appendix C.

3.7 Asbestos

This report does not purport to be providing an asbestos survey, for which an asbestos specialist should be consulted to provide an up to date survey prior to any building works on-site. However, it is noted that given the age of structures (pre 1999) and likely presence of Made Ground on-site, it is plausible that asbestos containing materials are present within both building fabrics and underlying Made Ground soils.

3.8 Invasive Species

An invasive species survey is outwith of the scope of this report and a specialist should be consulted. No invasive species were identified during the site walkover.

3.9 Sensitive Land Use

No Ramsar sites, sites of special scientific interest (SSSI), area of outstanding natural beauty or environmentally sensitive areas are identified at or within 500m of the site in the Envirocheck Report. The Royal Botanic Gardens Kew, are designated a World Heritage Site, positioned 350m north of the site.

Assessment of the archaeological and ecological setting of the site is outside the scope of this report.

3.10 Additional Environmental Information

Richmond Gas Works

The Envirocheck Report presents the following additional information pertaining to the former gas works:

- It is presented as a lower tier, active control of major accident hazard site;
- It has an inactive Notification of Installations Handling Hazardous Substances (NIHSS);
- It has previously been granted a planning hazardous substance consent for liquefied extremely flammable gas (including LPG) and natural gas (whether liquefied or not).

There are no gas holders remaining on the former gas works site, and the more recent ordnance survey maps indicate the site has been redeveloped. It is not clear if any British Gas/Transco/National Grid assets or infrastructure remains.

Pollution Prevention and Controls

There are 3no. Local Authority Pollution Prevention and Controls positioned within 250m of the site as detailed below:

- Positioned 170m north to a petrol filling station since December 1998;
- Positioned 210m north-east to a petrol filling station since August 2000; and

- Positioned 240m north-east for waste oil burners and dated from September 1993; although it is noted that the authorisation has been revoked.

The above stated activities may present a source of contamination; however, the LAPPC's seek to control and prevent contamination to the surrounding environment associated with industrial / commercial processes.

Contemporary Trade Directory Entries

There is one contemporary trade directory entry issued on-site for electrical goods sales, manufacturers and wholesalers; however, this is noted as being inactive. Further contemporary trade directory entries positioned within 250m of the site and considered to be potentially contaminative are detailed in Table 2 below.

Table 2 – Off-Site Contemporary Trade Directory Entries Considered to be Potentially Contaminative

Entry	Location	Status
Builders merchant	20m south-west	Inactive
2no Builders merchant	30m north	Inactive
Builders merchant	30m north	Active
Distribution services	30m south-west	Inactive
Carpet, curtain and upholstery cleaners	30m south-west	Active
Tank cleaning and repairing	30m north	Inactive
Printers	30m north	Inactive
Aerosols (M S George)	30m north	Inactive
Optical goods manufacturers	30m north	Inactive
Manufacturers (Fiberweb Plc)	30m north	Inactive
Manufacturers (Fiberweb Plc)	50m west	Inactive
Tyre dealers	70m north	Inactive
Powder coatings	80m north	Inactive
Domestic cleaning services	110m north-west	Inactive
Classic car specialists	130m north	Inactive
Petrol filling station	170m north	Inactive
Cable and wire equipment manufacturers	170m north	Inactive
Garage services	180m north	Active
Garage services	170m north	Inactive
Garage services	150m west	Active
Tyre dealers	170m west	Active
Car customizing specialists	180m west	Inactive
Distilleries	200m west	Active
Distilleries	200m west	Inactive

Pottery manufacturers and suppliers	200m north-west	Inactive
Dry cleaners	210m north-west	Active
Road haulage services	210m north-west	Inactive
Clothing and fabrics manufacturers	230m north-east	Active
2no Car dealers	240m north-east	Active
Dairies	240m east	Inactive

3.11 Planning Information

A search of planning applications was undertaken on the London Borough of Richmond Upon Thames Planning Portal for planning applications at and adjacent to the site based on a post code search. No information was identified pertaining to ground conditions; although the following applications were identified which identify the former land uses and dates on-site.

On-Site

- Application ref.91/2125/CON for the *provision of an electricity substation*, which was granted permission in January 1992;
- Application ref.91/0270/OUT for the *erection of two non-food retail warehouse units within use class A1, one with garden centre, new vehicle and pedestrian access and car parking and associated landscaping*. This was granted permission in September 1991; and
- Application ref.91/2243/FUL for the *change of use of site from open air car sales to car parking and part bus lay-by facility….* This was granted permission in May 1992.
- Application ref. 19/0510/FUL for the previous iteration of the intended residential led development. The status of the application is noted as 'in progress'.

No further information pertaining to ground conditions on-site, off-site or on the Richmond gas works site was identified for review.

3.12 Consultation

The London Borough of Richmond Upon Thames and the Environment Agency were contacted regarding information pertaining to ground conditions and contamination at the site. Responses received have been summarised below and the full responses included in Appendix C.

London Borough of Richmond Upon Thames

LBRuT reported the following additional information in their contaminated land enquiry:

- The site is not on the council's contaminated land register under the Environmental Protection Act 1990 and no notice has been served or has been resolved at the property. Furthermore, the site has not been designated for inspection;
- No information is held on the presence of tanks / decommissioning;
- No EA authorised of historic landfill sites are detailed within 250m;
- LBRuT identifies 3no abstractions, all of which are for irrigation purposes, positioned 920m west, 1170m west and 1440m north-west. The depth of the abstraction is unknown, but it is noted that these location is underlain by the Taplow Gravel Member and London Clay Formation;
- Former industrial land uses identified by LBRuT within 50m are detailed in Table 3 overleaf.

Table 3 – Former Industrial Land Uses Identified in Regulatory Correspondence

Land Use	Location
Electrical Substation, dated 1974 only. Part 2A risk rating: low medium *Fairhurst note that this was last identified on historical mapping in the 1990s.*	On-site (in the centre of the north-western boundary)
Power station (excluding nuclear power), dated 1974 only. Part 2A risk rating: medium *Fairhurst note that this feature was not identified on historical mapping and the council were asked for further information; however, note that they do not hold any. It is therefore considered likely this relates to the electrical substation entry noted above.*	On-site (site wide)
Electricity distribution, including transformer, dated 2004 only. Part 2A risk rating: medium *Fairhurst consider that this is the same as the existing substation identified during the site walkover.*	On-site (on position of existing electrical substation)
Railway land, no date identified. No part 2A risk rating detailed *Fairhurst note that this was as identified on historical mapping and site walkover.*	Off-site (at location of existing railway lines, possibly encroaching on-site)
Waste recycling, treatment & disposal: Metal recycling sites (scrap iron & metal merchants), dated 1969-1970. Part 2A risk rating: medium high	Off-site (adjacent west beyond railway line) Fairhurst note that all of these were identified on historical mapping c.20-50m west of the site
Metal manufacturing, iron and steelworks, dated 1971-1976. Part 2A risk rating: medium	
Factory or works (unspecified use), dated 1976-2004. Part 2A risk rating: low medium	
Oil refineries and bulk storage of crude oil and pet. Products, dated 1974 only. Part 2A risk rating: low medium	
Electricity distribution including large transformer, dated 2004 only. Part 2A risk rating: low medium	
Electricity distribution including large transformer, dated 1974 only. Part 2A risk rating: low medium	
Factory or works (unspecified use), dated 1976-1994. Part 2A risk rating: low medium *Fairhurst note that this is positioned at the location of a works identified on historical maps.*	Off-site (adjacent south-west beyond railway line)
Railway land, including: goods station and car park; road haulage contractor, dated 1890-2004. Part 2A risk rating: medium *Fairhurst note that this is positioned at the location of the corporation depot, goods depot, coach repair works and depot identified on historical maps.*	Off-site (50m south-west)
Gas works, coke works, coal carbonisation plants, gas works depot. Producing gas from goal, lignite, oil or other carbonaceous materials other than waste, dated 1874-2004. Road vehicles: transport and haulage centres; dismantling, repairing or maintenance of road transport or road haulage vehicles, dated 1980-1990. Part 2A risk rating: medium *Fairhurst note that this is positioned at the location of the Richmond Gas Works identified on historical maps.*	Off-site (from 50m north-east)
Warehouse (light industrial: engines, building and general industrial to manufacture component parts for electrical and motor industries), dated 1978-2002 Part 2A risk rating: medium *Fairhurst note that this wasn't identified on historical mapping.*	Off-site (adjacent south-west beyond railway line)

LBRuT presented records of three site investigations undertaken within 250m of the site as detailed below:

Ground Investigation 1 *- Structa LLP, titled Land at Orchard Road, Richmond, ref.3374-GE001B and positioned c.220m east of the subject site*

Scope of Report

The report was undertaken for assessment of Geo-Environmental and Geotechnical considerations associated with the demolition of the existing warehouse and construction of a 5no storey building with a doctors surgery at ground level and residential dwellings above.

Structa identify that the site was formerly occupied as a dairy depot and anecdotally recently was used for vehicle maintenance, with the Richmond Gas Works possibly extending onto the western portion of the site.

Ground Conditions Encountered

Fairhurst note that the BGS published ground conditions are reported to be the Kempton Park Gravel Member overlying the London Clay Formation.

Structa undertook the following ground investigation: 6no cable percussive boreholes to a maximum depth of 20.45m bgl; 6no windowless sample boreholes to a maximum depth of 5.7m bgl; ground gas monitoring and groundwater sampling; permeability testing in boreholes; and laboratory analysis.

Ground conditions encountered by Structa are detailed in Table 4 below.

Table 4 - Ground Conditions Encountered During Structa Investigation

Stratum & Description	Top Depth Range (m bgl)	Maximum Proven Thickness (m)	SPT N Value Range
Made Ground *As variable granular and cohesive elements with anthropogenic inclusions of brick, concrete, glass and clinker.*	0.15 - 0.26	3.74	1 - 7
Kempton Park Gravel *Variable granular and cohesive elements, frequently with gravel of flint.*	1.2 - 4.0	4.2	4 - >50^
London Clay Formation *Firm becoming stiff silty CLAY.*	4.7 - 5.6	14.85*	19 - 32#

^One SPT N value of 4 recorded, remaining values were recorded between 14 and 50.
*The base of the London Clay Formation was not proven.
#3no undrained triaxials were undertaken on this formation between 6.5 and 15.5m bgl, with recorded values of between 40 and 85kN/m^2.

During groundwater monitoring, Structa identified a resting groundwater level of between 2.2 and 2.9m bgl and was considered to be flowing in a south-easterly / easterly direction. Fairhurst note that no topographical assessment was undertaken of groundwater levels and therefore this cannot be verified.

Geotechnical Assessment

Limited Geotechnical conclusions were presented; however, the following is noted:

- Falling head permeability testing indicated an infiltration rate of between $3.96x10^{-5}$ and $5.96x10^{-8}$m/s in the Kempton Park Gravel; and
- Structa noted that piles should be constructed to DS-4, AC-4 and pile caps to DS-5, AC-5 based on the buried sulphate classification.

Contamination Assessment

Fairhurst have briefly reviewed the Structa contamination assessment; however, it is noted that the site is considered to likely be down hydraulic gradient of the site and therefore no significant risks are considered to the subject site from this assessment. However, it is noted that given that this site is adjacent to the former gas works, this investigation may be indicative of the contamination associated with this historical source.

- During the ground investigation, visual / olfactory evidence of chemical and hydrocarbon odours and sheens were frequently noted in all exploratory hole locations, typically from c.1.5-2.0m bgl;
- Soil analysis of contamination was undertaken, which identified concentrations of arsenic, cyanide, petroleum hydrocarbons and polycyclic aromatic hydrocarbons in excess of their

assessment criteria assuming a residential end use without the consumption of homegrown produce. Asbestos was detected in 3 of 7no Made Ground soil samples analysed. Structa concluded that the provision of a capping layer and vapour resistant membrane would mitigate the risks to identified human health receptors;

- Structa undertook groundwater analysis and compared concentrations to Environmental Quality and Drinking Water Standards. Concentrations of arsenic, cyanide, petroleum hydrocarbons, BTEX, polycyclic aromatic hydrocarbons and phenols were recorded in excess of their assessment criteria and was considered to be attributable to the former gas works. Structa undertook a detailed groundwater assessment and concluded that based on the contaminants and conditions encountered, no remediation of soils and groundwater would be required to be protective of controlled waters;
- Three rounds of ground gas monitoring were undertaken with recorded methane <0.1%, carbon dioxide ranged between <0.1 and 16.2%, maximum peak flow of 0.3l/hr and maximum PID of 4,000ppm. Structa concluded that the site would be reflective of Characteristic Situation 2 (i.e. low hazard potential) and additionally would require a hydrocarbon vapour resistant membrane.

Ground Investigation 2 *- Exploration Associates Limited, titled Manor Road Gas Works, Richmond, Factual Report on Ground Investigation, ref.145046, May 1995*

Scope of Report

The report was undertaken to establish ground and groundwater conditions to enable a contamination assessment to support the proposed redevelopment of the site.

Ground Conditions Encountered

Fairhurst note that the BGS published ground conditions are reported to be the Kempton Park Gravel Member overlying the London Clay Formation.

Exploration Associates undertook the following ground investigation: 6no cable percussive boreholes to a maximum depth of 7m bgl; 30no trial pits to a maximum depth of 3.7m bgl; 17no probe holes to a maximum depth of 6.2m bgl; ground gas and groundwater monitoring; and laboratory analysis.

Made Ground was encountered in all exploratory holes and proven to a maximum depth of 3..5m bgl (base of the exploratory hole). This deposit was reported to be of variable composition ranging from gravelly clays to sands and gravels with flint, brick, ash, clinker, concrete, metal and ceramic.

'Terrace Deposits' were encountered in exploratory holes advanced to a sufficient depth and typically comprised gravelly SAND, sandy GRAVEL and sandy CLAY.

The London Clay Formation was encountered in 3no exploratory holes and proven to a maximum depth of 7m bgl (base of excavation) and typically comprised stiff silty CLAY.

Groundwater was typically encountered in exploratory holes between 2.0 and 3.5m bgl.

No exploratory hole records, nor details of laboratory testing has been presented for review.

Ground Investigation 3 *- Peter Brett Associates LLP (PBA), titled Cliveden House, 19-22 Victoria Villas, Richmond, London ref.33222/3501 Phase 2 Issue 01, February 2015 and positioned c.80m west of the site*

Scope of Report

The report was undertaken to support the discharge of contaminated land planning conditions associated with the conversion of an existing commercial building to residential with private gardens. PBA note that the site was historically occupied by terraced residential properties, 2no warehouse type structures, a works and office space.

Ground Conditions Encountered

Fairhurst note that the BGS published ground conditions are reported to be the Kempton Park Gravel Member overlying the London Clay Formation.

PBA undertook 5no hand excavated trial pits to 1.2m bgl, which encountered Made Ground in all excavations as gravelly silty CLAY with inclusions of concrete, brick, slate and clinker.

Geo-Environmental laboratory testing was undertaken for metals, polycyclic aromatic hydrocarbons, petroleum hydrocarbons and asbestos screen. Concentrations of lead were recorded in excess of their assessment criteria for residential setting with consumption of homegrown produce. PBA concluded that to mitigate identified risks, 600mm of clean capping should be placed to break the contaminant pathway to future site users in areas of proposed soft landscaping. PBA considered no risks to controlled waters given

that leachate tests undertaken as part of waste acceptance criteria analysis recorded concentrations beneath assessment criteria and noting that there are no potable groundwater abstractions were identified within 1km. Furthermore, no risks were reported from ground gases as the composition of Made Ground was considered to represent a very low gas generation potential and from vapours noting that no petroleum hydrocarbons in soil analysis. PBA noted that water supply pipes may come into contact with Made Ground and new water supply pipes will be required to be 'barrier pipes'.

Environment Agency (EA)

A response was received from the EA in September 2018 (as detailed within Appendix C). The following information was provided:

- No landfills were known to be located within 500m of the site (corroborating with information provided by the London Borough of Richmond and the Envirocheck Report);
- That they were not aware of any incidents relating to contaminated land within 500m of the site;
- That no sites designated under Part 2a were believed to be within close proximity of the site;
- That no groundwater level monitoring sites were positioned within 500m of the site and therefore neither information relating to local depth to groundwater nor flow direction was held;
- No records were held relating to water quality;
- A single groundwater abstraction borehole was noted in relation to spray irrigation use located at the Richmond Athletics Ground (c.970m to the north-west); and,
- In relation to the former Richmond Gas Works located adjacent and to the north-east of the site, no investigation records were held, however following note their database dated from 2001 detailed the following:

  "Groundwater contaminated with TPH, BTEX compounds and PAHs. Hotspots of heavy metals and PAHs. Remedial measures included the installation of a bentonite wall on the East & South of the site, excavation of 1.5m from across the site and the removal of buried structures. Groundwater remediation measures also include the removal of LNAPL and disposal off-site, groundwater treatment ex-situ and reinjection, and a period of monitoring to EA satisfaction."

Network Rail

Fairhurst contacted and met with representatives of Network Rail (30th August 2018) in order to discuss potential constraints to the site development posed by the railway lines to the north-west and the south of the site.

Network Rail confirmed their responsibility for the lines and also that they require access to the railway via the gate to the south-west of the site in order to reach signalling equipment. In relation to the proposed development, Network Rail was generally happy with the provisions for this access incorporated into the existing design. Although Network Rail would likely not have any objections to the scheme and were generally satisfied with the required distance from the proposed blocks to their boundary, it was considered that final site layout (particularly referencing blocks within the southern portion of the site) will require further consultation and approval with Network Rail.

Liaison with Network Rail is ongoing.

Transport for London

Transport for London have confirmed that the Overground route at this location is owned and managed by Network Rail and TfL only has running rights on this route. Furthermore, the District line is under TfL / London Underground ownership and management.

London Underground

London Underground have stated that their assets will not be affected by works on-site; although there are Network Rail assets close to the site.

London Overground

London Overground have stated that they have no assets within close proximity of the site.

4.0 PRELIMINARY CONCEPTUAL MODEL AND QUALITATIVE RISK ASSESSMENT

A preliminary conceptual model represents the characteristics of the site that show the possible relationship between contaminant sources, pathways and receptors. The following outline conceptual model is based on the findings of the PRA. The principles of environmental risk assessment are presented in Appendix F.

The significance of the presence of sources, pathways and receptors is considered by carrying out a risk assessment of all potential pollutant linkages. The assessment has been undertaken to inform on potential geo-environmental risks associated with the redevelopment of the site for a residential led end use development.

4.1 Source Characterisation

Potentially contaminative land uses (current and historic) identified as part of this PRA are detailed in Table 5 below.

It is considered that when the distance from a potential source to the site is more than 250m, the creation of a realistic source-pathway-receptor linkage (contaminant transfer) is unlikely. This is, unless the primary pathway of concern is the migration of ground gas (such as from a historic landfill site or backfilled quarry). Therefore, typically, potential sources more than 250m from the site are excluded from the risk assessment. Where sources are discounted for alternative reasons, due to the absence of a realistic source-pathway-receptor linkage, this is stated in Table 5.

Table 5 – Identified Potential Sources of Contamination

Source (Date first identified on historical mapping)	Location	Identified by	Discounted
		On-site	
Made Ground	On-site	Borehole records	No, nature and composition of fill material is unknown.
Current use of site as Homebase and pet store	On-site	Site walkover	Yes, no potential sources of contamination were identified during site walkover and shop use not considered to pose risk of contamination. Fly tipping was limited and noted to be of tyres, cushions, rubbish, plastics and turf and no contamination is anticipated from these sources. Area of paint storage was noted to be limited and not considered to present contamination source.
Former site use as car wash	On-site	Site walkover / Online aerial imagery	No, potential for chemicals to have been used.
Current site use as car parking and bus stand	On-site	Site walkover	No, potential for localised hotspots of contamination from spillages, interceptors and venting pipes identified in this area.
Historical uses including timber yard, crane, railway sidings, fuel depot, coal hoppers, electrical substation and power station	On-site	Historical maps / Council correspondence	No, potential for contamination to remain from historical sources.
Electrical substation	On-site (north-western corner and	Historical maps / Site walkover / Council correspondence	No, potential for historic and ongoing contamination from source.

	centre of western boundary)		
Asbestos containing materials in building fabrics	On-site	Historical maps / building age	Yes, it is considered that asbestos in building fabrics is unlikely to impact soil / groundwater. It is considered that an up to date asbestos survey will be undertaken prior to the demolition of existing structures. Asbestos may be present in soil from historic structures / Made Ground; however, this is covered in the Made Ground source detailed above.
Contemporary trade directory entry for electrical goods sales, manufacturers and wholesalers	On-site	Envirocheck report	Yes, no potential sources of contamination considered to be present associated with shop use.
Off-site			
Railway lines (1867 - present)	Bounding site to south and west	Historical maps / Site walkover / Council correspondence	No, potential for contamination to be present from source.
Richmond gas works and associated activities, including railway sidings, gas holders, tank etc (1867 - present) Later detailed as works / depot (1975 - 1990s)	Historically from 50m NE Present day 120m NE	Historical maps / Council correspondence	No, whilst source is likely down hydraulic gradient, potential for gas/groundwater impact to have had a widespread impact on groundwater quality in the area. Further, ground investigation is required to confirm hydraulic gradient.
Militia barracks and drill ground (1867 - 1894)	150-200m NW	Historical maps	Yes, noting that the source is considered to be down hydraulic gradient and the time passed since its presence.
Nursery (1867 - 1960)	200m NW	Historical maps	Yes, noting that the source is considered to be down hydraulic gradient and considered unlikely to be significant;
Laundry (1896 - 1898)	200m SW	Historical maps	No, source is up assumed hydraulic gradient of the site and relic contamination may remain from source, although unlikely given >100 years and likely volatile vapour nature of contaminants. Some detergents can be pervasive in the groundwater environment.
Corporation depot (1896 - 2004) Goods depot (1960 - 1970s). Later coach repair works (1970s - 1980s) and depot (late 1980s)	200m W	Historical maps / Council correspondence	No, source is up hydraulic gradient of the site and relic contamination may remain from source.
Nursery (1896 - 1913)	100m S	Historical maps	No, source is up hydraulic gradient of the site and relic contamination may remain from source, although given time passed since its presence (>100 years), this is considered unlikely.

Timber yard (1896 - 1913)	100m N	Historical maps	Yes, noting that the source is considered to be down hydraulic gradient and the time since present; therefore allowing for natural attenuation of contamination.
Smithy (1913)	200m E	Historical maps	Yes, noting that the source is considered to be down hydraulic gradient and the time since present; therefore allowing for natural attenuation of contamination.
3no garages (1960 - 1990s)	250m S	Historical maps	No, source is up hydraulic gradient of the site and relic contamination may remain from source.
3no works (1960 - 1990s). One of which is considered to be the car dealership / garage identified during the walkover 2no active car dealers positioned here	240-250m NE	Historical maps / Site walkover / CTDE	Yes, noting that the source is considered to be down hydraulic gradient and the time since present; therefore allowing for natural attenuation of contamination.
Warehouse buildings / works (1970s - present) Electrical substation (1970s - unspecified) Builders yard, identified as Travis Perkins during walkover (1970s - present) and 3no CTDE positioned at this location Tank (1970s - unspecified). CTDE for inactive tank cleaning and repair positioned here Additional CTDE for printers, aerosols, 2no optical goods, tyre dealers, powder coatings and domestic cleaning services positioned here	20 - 50m W	Historical maps / Site walkover Council correspondence / CTDE	No, potential for contamination to be remain associated with sources. Although, limited contamination considered to be present associated with ongoing Travis Perkins / builder's warehouse use.
F.A. Clover & Sons Ltd and Big Yellow Self Storage	20 - 50m W	Site walkover	Yes, no potential sources of contamination are considered associated with shop use.
Electrical substation (1960 - 1990s)	200m NW	Historical maps	Yes, noting that the source is considered to be down hydraulic gradient of the site.
Works (1975 - 1990s) Identified CDTE as inactive builders merchant, inactive distribution services and active carpet, curtain and upholstery cleaners	Adjacent SW	Historical maps / CTDE / Council correspondence	No, potential for contamination to be remain associated with source.
Coal hoppers (1970s - 1980s)	Adjacent N	Historical maps	No, potential for contamination to be remain associated with source.
Garage (petrol filling station) and works (1970s -	150m N	Historical maps / Site walkover /	Yes, noting that the source is considered to be down hydraulic

present) CTDE for inactive petrol filling station, inactive cable and wire equipment manufacturers and active and inactive garage services positioned here		CTDE	gradient of the site.
Electrical substation (1990s - unknown)	100m S	Historical maps	No, potential contamination present from source and it is positioned up hydraulic gradient of the site.
Petrol filling station (2000s - present)	200m NE	Historical maps / site walkover	Yes, noting that the source is considered to be down hydraulic gradient of the site.
Warehouse (light industrial: engines, building and general industrial to manufacture component parts for electrical and motor industries) (1978-2002)	20m S	Council correspondence	No, potential for contamination to be remain associated with source.
Classic car specialists	130m N	CTDE	Yes, source considered to be down hydraulic gradient.
Active garage services, active tyre dealers, inactive car customizing specialists, inactive and active distilleries, inactive pottery manufacturers and suppliers, active dry cleaners and inactive road haulage services	150-210m W / NW	CTDE	No, source is potentially up hydraulic gradient of the site.
Active clothing and fabrics manufacturers and inactive dairies	230-240m NE	CTDE	Yes, sources are considered to be down hydraulic gradient
Category 2 significant incident positioned 210m north-east, dated May 1989. Pollutant was unknown oils and no further information is provided Category 3 minor incident positioned 250m north-east, dated December 1991. Pollutant was unknown oils and no further information is provided		Envirocheck report	Yes, noting that the source is considered to be down hydraulic gradient of the site.

Contaminants of concern associated with the sources outlined above are listed in Table 6 below. Whilst they have been withdrawn, Department of Environment (DoE) industry profiles have been utilised for reference, where available. Figure 2a and 2b presents potential sources of contamination (on and off-site respectively), which are carried forwards to the conceptual site model.

Table 6 – Contaminants of Concern

Source	Contaminants of Concern
On-site	
Made Ground	Metals, PAH, asbestos, TPH, ground gas
Former car wash	Metals, PAH , TPH, VOC, SVOC
Car parking	Metals, TPH, SVOC, VOC PAH

Historical uses including timber yard, crane, railway sidings, fuel depot, coal hoppers, electrical substation and power station	Metals, PAH, asbestos, TPH, PCB, VOC, SVOC, phenols, pesticides
Electrical substation	PCB, TPH, PAH, metals, VOC, SVOC
Off-site	
Railway lines (1867 - present)	DoE industry profiles note the following potential contaminants in the vicinity of tracks: metals, VOC, PAH, pesticides
Richmond gas works and associated activities, including railway sidings, gas holders, tank etc (1867 - present) Later detailed as works / depot (1975 - 1990s)	Metals, TPH, PCB, PAH, VOC, SVOC, ammonia, phenols, cyanide (total), sulphates
Laundry (1896 - 1898)	VOC, solvents
Corporation depot (1896 - 2004) Goods depot (1960 - 1970s). Later coach repair works (1970s - 1980s) and depot (late 1980s)	Metals, TPH, VOC, SVOC, and PAH
Nursery (1896 - 1913)	Metals, pesticides
3no garages (1960 - 1990s)	Metals, TPH, VOC, SVOC, and PAH
Warehouse buildings / works (1970s - present) Electrical substation (1970s - unspecified) Builders yard, identified as Travis Perkins during walkover (1970s - present) and 3no CTDE positioned at this location Tank (1970s - unspecified). CTDE for inactive tank cleaning and repair positioned here Additional CTDE for printers, aerosols, 2no optical goods, tyre dealers, powder coatings and domestic cleaning services positioned here	Metals, PCB, PAH, TPH, VOC, SVOC
Works (1975 - 1990s) Identified CDTE as inactive builders merchant, inactive distribution services and active carpet, curtain and upholstery cleaners	PAH, TPH, VOC, SVOC, metal
Coal hoppers (1970s - 1980s)	Metal, PAH
Electrical substation (1990s - unknown)	Polychlorinated biphenyls, petroleum hydrocarbons, metals
Warehouse (light industrial: engines, building and general industrial to manufacture component parts for electrical and motor industries) (1978-2002)	PCB, PAH, TPH, VOC, SVOC, metal
Active garage services, active tyre dealers, inactive car customizing specialists, inactive and active distilleries, inactive pottery manufacturers and suppliers, active dry cleaners and inactive road haulage services	PAH, TPH, VOC, SVOC, metal

Metals and inorganic compounds including but not limited to As, B, Cd, Cr total, Cr VI and III, Cu, Hg, Ni, Pb, Se, Zn/ phenols, cyanide (free and total), asbestos and sulphates / VOC: volatile organic compounds / SVOC: semi volatile organic compounds / PAH: polycyclic aromatic hydrocarbons / TPH CWG: total petroleum hydrocarbons / PCB: polychlorinated biphenyls / Ground gas including but not limited to CO2, CH4, CO, H2S

4.2 Receptor Characterisation

The following receptors are identified at the site:

- Human health: future site workers and residents and off-site adjacent land users, including neighbours and members of the public;
- Building materials and below ground structures (foundations and services); and
- Controlled waters: the underlying Secondary A Aquifer (Kempton Park Gravel Member).

The River Thames is not considered a receptor to on-site contamination, noting the distance of this surface water feature to the site (>1.6km). Furthermore, the off-site pond positioned c.310m south is considered to likely be up hydraulic gradient and therefore not considered to be a receptor from on-site contamination. Three groundwater abstractions were identified during council liaison, and were noted to be positioned west and north-west of the site and at closest 920m from the site; therefore, these have been discounted as they are not considered to be in hydraulic connectivity with the site.

It is assumed that appropriate Health & Safety measures, based upon a qualitative environmental risk assessment of site conditions by the contractor will be adopted during any future below ground maintenance works. This is likely to include personal protective equipment (PPE). It is considered that these measures will adequately mitigate the risk to construction and future maintenance workers from potential sources of contamination. Therefore, future construction and maintenance workers are not discussed further as part of this risk assessment.

Pollution linkages have not been identified to ecology as a Part IIA and Non-Part IIA Receptor at this stage. However, this report does not purport to be making ecological recommendations, for which a specialist should be consulted.

4.3 Pathway Characterisation

The potential pathways by which receptors might be exposed to contaminants (sources) at the site can vary depending on the proposed or current land use (i.e. commercial or residential land use). The assessment has been based on a residential end use.

For humans, the following are considered plausible exposure pathways:

- Migration, accumulation and inhalation of soil gas / vapours via permeable soils and groundwater;
- Direct contact and ingestion / inhalation of contaminated soils in areas of soft landscaping; and
- Ingress of contaminants into conduits, contaminating drinking water supplies.

Noting that the proposed development is to include multi-storey apartment buildings and therefore assumed shared landscaping spaces, the consumption of home grown produce has been excluded from the assessment.

For building materials and below ground structures (including foundations and services), the following are considered plausible exposure pathways:

- Soil gas / vapour accumulation in confined spaces and voids within or beneath structures; and
- Direct contact of building fabric with contaminated soils.

For controlled waters, the following pathways may be present:

- Vertical leaching and migration of contaminants from the soil to groundwater; and
- Lateral migration of on-site groundwater off-site or from off-site groundwater on-site.

4.4 Pollutant Linkages

The significance of future potential pollutant linkages at the site is now qualitatively assessed by considering the magnitude of the hazard, and the possibility of the linkages occurring based on the observations made above and taking consideration of the continued commercial end use. Potential pollutant linkages are identified in Table 7.

Table 7 – Preliminary Qualitative Risk Assessment for Identified Sources of Contamination

Source	Potential contaminants	Potential Pathway (s)	Potential receptor (s)	Assessment	Potential Severity	Potential Probability	Risk Class
On-site sources	Metals, TPH, PAH, PCB, VOC, SVOC, sulphates, asbestos, pesticides	Direct contact with contaminated soils Direct ingestion / inhalation of contaminated soils Ingestion of contaminated water from drinking water supply pipes	Human health (on-site)	Development proposals include areas of soft landscaping. Residential end use is more sensitive than existing commercial. Possible that new drinking water supply pipes are to be laid.	Medium	Likely	Moderate
	Ground gases / VOC	Inhalation of accumulated soil ground gases or vapours Lateral migration of volatile compounds in groundwater	Human health (on and off site)	Potential for ground gases to be present attributable to Made Ground or the degradation of organic contamination. Furthermore, potential sources of VOC identified.	Severe	Low	Moderate
	Ground gases / VOC	Soil gas / vapour accumulation in confined spaces and voids within or beneath structures	Buildings and service conduits (on and off-site)	As above.	Severe	Low	Moderate
	Metals, TPH, PAH, PCB, VOC, SVOC, pesticides Sulphates in London Clay Formation	Direct contact of building fabric with contaminated soils	Buildings and service conduits (on and off-site)	Sources of contamination identified on-site and associated with historic uses which may result in aggressive chemical conditions within Made Ground. Soft landscaping associated with proposed development may increase vertical leaching of contamination. Plausible that proposed building foundations are positioned beneath the groundwater table.	Mild	Likely	Moderate / Low
	Metals, TPH, PAH, PCB, VOC, SVOC, asbestos, pesticides	Vertical leaching and migration of contaminants from the soil to groundwater Lateral migration of groundwater off-site	Secondary A Aquifer (on and off-site)	Soft landscaping associated with proposed development may increase vertical leaching of contamination. Whilst no abstractions / surface water features are identified, the resource potential of the Secondary A Aquifer should be considered. Shallow groundwater was encountered from 1.5m bgl within BGS borehole records in the Kempton Park Gravel Formation.	Medium	Likely	Moderate

Source	Potential contaminants	Potential Pathway (s)	Potential receptor (s)	Assessment	Potential Severity	Potential Probability	Risk Class
Off-site sources	Ground gases / VOC	Inhalation of accumulated soil ground gases or vapours Lateral migration of volatile compounds in groundwater	Human health (on-site)	Potential sources of ground gases identified and there is potential for these to migrate in the unsaturated zone onto site. Potential for VOCs to migrate in groundwater or via the unsaturated zone to beneath the site.	Severe	Low	Moderate
	Ground gases / VOC	Soil gas / vapour accumulation in confined spaces and voids within or beneath structures	Buildings and service conduits (on - site)	As above.	Severe	Low	Moderate
	Metals, TPH, PCB, PAH, VOC, SVOC, ammonia, cyanide (total), sulphates, pesticides	Contact with building structures and services with contaminated groundwater migrating onto site	Buildings and service conduits (on - site)	Plausible that proposed building foundations will be positioned beneath the groundwater table and therefore in contact with contaminated groundwater migrating onto site.	Mild	Likely	Moderate / Low
	Metals, TPH, PCB, PAH, VOC, SVOC, ammonia, cyanide (total), sulphates, pesticides	Vertical leaching and migration of contaminants from the soil to groundwater Lateral migration of off-site groundwater on-site	Secondary A Aquifer (on-site)	Potential for contaminated groundwater to be flowing onto site. No abstractions identified on-site; however, resource potential could be impacted.	Medium	Likely	Moderate

5.0 GEOTECHNICAL CONSIDERATIONS

The following geotechnical considerations are noted associated with the development.

Basement Development

- Consultation with LBRuT identifies that the basement development would be subject to Policy LP 11 from their local plan, which details: and

  A. The Council will resist subterranean and basement development of more than one storey below the existing ground level to residential properties or those which were previously in residential use.

  B. Proposals for subterranean and basement developments will be required to comply with the following:

     1. Extend to no more than a maximum of 50% of the existing garden land or more than half of any other undeveloped garden area (this excludes the footprint of the original building);
     2. Demonstrate the scheme safeguards the structural stability of the existing building, neighbouring buildings and other infrastructure, including related to the highway and transport; a Structural Impact Assessment will be required where a subterranean development or basement is added to, or adjacent to, a listed building.
     3. Use natural ventilation and lighting where habitable accommodation is provided;
     4. Include a minimum of 1 metre naturally draining permeable soil above any part of the basement beneath the garden area, together with a minimum 200mm drainage layer, and provide a satisfactory landscaping scheme;
     5. Demonstrate that the scheme will not increase or otherwise exacerbate flood risk on the site or beyond, in line with policy LP 21 Flood Risk and Sustainable Drainage;
     6. Demonstrate as part of a Construction Management Statement that the development will be designed and constructed so as to minimise the impact during construction and occupation stages (in line with the Local Environmental Impacts, Pollution and Land Contamination policy of this Plan);

  C. Proposals for subterranean and basement developments, including extensions, as well as lightwells and railings, will be assessed against the advice set out in the Council's SPDs relating to character and design as well as the relevant Village Planning Guidance and the forthcoming SPD on Basements and Subterranean Developments. Applicants will be expected to follow the Council's Good Practice Guide on Basement Developments.

- Furthermore, the LBRuT planning advice note 'Good Practice Guide on Basement Developments', May 2015Consultation with LBRuT identifies that the basement development would be subject to Policy LP 11 from their local plan, which details potential requirements including: contacting utilities, Network Rail and Transport for London to confirm that works will not interfere with their infrastructure; flood risk assessment taking consideration of groundwater and potential groundwater flooding; assessment of land stability; structural assessment taking consideration of ground conditions and groundwater, existing trees and infrastructure and drainage; site investigation; and assessment of ground movements.

On the basis of the foregoing, it is considered that a Basement Impact Assessment and/or Ground Movement Assessment may be required to confirm the absence of adverse impacts to existing offsite infrastructure assets or neighbouring structures, subject to the development details/design and liaison with TFL/LUL and/or Network Rail and the Local Planning Authority.

Below Ground Structures and Utilities

- Council correspondence notes that the site is within a National Grid safeguard zone (unknown if this relates to the former Richmond Gas Works) and a possible Southern Gas Network structure was identified in the south-eastern corner of the site. Furthermore, existing utilities are likely to be present on-site associated with the existing development, including the electrical substation. Existing services may require removal, capping and diversion associated with the development. Furthermore, it is recommended that full service plans are obtained in advance of any below ground investigation works;
- Relic foundations and structures may be present associated with the historic development of the site. Obstructions may need to be delineated and grubbed out as part of any future earthworks at the site; and
- As detailed in Section 3.6, the site is within a high risk area with respect to unexploded ordnance. It is recommended that a UXO specialist is contacted prior to any below ground works.

Foundation Appraisal

- There is the potential for aggressive sulphates in Made Ground and London Clay Formation, which may impact buried concrete and as such will require further consideration as part of any ground investigation;
- Trees are present bounding the site and pre-application consultation with LBRuT identifies that there are tree preservation orders at the site. It is considered probable that existing tree roots are present in the Kempton Park Gravel Formation and should this formation prove to be cohesive in nature the volume change potential should be considered where trees are to be removed or planted associated with the development;
- Structural loads are unknown at this stage. Noting proposed development heights of potentially up to 10 No. storeys (plus ground and basement floors), it is considered that loads may exceed traditional shallow foundations (i.e. pads and strips) and foundations may need to be piled. Following ground investigation consideration could be given to shallow foundations and raft basement slabs, dependent on settlement tolerances and the thickness and density of the Kempton Park Gravels;
- Based on BGS borehole records, it is considered that a piled foundation solution would extend into the London Clay Formation. Foundation design will be subject to structural loads and ground investigation findings.

Adjacent Railways

- District, Overground and National Rail tracks bound the site to the south and the west. It is likely that additional assessments will be required to confirm the potential impacts of development on these assets, including during ground investigation and future development.

Further Considerations

- Soakaways may be feasible within the granular Kempton Park Gravel Formation; however, given the potential for contamination identified, further risk assessments may be required to ensure that these do not result in increased mobilisation of potential contamination. Furthermore, BGS borehole logs have identified a groundwater table from c.1.5m bgl and the shallow depth to groundwater may preclude the use of soakaway drainage.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Geo-Environmental

This report has identified potential sources of contamination on-site, including those that predate the commercial building, including Made Ground, timber yards, electrical substations, car wash, coal hoppers, fuel depot, power station and car parking. Furthermore, off-site sources of contamination were identified, most notably the former Richmond Gas Works positioned to the north-east of the site beyond Manor Road.

Potential risks were assessed against sensitive receptors including human health, building structures and services and controlled waters as the underlying Kempton Park Gravel Member (Secondary A Aquifer).

Typically a moderate risk was identified to receptors associated with the proposed development. It is considered that contaminated land planning conditions will be included associated with the development and it is recommended that a ground investigation is undertaken to further quantify potential risks.

6.2 Geotechnical

Potential Geotechnical considerations identified including:

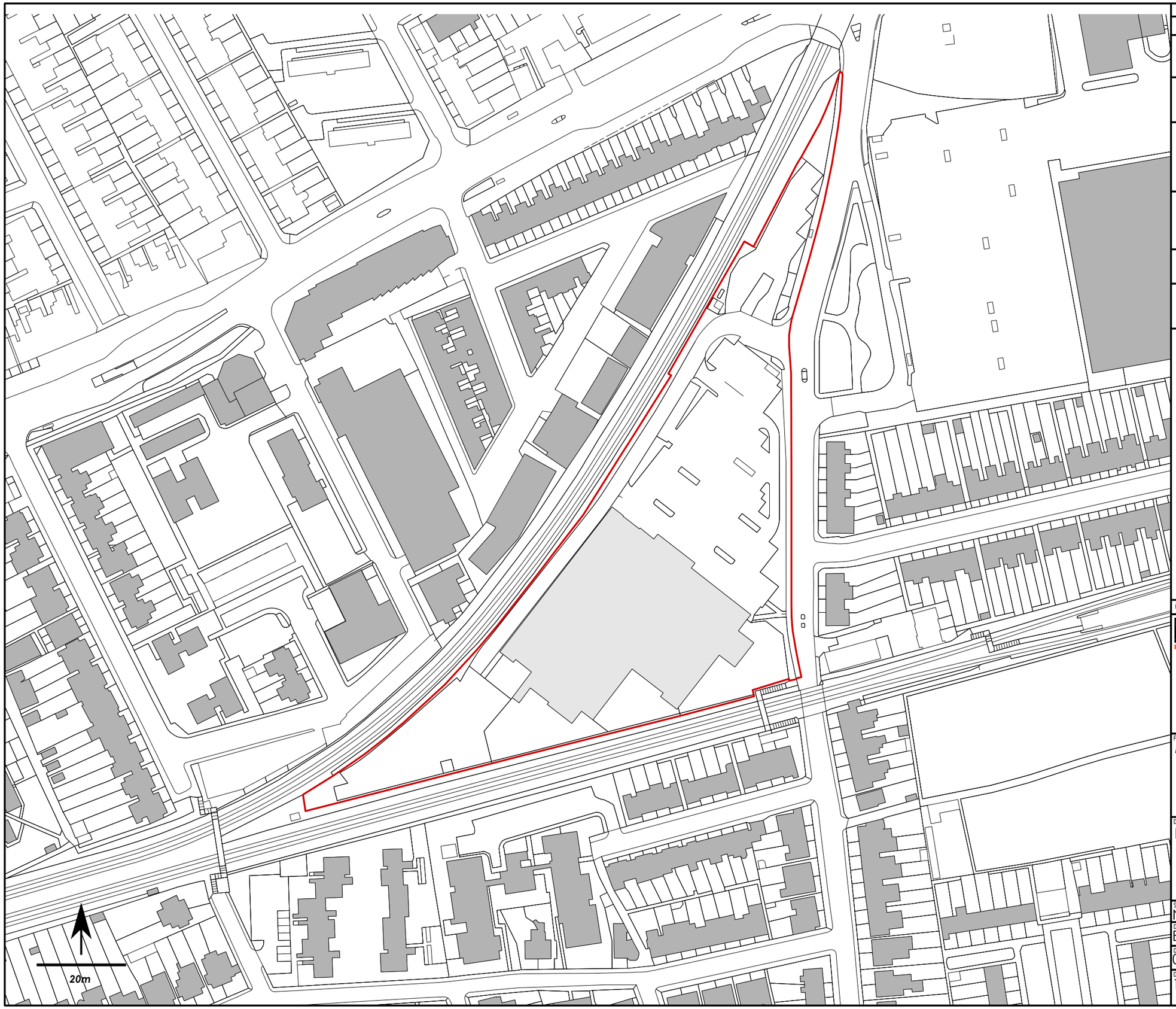
- Presence of railway lines adjacent to the south and west of the site. The development will require ongoing consultation with Network Rail following Fairhurst's initial meeting with regards to confirming absence of risk to their assets;
- It is noted that the site is within a National Grid safeguard zone and additional services are likely to be present associated with the development of the site. Existing services may require removal, capping and diversion associated with the development. Furthermore, it is recommended that full service plans are obtained in advance of any below ground investigation works;
- Structural loads are preliminary at this stage. Noting proposed development heights of up to 10 No. storeys (plus basement and ground floor), it is considered that loads may exceed traditional shallow foundations (i.e. pads and strips) and foundations may need to be piled. Based on BGS borehole records, it is considered that a piled foundation solution would extend into the London Clay Formation. Foundation design will be subject to structural loads and ground investigation findings; and
- The site is within a high risk area with respect to unexploded ordnance. A detailed assessment is currently being undertaken and the findings should be referred to prior to any below ground / excavation works.

6.3 Recommendations

It is recommended that an intrusive ground investigation is undertaken to further quantify Geo-Environmental and Geotechnical risks associated with the development. The above assessment is based on the proposed development plans included in Appendix A and the assessment should be revised if these are amended.

Figure 1

Site Location Plan



Do not scale from this drawing.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.

CONSTRUCTION

DEMOLITION

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

Rev.	Date	Description	Drwn.	Chkd.	Appd.

FAIRHURST

135 Park Street
LONDON
SE1 9EA

Tel: 020 7828 8205
Fax: 084 4381 4412
Fairhurst.co.uk

Client:
Avanton

Project Title:
Manor Road, Richmond

Drawing Title:
Existing Site Layout
From Assael Drawing A3004 100

Scale at A3:	Status:	
Not to Scale	ISSUE	
Drawn: EY	Checked: AS	Approved: AS
Date: 04/12/18	Date: 05/12/18	Date: 05/12/18
Drawing No.: 126782 Figure 1		Revision: A

Figure 2

Potential Sources of Contamination

Legend

PotentialSourcesofContaminationOn-Site

- Former Car Wash
- Former Coal Hoppers
- Former Crane
- Former Depot
- Former Electrical Substation
- Former Fuel Depot
- Former Railway Sidings
- Made Ground, Former Timber Yard & Former Power Station (location unknown)
- Car Parking
- Electrical Substation
- Site Boundary

FAIRHURST
135 Park Street
LONDON
SE1 9EA

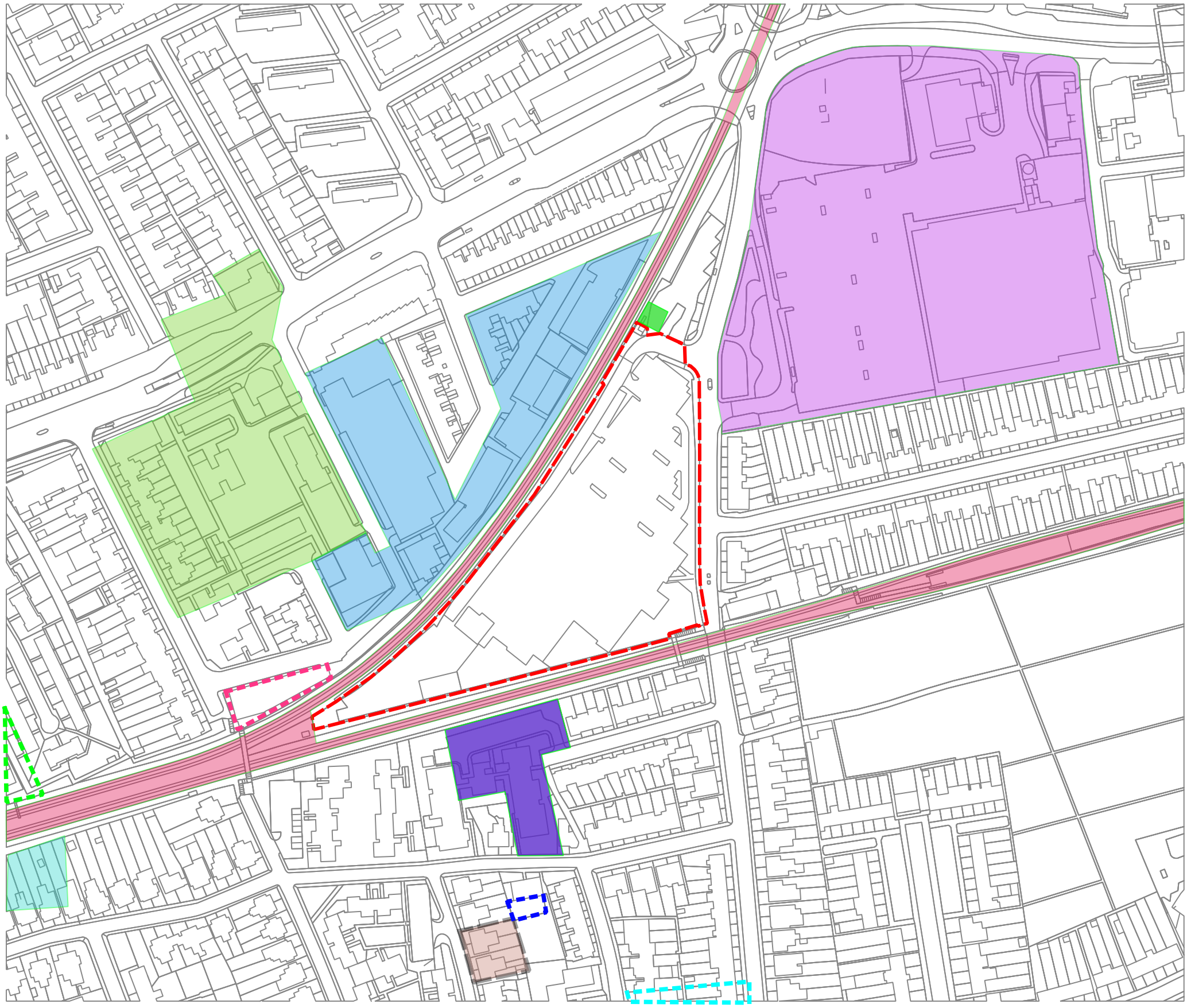
Tel: 020 7828 8205
Fairhurst.co.uk

Client:
Avanton Limited

Project Title:
Site off Manor Road, Richmond

Drawing Title:
Potential Sources of Contamination On-Site
126782

Scale at A1: NTS	Status: N/A	
Drawn: FS	Checked: CB	Approved: CB
Date: 10/08/2018	Date: 10/08/2018	Date: 10/08/2018
Drawing No.: Figure 2A		Revision: -



Legend

- Corporation & Goods Depots and Coach Repair Works
- Electrical Substation
- Former 3no Garages
- Former Coal Hoppers
- Former Laundry
- Former Light Industrial Warehouse
- Former Nursery
- Former Richmond Gas Works
- Former Warehouses, Works, Electrical Substation, Builders Yard, Tank and Various CTDE
- Former Works, Builders Merchant, Distribution Services & Carpet Cleaners
- Railway Lines
- Various CTDE
- Site Boundary

FAIRHURST
135 Park Street
LONDON
SE1 9EA

Tel: 020 7828 8205
Fairhurst.co.uk

Client:
Avanton Limited

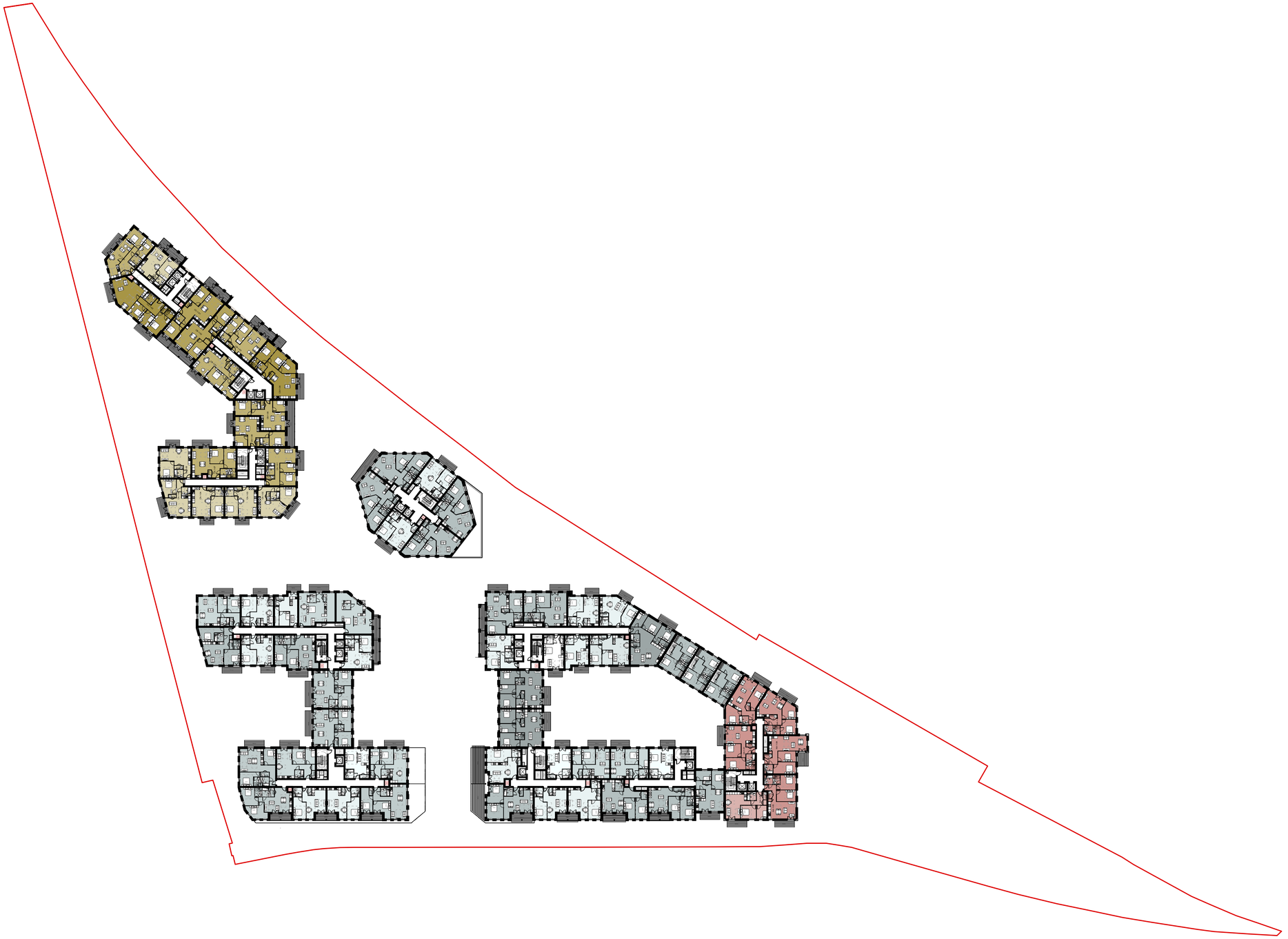
Project Title:
Site off Manor Road, Richmond

Drawing Title:
Potential Sources of Contamination Off-Site
126782

Scale at A1: NTS	Status: N/A	
Drawn: FS	Checked: CB	Approved: CB
Date: 10/08/2018	Date: 10/08/2018	Date: 10/08/2018
Drawing No.: Figure 2B		Revision: -

APPENDIX A

Development Proposals



0m 10m 50m
5m 25m

N

General notes

All setting out must be checked on site
All levels must be checked on site and refer to Ordnance Datum Newlyn unless alternative Datum given
All fixings and weatherings must be checked on site
All dimensions must be checked on site
This drawing must not be scaled
This drawing must be read in conjunction with all other relevant drawings, specification clauses and current design risk register
This drawing must not be used for land transfer purposes
Calculated areas in accordance with Assael Architecture's Definition of Areas for Schedule of Areas
This drawing must not be used on site unless issued for construction
Subject to survey, consultation and approval from all statutory Authorities

Revision Status:
P=Preliminary
C=Contract

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Drawing notes

Electronic file reference

Enter Source Filename ' Eg AA Title Block'

Status R:	Revision	Date	DRN	CHK	CDM
15	For Information	17/06/20	LP	HB	
16	For Information	01/07/20	MP	HB	
17	Design Freeze	17/07/20	TP	HB	

Key

Key	Studio	1 Bed	2B3P	2B4P	3 Bed
Market					
Shared Ownership					
London Affordable Rent					
London Living Rent					
Plant/Refuse/Bike Store					
Commercial					

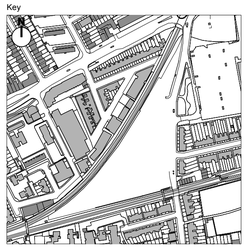
Purpose of information

The purpose of the information on this drawing is for:

- Planning ☐
- Information ☒
- Comment ☐
- Client approval ☐
- Construction ☐

All information on this drawing is not for construction unless it is marked for construction.

Key



Client

Avanton

Project title

A3004
Manor Road Richmond

Drawing title

GA Plans Proposed
First Floor

Scale @ A1 size: **1:500**

Date: **July '20**

Drawing N°

MNR-AA-ALL-01-DR-A-2001

Status & Revision

R17

Assael

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APPENDIX B

Envirocheck Report

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Sloping Masonry
Pylon
Electricity Transmission Line
Pole
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Middlesex	1:10,560	1869 - 1873	3
Surrey	1:10,560	1871 - 1874	4
London	1:10,560	1896	5
Surrey	1:10,560	1898 - 1899	6
Middlesex	1:10,560	1920	7
Surrey	1:10,560	1920	8
London	1:10,560	1920	9
Surrey	1:10,560	1933	10
Surrey	1:10,560	1933	11
Middlesex	1:10,560	1935	12
Surrey	1:10,560	1938	13
Middlesex	1:10,560	1938	14
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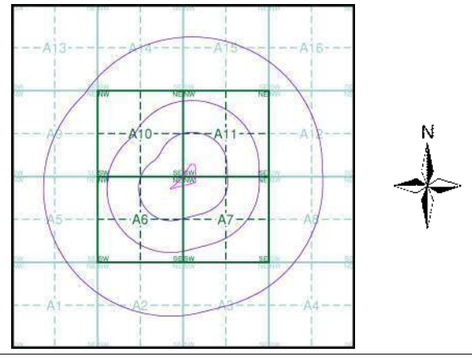
London	1:10,560	1938	16
Ordnance Survey Plan	1:10,000	1940 - 1950	17
Ordnance Survey Plan	1:10,000	1940 - 1958	18
Historical Aerial Photography	1:10,560	1948	19
Historical Aerial Photography	1:10,560	1948	20
Ordnance Survey Plan	1:10,000	1962 - 1966	21
Ordnance Survey Plan	1:10,000	1966 - 1967	22
Ordnance Survey Plan	1:10,000	1975 - 1976	23
London	1:25,000	1985	24
Ordnance Survey Plan	1:10,000	1988	25
Ordnance Survey Plan	1:10,000	1992	26
10K Raster Mapping	1:10,000	1999	27
10K Raster Mapping	1:10,000	2006	28
VectorMap Local	1:10,000	2017	29

Historical Map - Slice A



Order Details

Order Number: 142584674_1_1
Customer Ref: Homebase, Richmond
National Grid Reference: 518890, 175430
Slice: A
Site Area (Ha): 1.58
Search Buffer (m): 1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Fireproof Building
- Prominent Fireproof Building
- Non-fireproof Building
- Non-fireproof Building (non-dwelling)
- Factory, mill, and flour mill, with chimneys
- Factory, mill, and flour mill, without chimneys
- Power Station, drawn to scale
- Hydroelectric Power Station
- Radio Station, drawn to scale
- Telephone Station, drawn to scale
- Abandoned Open-pit Mine or Quarry
- Open-pit Salt Mine
- Pit
- Oil Deposit or Well
- Oil Seepage
- Tailings Pile
- Fuel Storage Tanks
- Natural Gas Tank
- Bench Mark
- Drill Hole
- Burial Mound
- Triangulation Point on Burial Mound
- Single-track Railroad
- Double-track Railroad and Station Building
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Lawns
- Citrus Orchard
- Wet Ground
- Scattered Vegetation

243,8 — Values for prominent elevations

186.0 — Numbers for spot elevations, depth soundings, contour lines, etc.

0,2 — Velocity of the current, width of river bed, depth of river

Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	ъ (–)
Д д (D)	Л л (L)	У у (U)	ы (Y)
Е е (E)	М м (M)	Ф ф (F)	ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney
- Factory or Mill without Chimney
- Mine or Open Pit Mine
- Operating Shaft or Mine
- Non-Operating Shaft or Mine
- Salt Mine
- Tailings Pile
- Pit
- Stone Quarry
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station
- Cemetery
- Burial Mound (height in metres)
- Triangulation Point on Burial Mound
- Triangulation Point
- Bench Mark
- Bench Mark (monumented)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Main Highway
- Highway under Construction
- Improved Dirt Road (former truck road)
- Double-track Railroad with First Class Station
- Dismantled Railroad
- Railroad Under Construction
- Shore Embankment
- River or Ditch with Embankment
- Water Gauge
- Well
- Water Reservoir or Rain Water Pit
- Spring
- Isobath with value
- Heavy (Index) Contour Line
- Contour Line and Value
- Half Contour Line
- Spot Elevation Value
- Coniferous
- Deciduous
- Mixed
- Scrub

Key to Numbers on Mapping

TQ17_London

No.	Description
93	Factory (Gas)

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Middlesex	1:10,560	1869 - 1873	3
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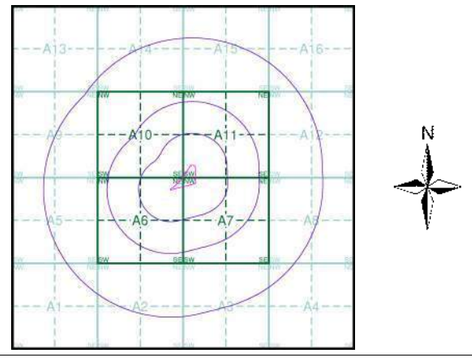
Russian Map - Slice A



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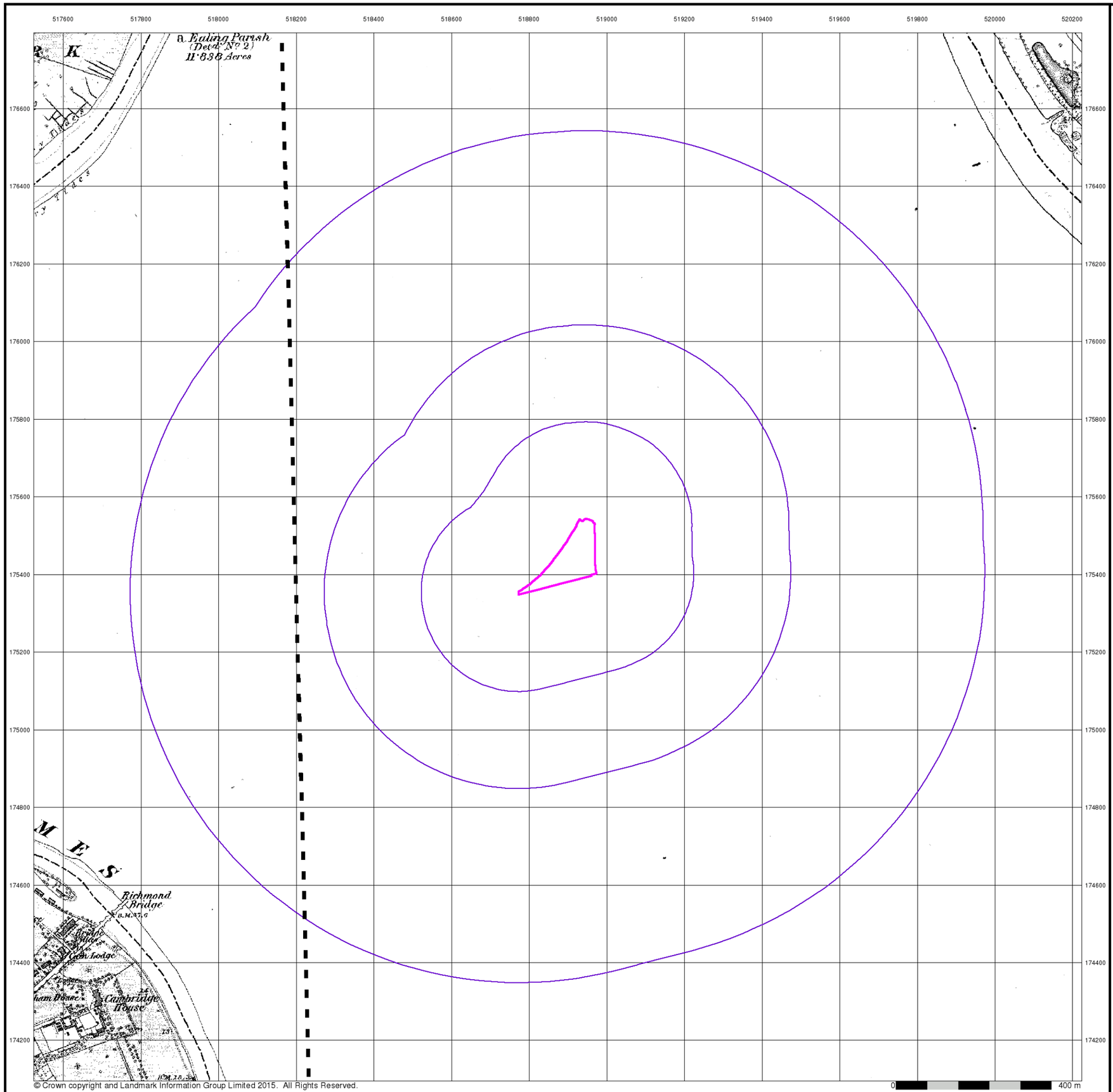

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FAIRHURST

Middlesex

Published 1869 - 1873

Source map scale - 1:10,560

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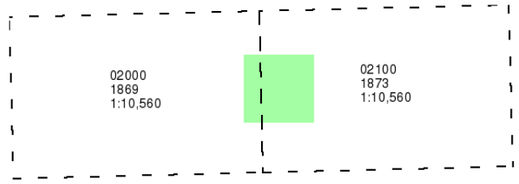
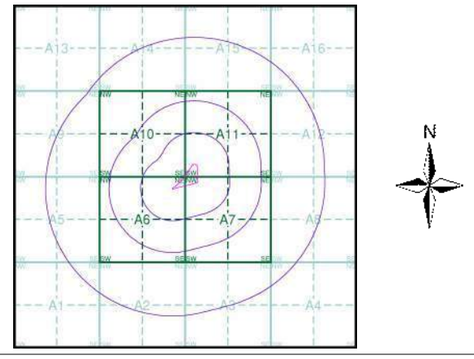
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

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ROYAL GARDENS
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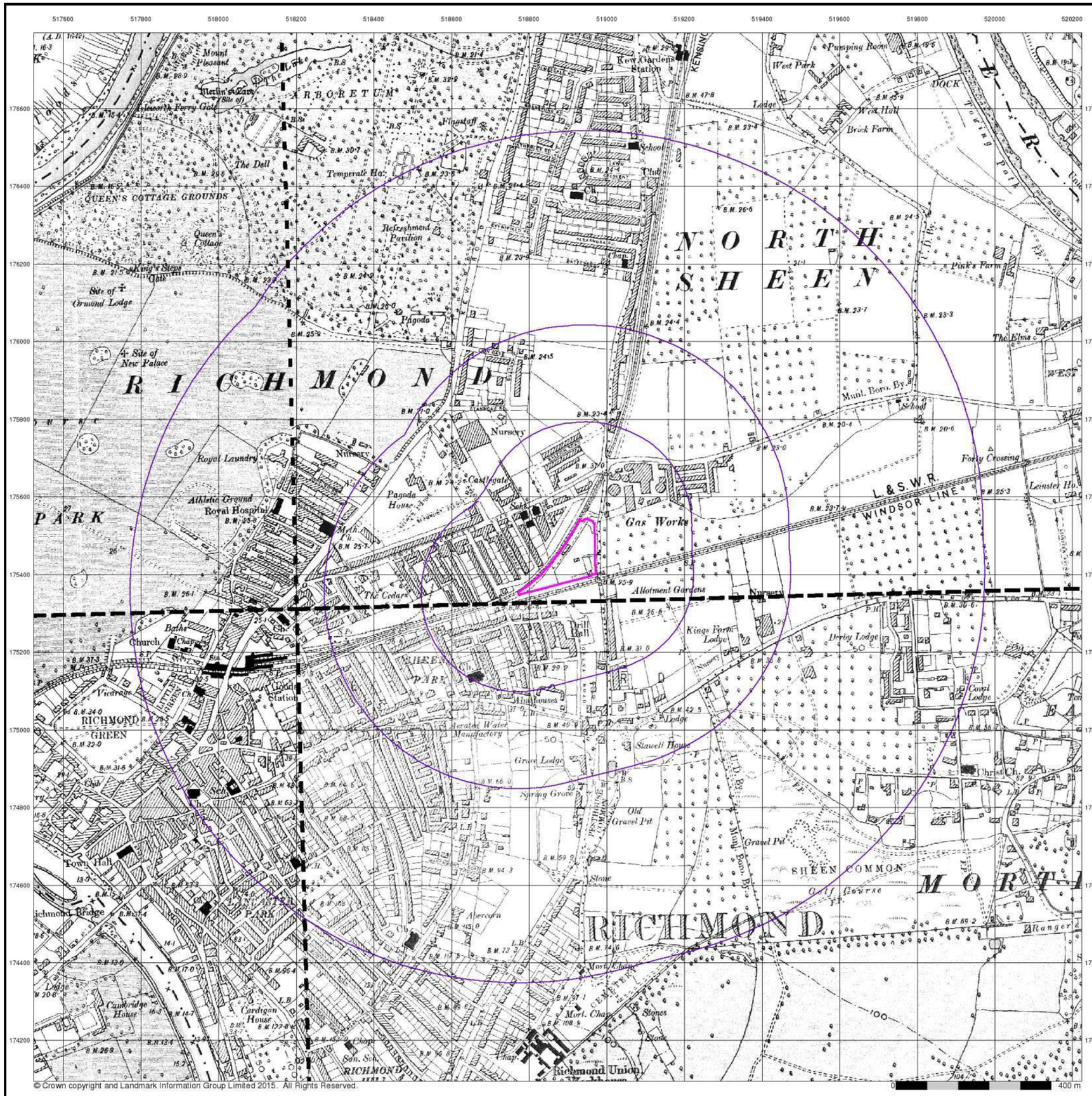
Pagoda
Kew Lodge
Kew Park
Rose Cliffs
Bank Shot
Pagoda Cottage
Nursery
Richmond
Richmond Gas Works
Pagoda House
Rosedale House
Queens Cottage
Observing Point in Connection with New Observatory
Oxenhouse Grove
Mount Hill
Temperate House
Winter Garden
Temperate House Lodge
Her Majesty's Private Grounds
The Dell
Turkey
Lodge
Cobham Road
Lodge
Signal Post
Richmond
Richmond Br.



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FAIRHURST

London

Published 1896

Source map scale - 1:10,560

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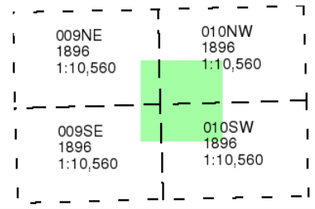

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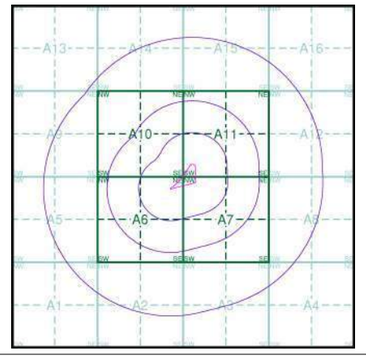

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FAIRHURST

Surrey

Published 1898 - 1899

Source map scale - 1:10,560

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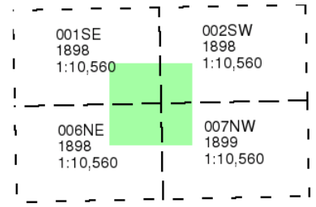

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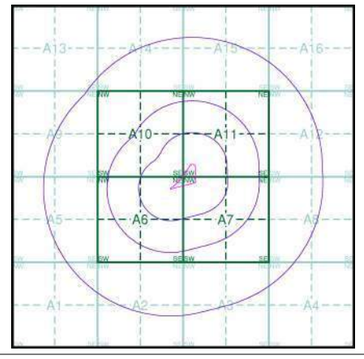

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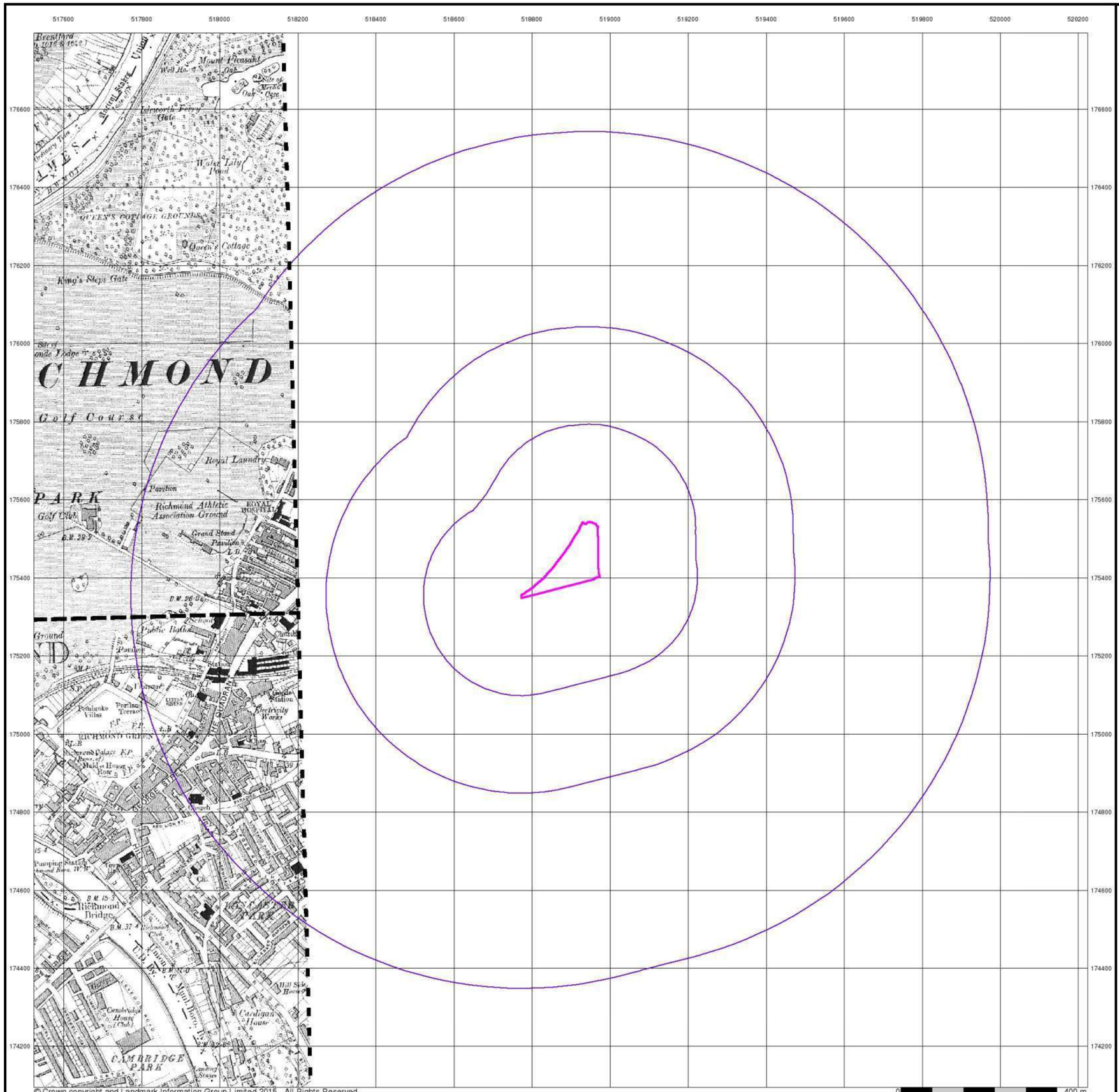

FAIRHURST

Middlesex

Published 1920

Source map scale - 1:10,560

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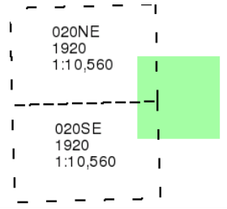
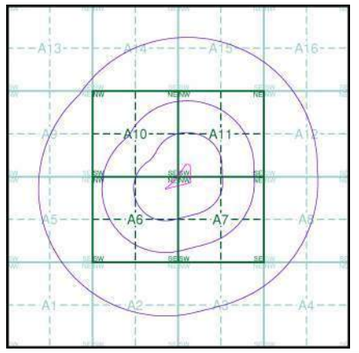


Historical Map - Slice A



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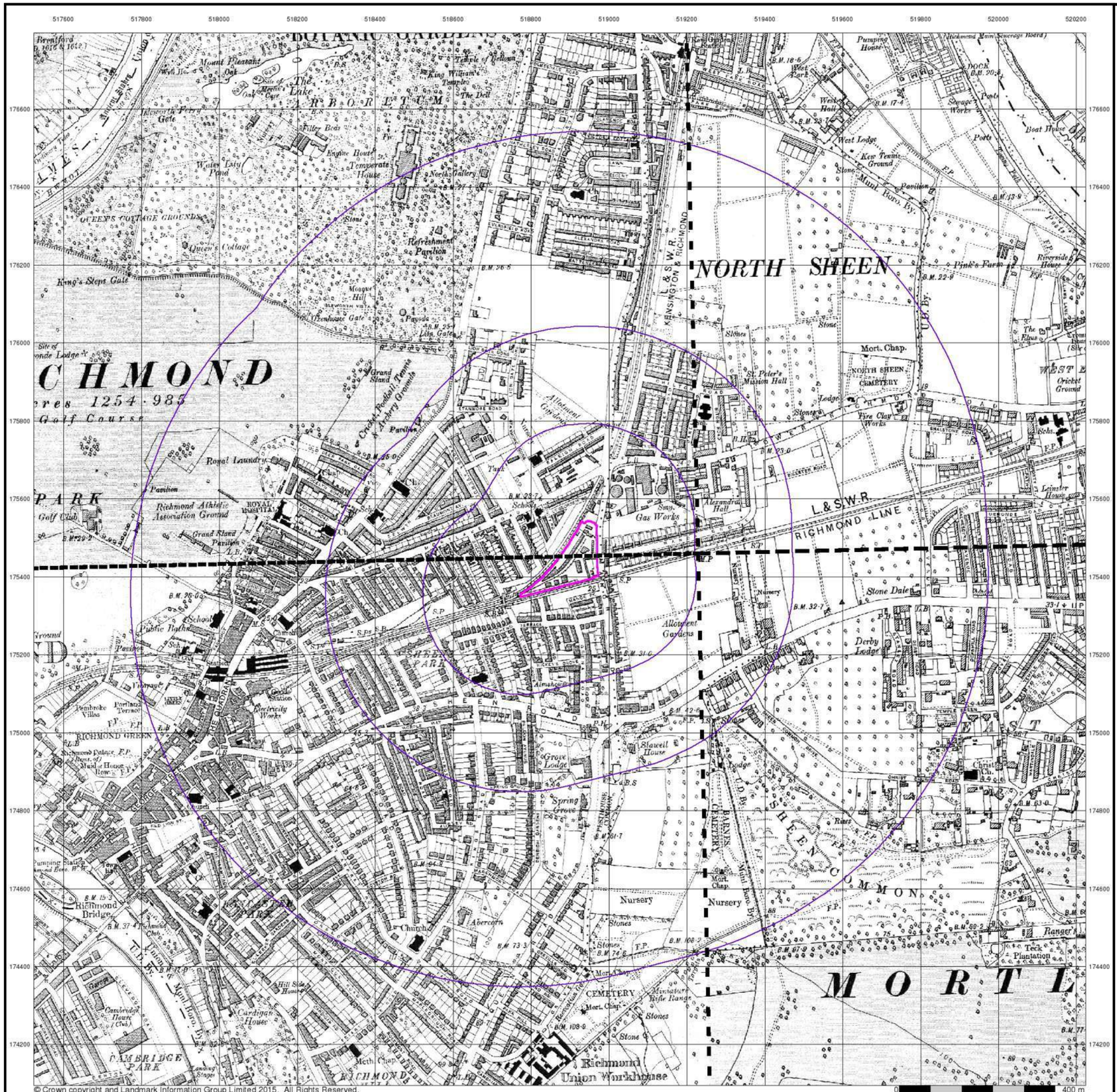
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BOTANIC GARDENS
ARBORETUM
QUEENS COTTAGE GROUNDS
NORTH SHEEN
CHMOND
Golf Course
PARK
Golf Club
Royal Laundry
Richmond Athletic Association Ground
Cricket, Football, Tennis & Archery Grounds
Allotment Gardens
Gas Works
L&S.W.R.
RICHMOND LINE
Mort. Chap.
NORTH SHEEN CEMETERY
St. Peter's Mission Hall
Fire Clay Works
Stone Dale
Derby Lodge
Kew Terrace
Pink's Farm
Riverside House
Boat House
Pumping House
Sewage Works
Kew Tennis Ground
Mutl. Boro. Bry.
Refreshment Pavilion
Queen's Cottage
King's Steps Gate
Pagoda
Lion Gate
Temperate House
Palm House
Filter Beds
Engine House
Wells
Lily Pond
Mount Pleasant Oak
Temple of Bellona
King William's Temple
The Dell
The Lake
Kew Gate
Brentford
Public Baths
Pembroke Villas
Portland Terrace
RICHMOND GREEN
Richmond Palace
Maid of Honour Row
Electricity Works
Grove Lodge
Slawell House
Spring Grove
Nursery
Stones
Abercorn
Richmond Bridge
Cambridge House
Cardigan House
Hill Side House
CAMBRIDGE PARK
Richmond Union Workhouse
CEMETERY
Miniature Rifle Range
Ranger's
Teck Plantation
Barnes Cemetery
Mont. Boro. Bry.
Derby Lodge
Christ Ch.
Leinster House
Schools
Public Baths
Station
Vicarage
Church
Meth. Chap.
Aimshouses
Lodge
Race
Stone
Mort. Chap.
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B.M. 23·7
B.M. 17·4
B.M. 18·6
B.M. 13·9
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B.M. 77
B.M. 32·2
T.P.
F.P.
S.P.
L.B.
Ch.
Sch.
Sta.
Grand Stand
Pavilion
Tank
Lodge
Stones
Nursery
Race
Ranger's
Teck Plantation
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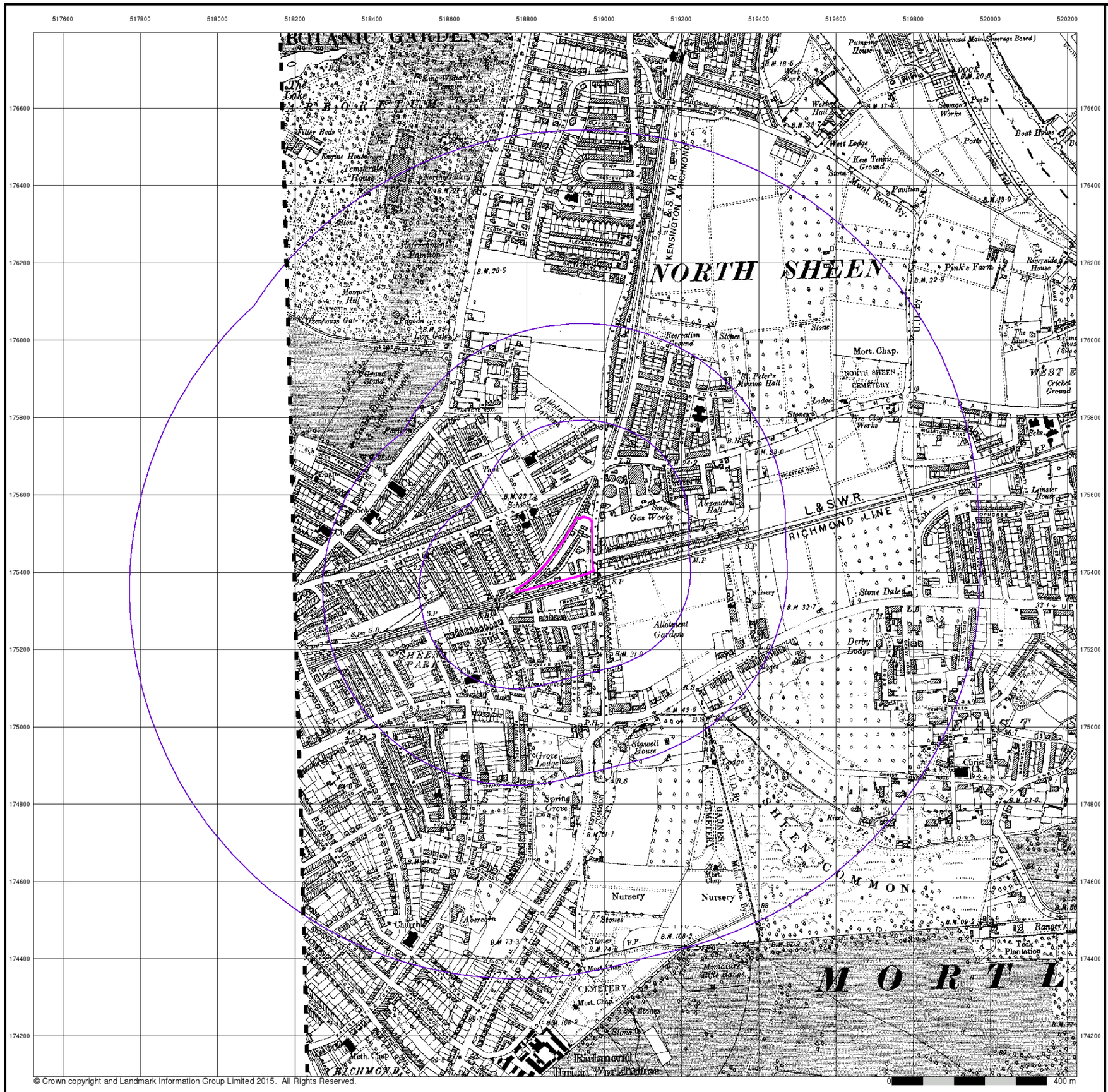
Pumping House
Sewage Works
Kew Tennis Ground
Mutl. Boro. Bry.
Pink's Farm



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FAIRHURST

London

Published 1920

Source map scale - 1:10,560

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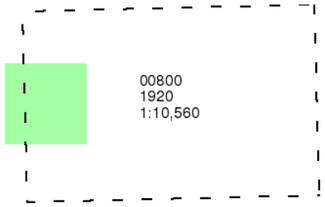
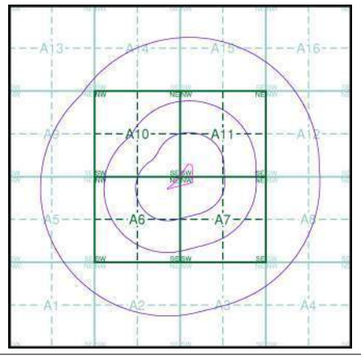


Historical Map - Slice A



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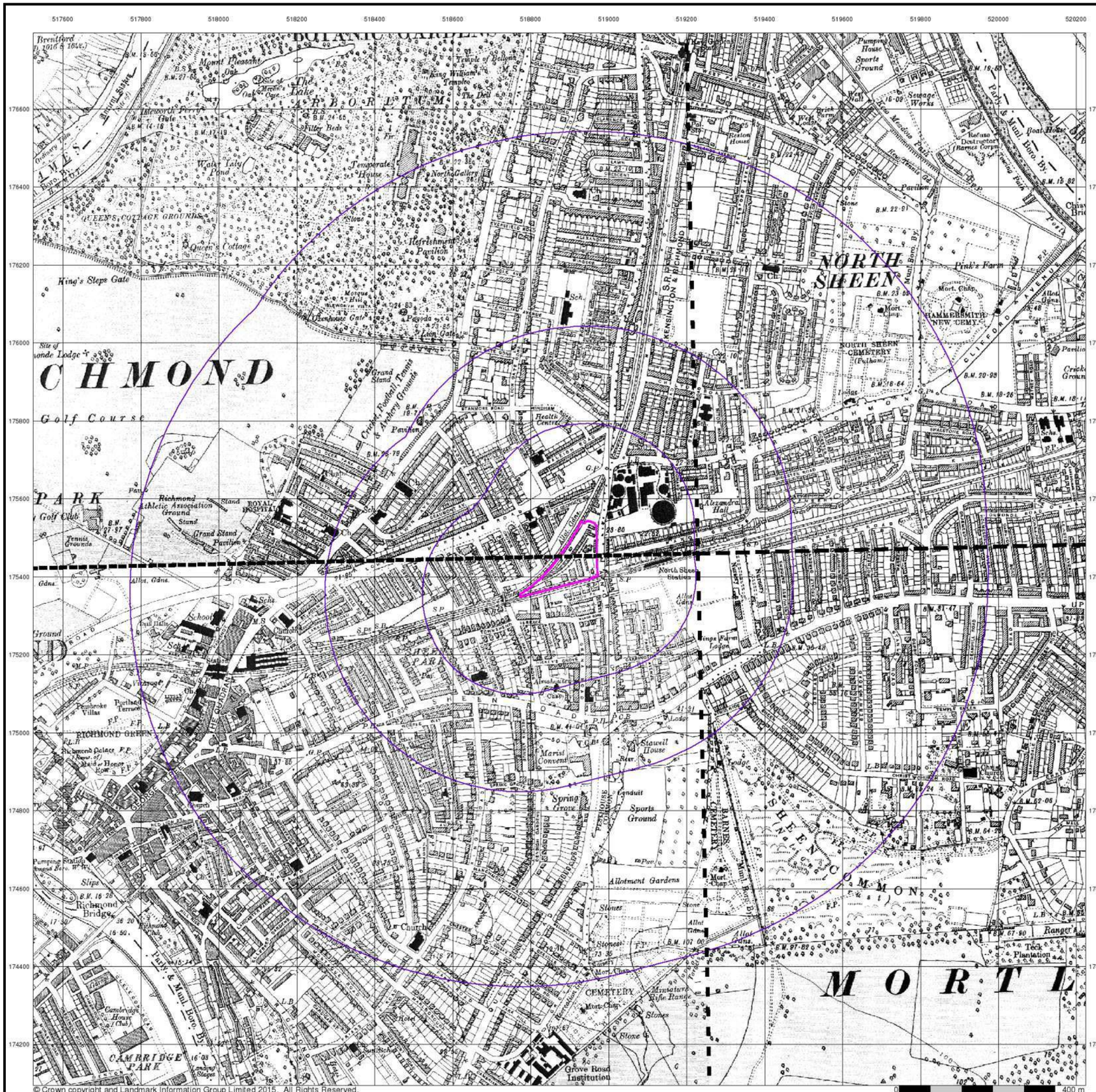
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BOTANIC GARDENS
ARBORETUM
QUEENS COTTAGE GROUNDS
Queen's Cottage
King's Steps Gate
Refreshment Pavilion
North Gallery
Temperate House
Water Lily Pond
Mount Pleasant
Temple of Bellona
King William's Temple
The Dell
The Lake
Rhododendron Ground
Flower Beds
Pagoda
Lion Gate
Orangery
Sch.
CHMOND
Golf Course
PARK
Golf Club
Tennis Grounds
Cricket, Football Tents & Archery Grounds
Grand Stand
Pavilion
Richmond Athletic Association Ground
Stand
Grand Stand Pavilion
ROYAL HOSPITAL
Health Centre
Alexandra Hall
North Sheen Station
NORTH SHEEN
Pumping House
Sports Ground
Sewage Works
Refuse Destructors (Barnes Corpn.)
Mun. Boro. Boat House
Tow Path
Tow Meadow Path
Pavilion
Pink's Farm
Mort. Chap.
HAMMERSMITH NEW CEMY.
NORTH SHEEN CEMETERY (Fulham)
CLIFFORD AVENUE
Cricket Ground
Tennis Courts
Allot. Gdns.
Glasshouses
Nursery
Ch.
Stone
Fountain
Lodge
Gdns.
Allotment Gardens
Stones
Spring Grove
Lendait Sports Ground
Marist Convent
Stowell House
Rectory
Vicarage
Schools
Church
Hall
Institute
Pembroke Villas
Portland Terrace
RICHMOND GREEN
Richmond Palace
Maid of Honour Row
Pumping Station
Slips
Richmond Bridge
Ferry & Mun. Boro. Ferry
Cambridge House (Club)
CAMBRIDGE PARK
Landing Stages
Grove Road Institution
BARNES CEMETERY
Mont. Boro. Ditch
Miniature Rifle Range
CEMETERY
Mort. Chap.
Hotel
Ranger's
Teck Plantation
COMMON
MORTL
Lodge
Tennis Courts
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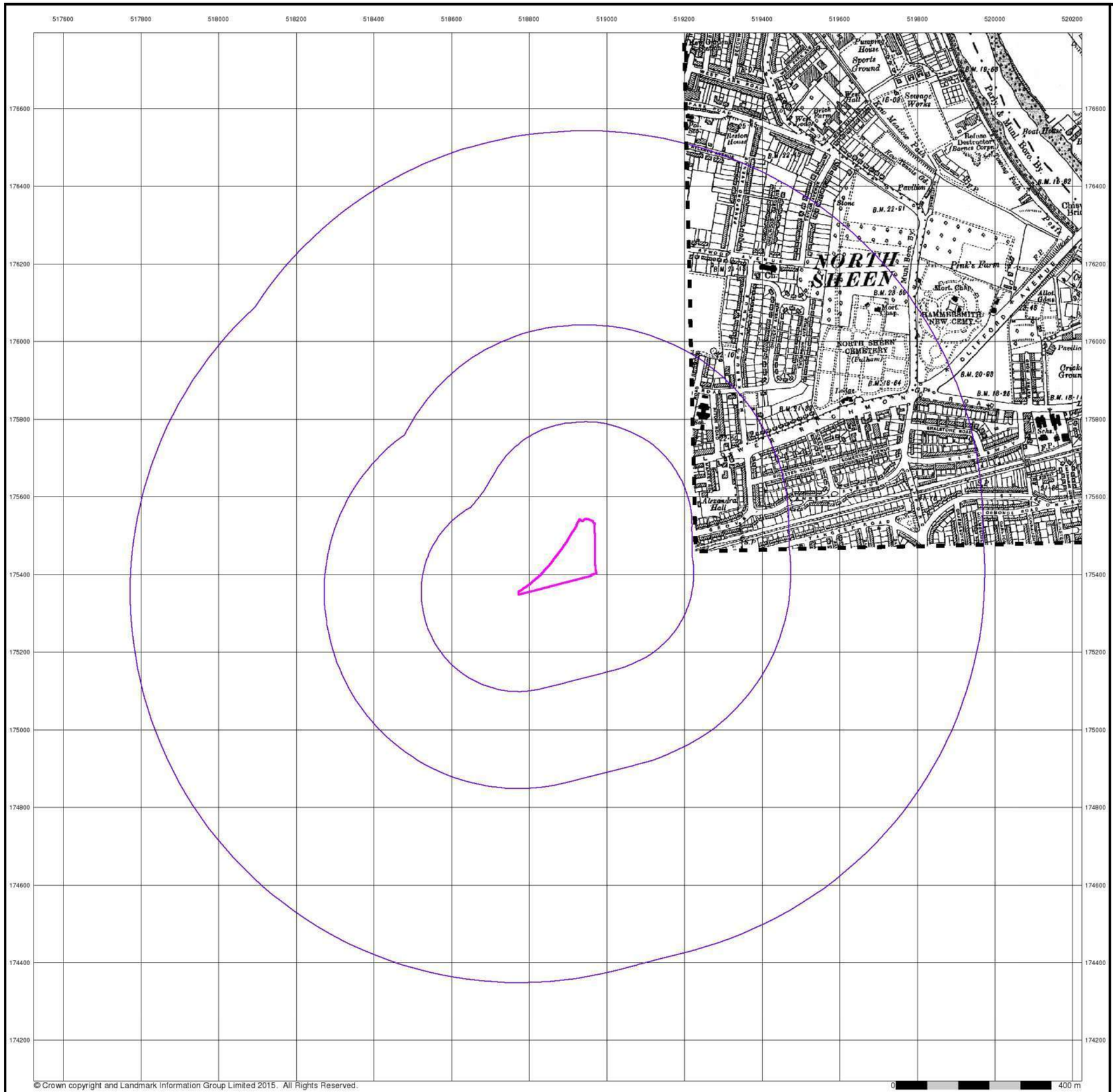
Glasshouses
Nursery
Fountain



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FAIRHURST

Surrey

Published 1933

Source map scale - 1:10,560

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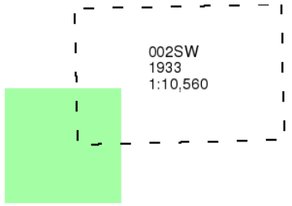
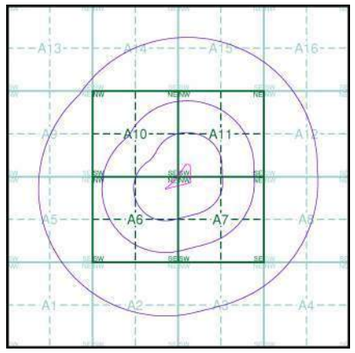


Historical Map - Slice A



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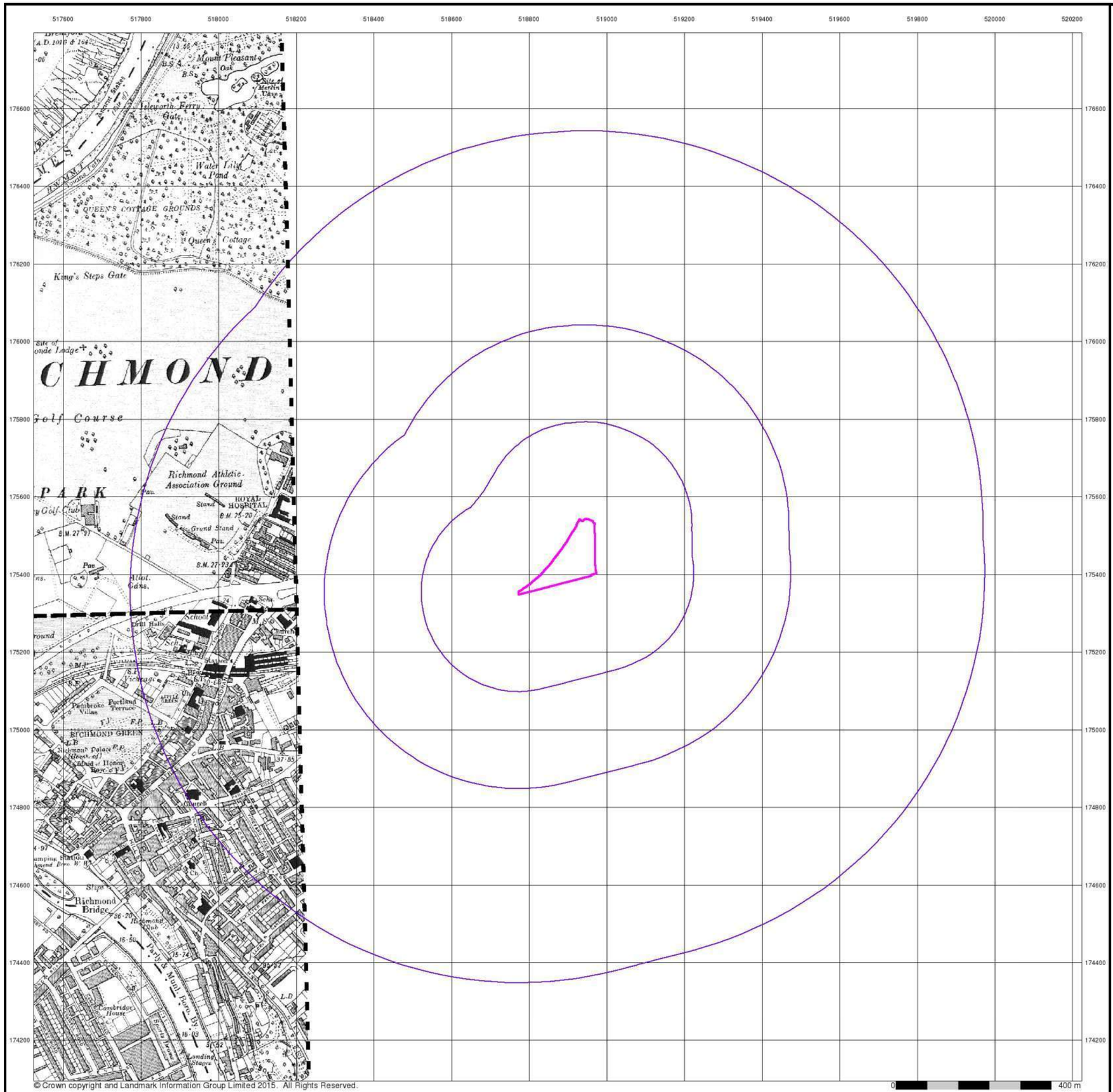

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FAIRHURST

Middlesex

Published 1935

Source map scale - 1:10,560

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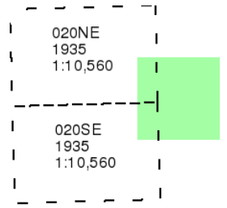
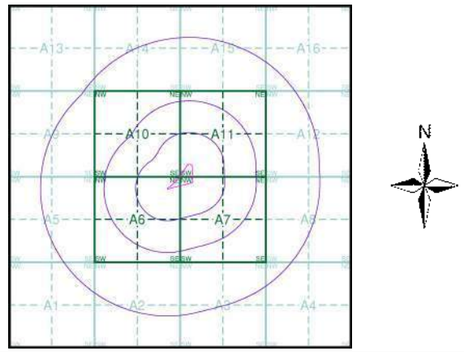


Historical Map - Slice A



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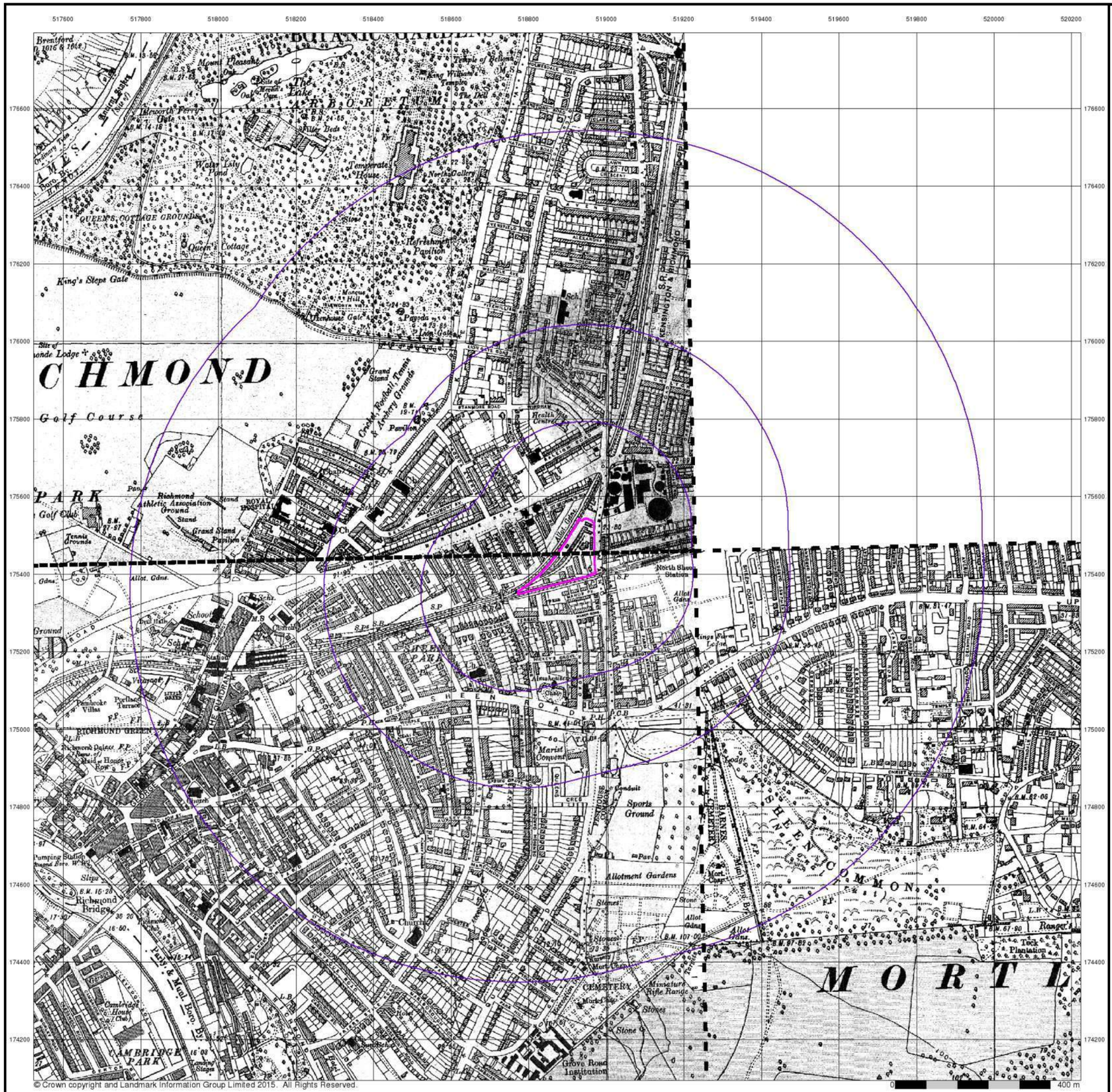

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FAIRHURST

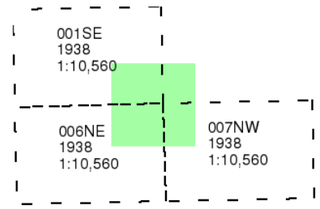
Surrey

Published 1938

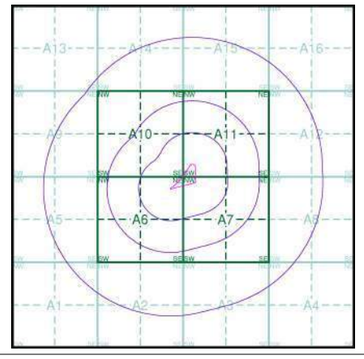
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

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Fax: 0844 844 9951
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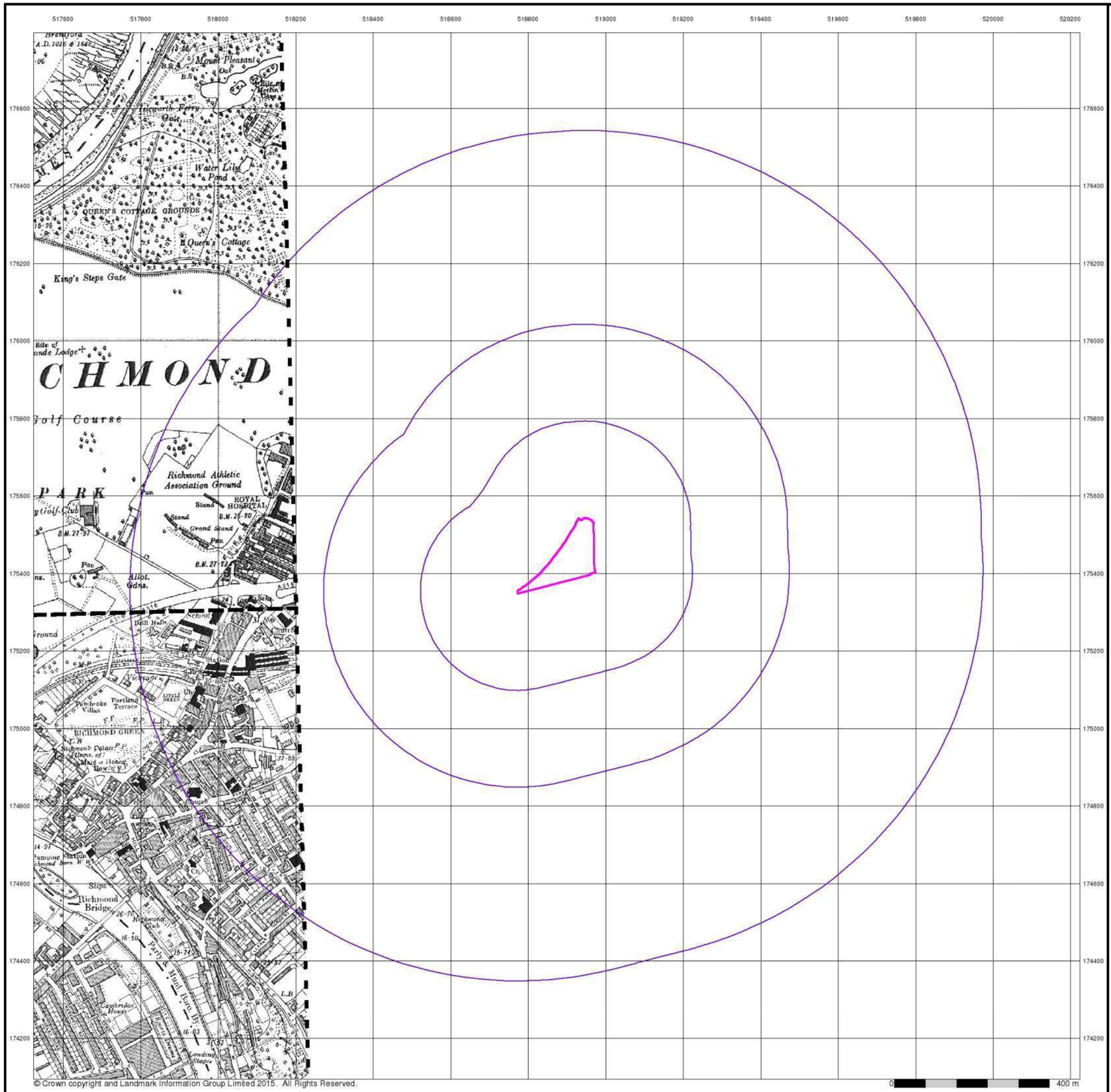

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FAIRHURST

Middlesex

Published 1938

Source map scale - 1:10,560

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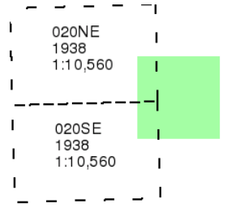
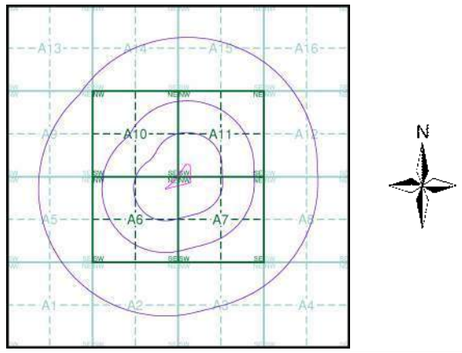
Map Name(s) and Date(s)



Historical Map - Slice A



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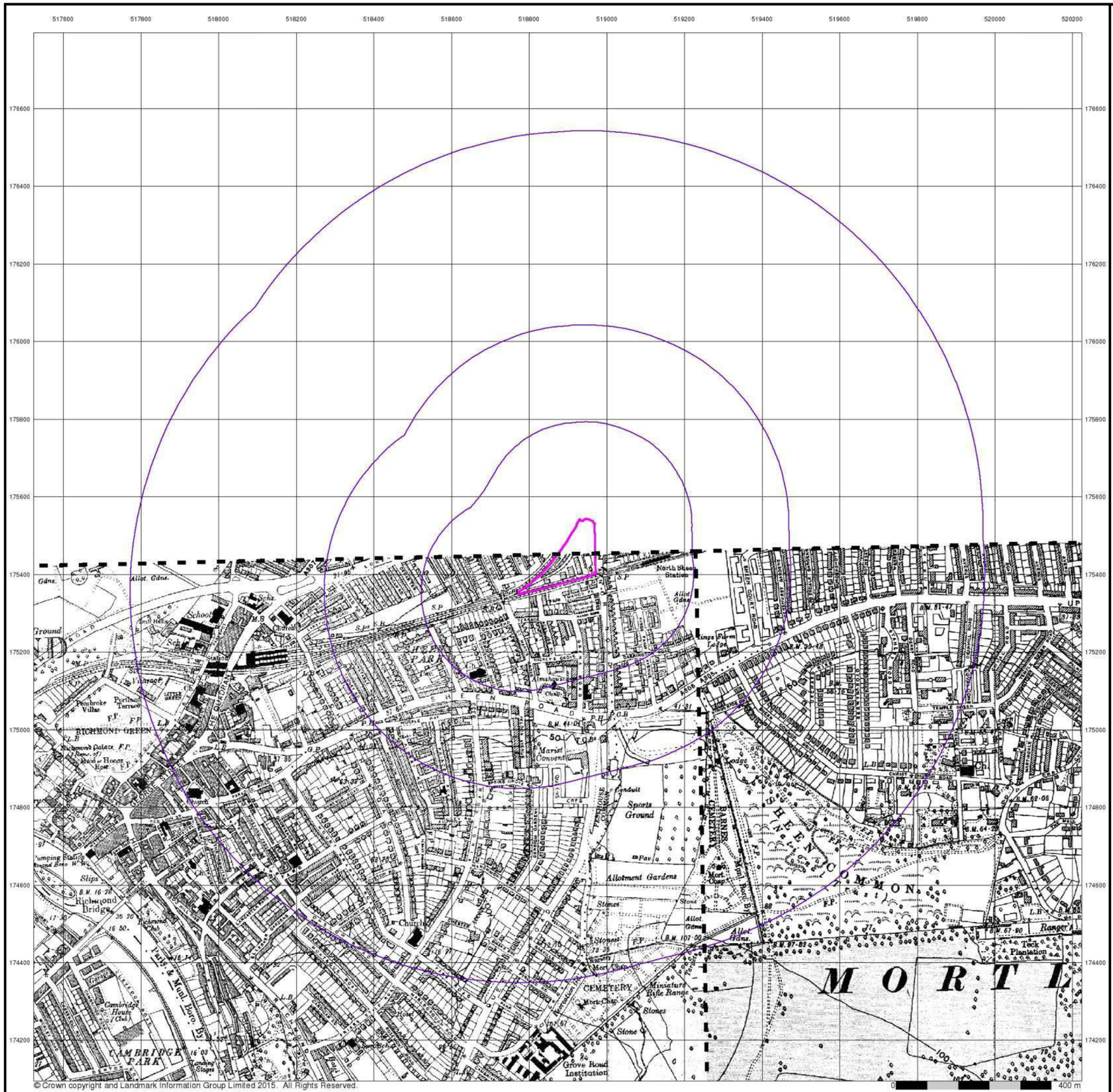
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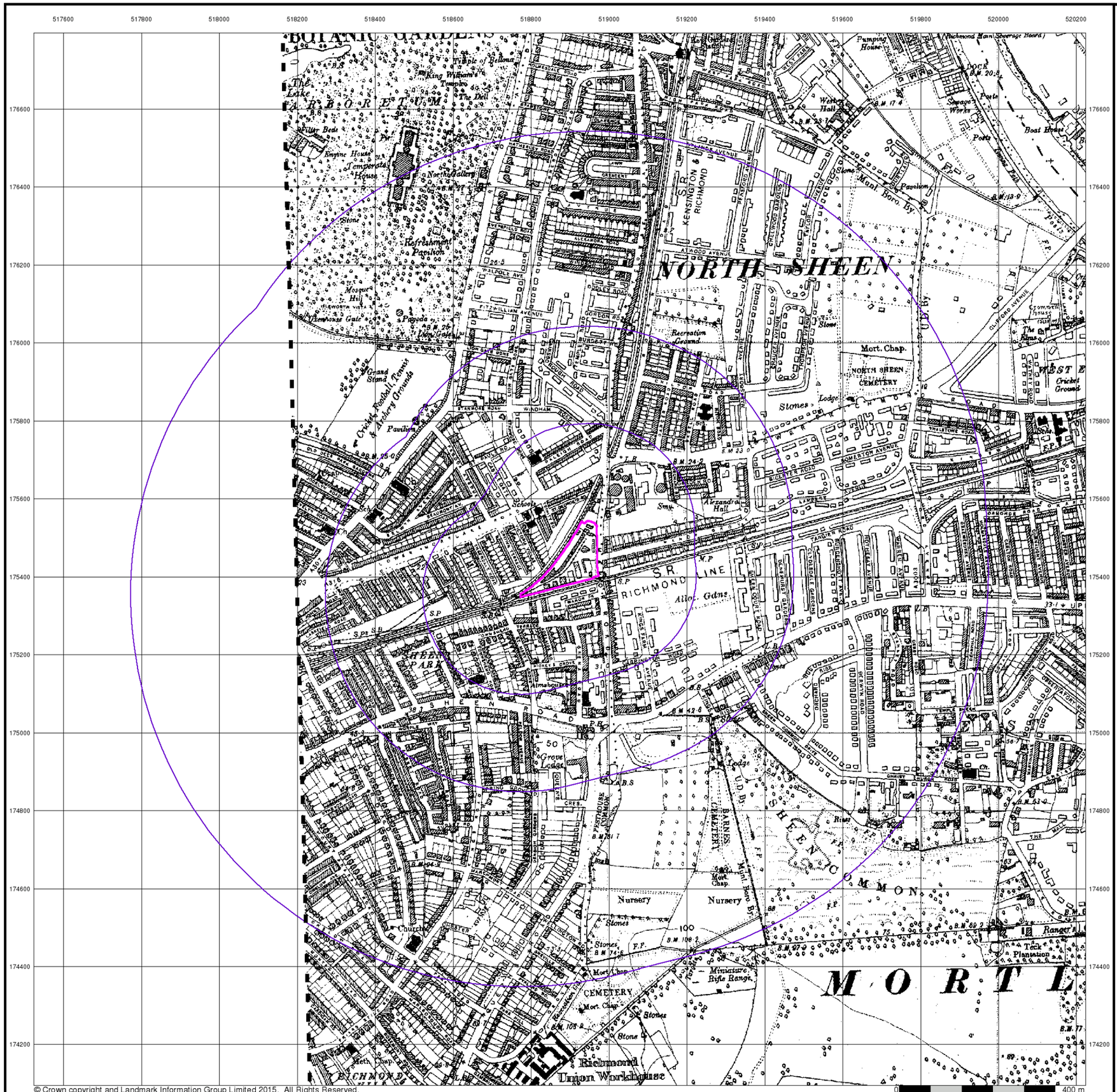
RICHMOND GREEN
Richmond Bridge
CAMBRIDGE PARK
Sports Ground
Allotment Gardens
CEMETERY
Grove Road Institution
HEATH
COMMON
MORTL
Tec Plantation
Ranger
North Sheen Station
Marist Convent
Lodge
Miniature Rifle Range
Cambridge House (Club)
Pembroke Villas
Richmond Palace
Tennis & Mini. Golf
Pump
Slips
Stones
Stone
Conduit
Allot. Gdns.
Gdns.
Ground
School
Church
Mort. Chap.
Ranger's
Lodge
Kings Farm Lodge
Grove Road
Sheen Road
Manor Road
Queen's Road
Temple Mills
Christ Church Road
Cambridge Road
Richmond Park
Richmond Hill
Richmond Green
Richmond Palace
Richmond Bridge
Richmond Club
Grove Road
Sheen Gate
Sheen Court Road
Queen's Road
Manor Road
Sheen Road
Cambridge Road
Christ Church Road
Temple Mills
Kings Farm Lodge
Marist Convent
Sports Ground
Allotment Gardens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BOTANIC GARDENS
NORTH SHEEN
MORTLAKE
RICHMOND PARK
PALEN COMMON
Temple of Bellona
King William's Temple
The Dell
The Lake
ARBORETUM
Water Beds
Engine House
Temperate House
North Gallery
Refreshment Pavilion
Mosque Hill
Pagoda
Lion Gate
Grand Stand
Cricket, Football, Tennis & Archery Grounds
Pavilion
Recreation Ground
Mort. Chap.
NORTH SHEEN CEMETERY
Stones
Lodge
Cricket Ground
Alexandra Hall
Schools
Sm.Sy.
Alloc. Gdns
Grove Lodge
Nursery
Ranger's
Tack Plantation
Miniature Rifle Range
CEMETERY
Richmond Union Workhouse
Pumping House
Water Hall
Sewage Works
Boat House
Pavilion
Manl. Boro. Sy.
Pond
Cricket Ground
Lodge
Stone
Pond
Mort. Chap.
Nursery
Nursery
Stones
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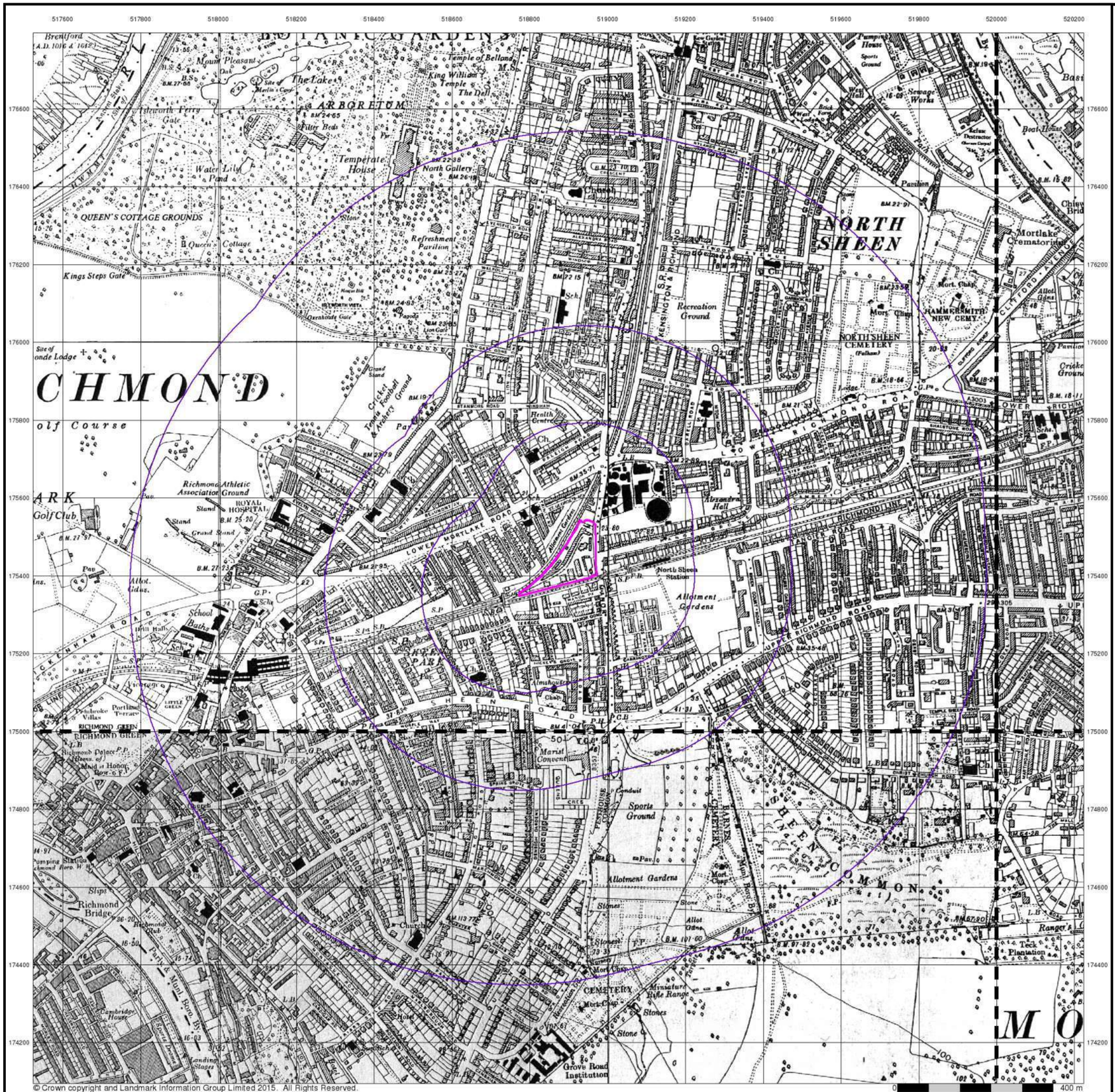
Stone
Mort. Chap.
Stones
Stone
Meth. Chap.
Church
Grove Lodge
Lodge
Lodge



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Ordnance Survey Plan

Published 1940 - 1950

Source map scale - 1:10,000

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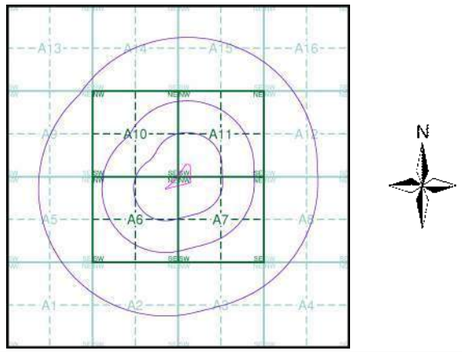
Map Name(s) and Date(s)

TQ17NE 1940 1:10,560	TQ27NW 1940 1:10,560
TQ17SE 1940 1:10,560	TQ27SW 1950 1:10,560

Historical Map - Slice A



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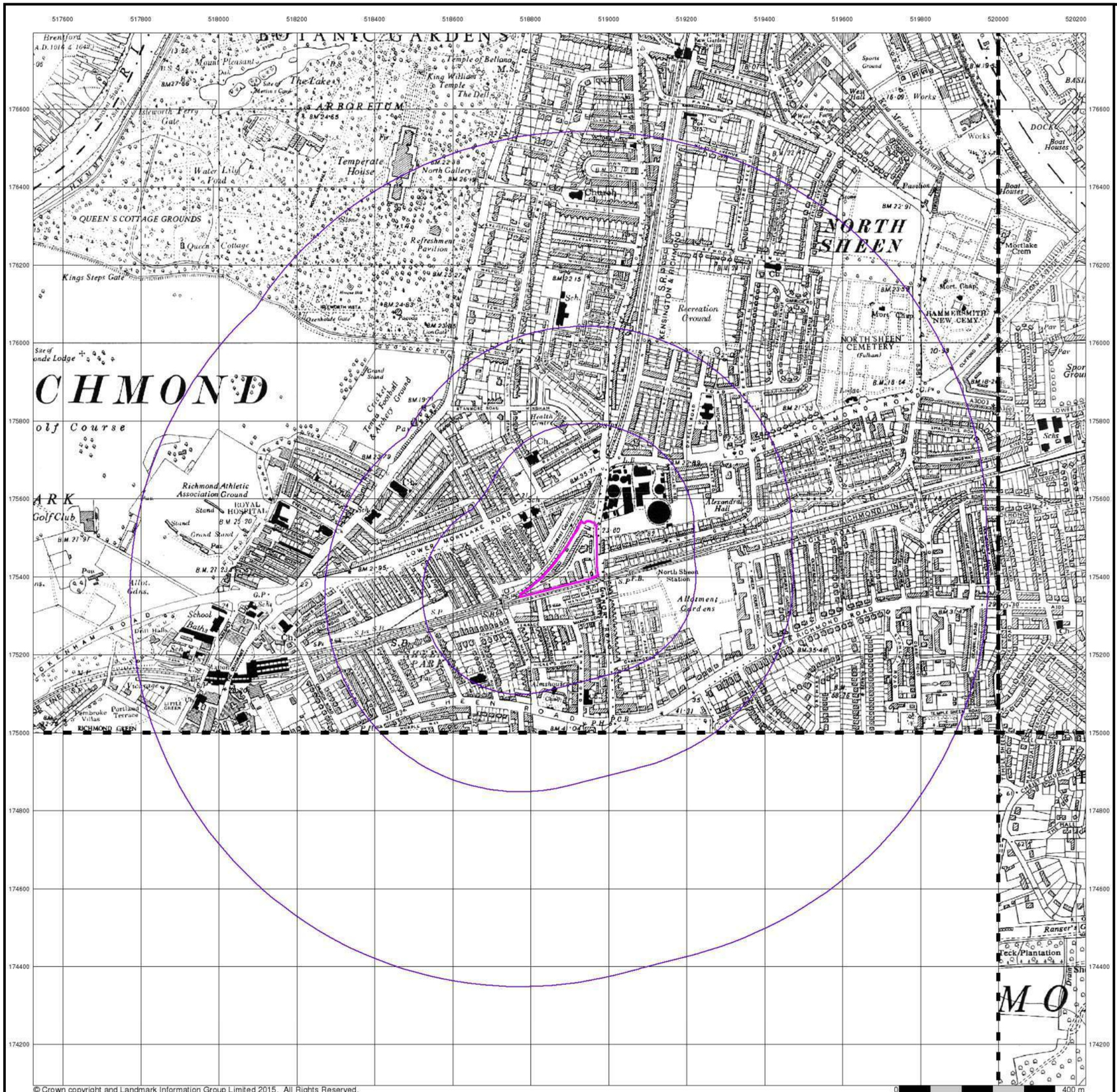
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BOTANIC GARDENS
ARBORETUM
QUEEN'S COTTAGE GROUNDS
NORTH SHEEN
CHMOND
Golf Course
ARK
Golf Club
Brentford
A.D. 1016 & 1642
Mount Pleasant
The Lakes
Temple of Bellona
King William Temple
The Dell
Isleworth Ferry Gate
Temperate House
Water Lily Pond
North Gallery
Queen's Cottage
Refreshment Pavilion
Kings Steps Gate
Recreation Ground
Cricket, Football & Archery Ground
Richmond Athletic Association Ground
ROYAL HOSPITAL
Grand Stand
Health Centre
Alexandra Hall
North Sheen Station
Allotment Gardens
Mortlake Crem
Mort. Chap.
HAMMERSMITH NEW CEMY.
NORTH SHEEN CEMETERY (Fulham)
Boat Houses
Pavilion
Weir Hall
Works
DOCK
Sports Ground
Pumping Sta.
Ranger's
Teck/Plantation
Drain
Sch.
Ch.
Pav.
Allot. Gdns.
Drill Hall
Baths
Vicarage
Pembroke Villas
Portland Terrace
RICHMOND GREEN
Site of Lodge
Stand
Grand Stand
Pav.
Sch
Ch
Par
Works
Boat Houses
Mort. Chap.
Sports Ground
Recreation Ground
Cricket, Football & Archery Ground
Health Centre
Alexandra Hall
North Sheen Station
Allotment Gardens
Mortlake Crem

FAIRHURST

Historical Aerial Photography

Published 1948

Source map scale - 1:10,560

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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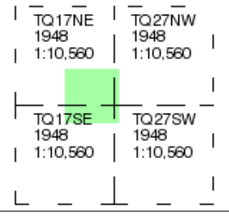
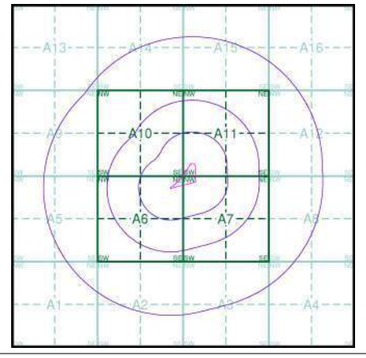
Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



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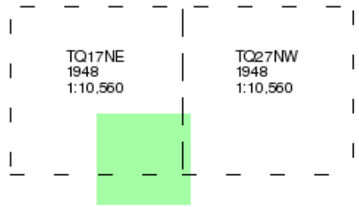
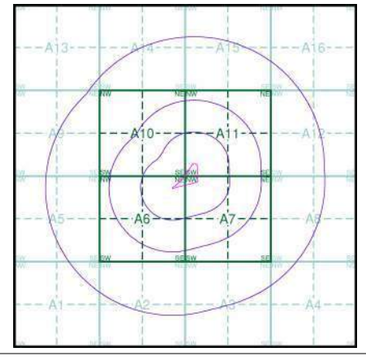


Historical Aerial Photography - Slice A



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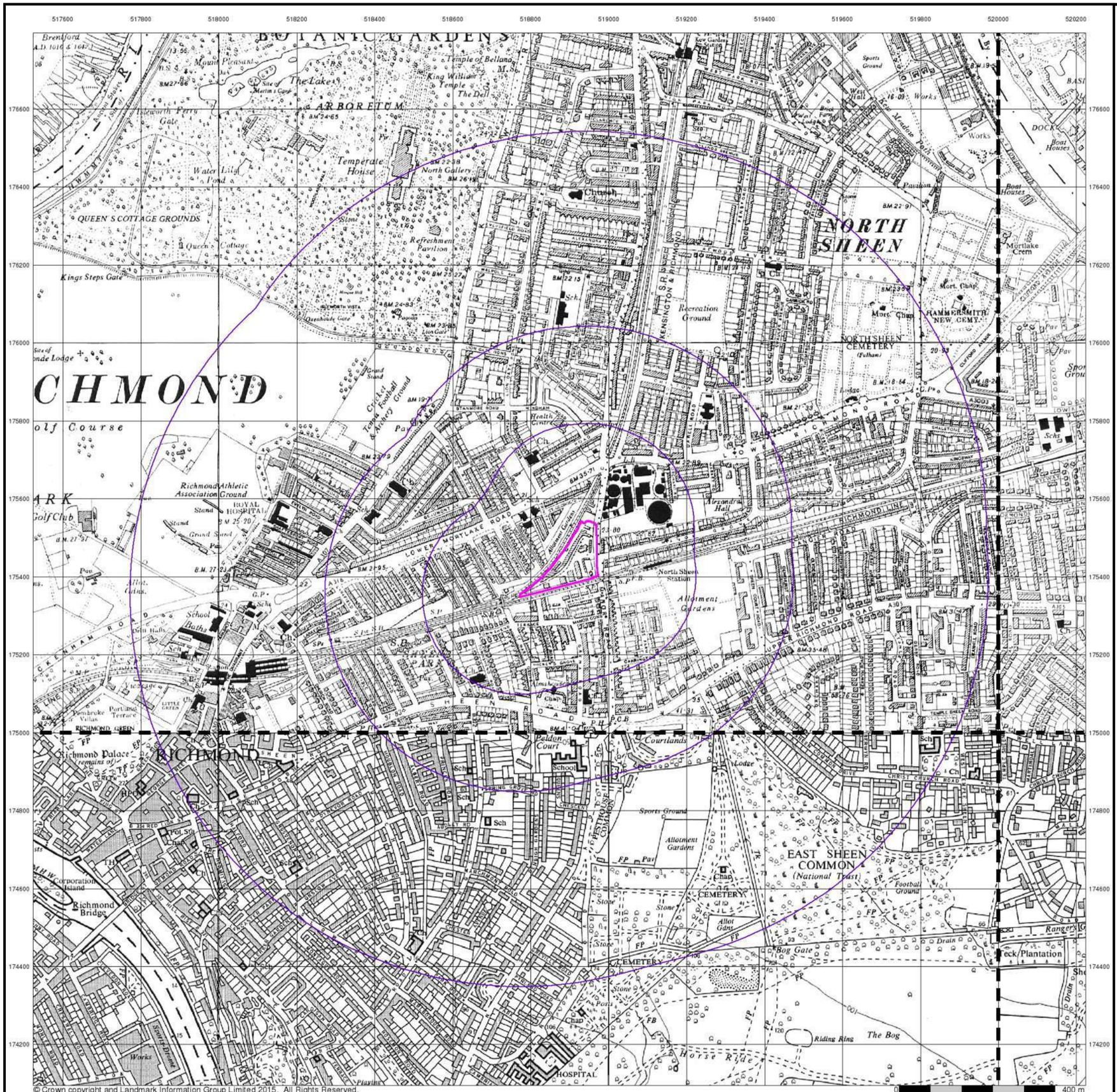

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Ordnance Survey Plan

Published 1962 - 1966

Source map scale - 1:10,000

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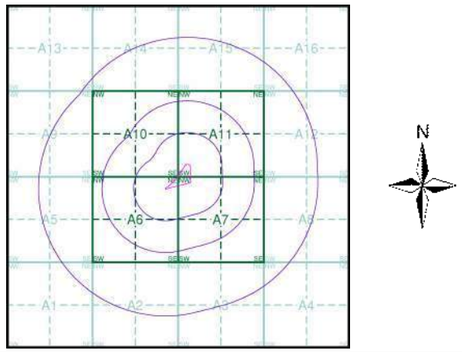
Map Name(s) and Date(s)

TQ17NE 1963 1:10,560	TQ27NW 1962 1:10,560
TQ17SE 1966 1:10,560	TQ27SW 1966 1:10,560

Historical Map - Slice A



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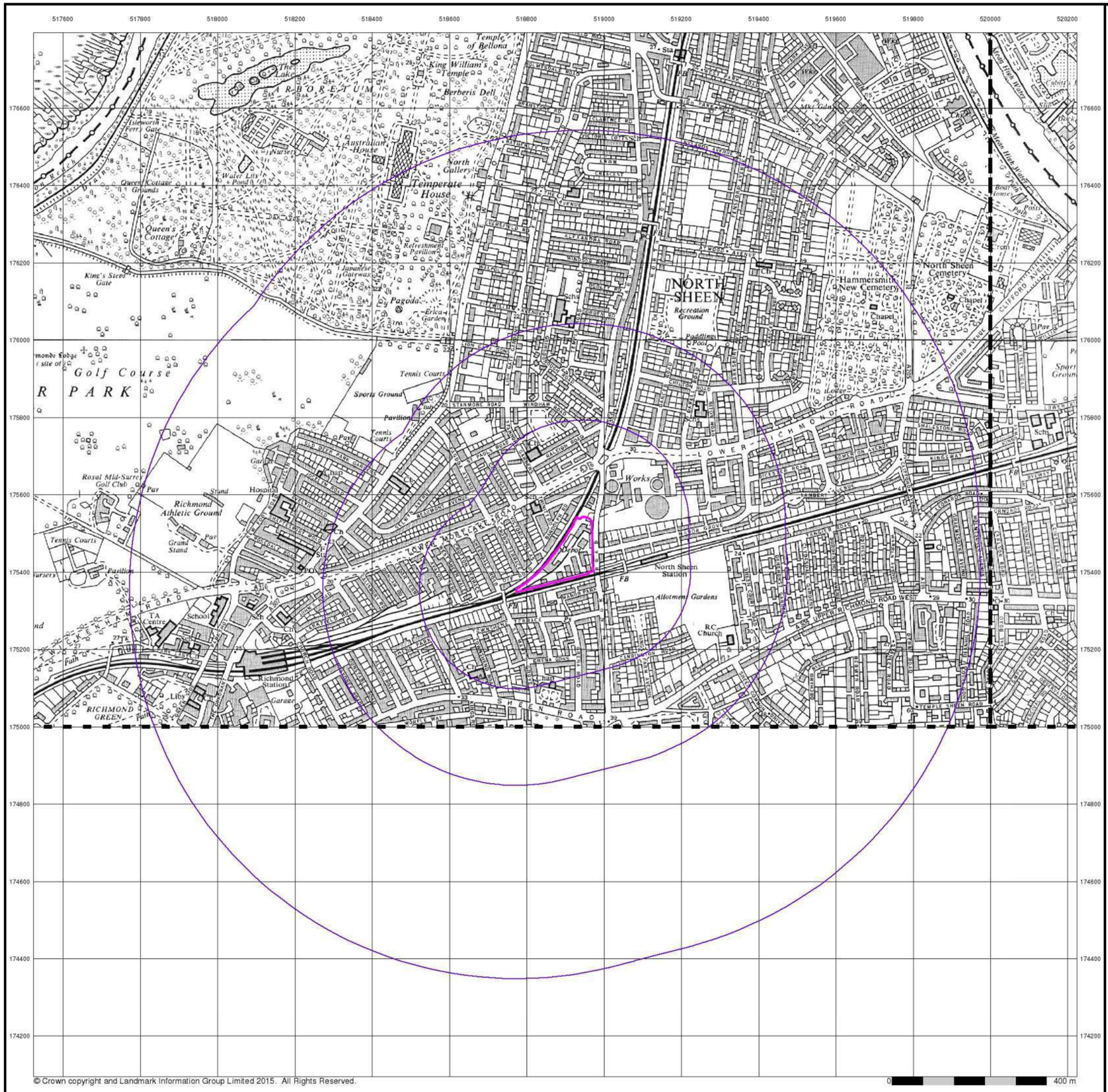
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King William's Temple
Berberis Dell
The Lake
ARBORETUM
Isleworth Ferry Gate
Australian House
Water Lily Pond
North Gallery
Temperate House
Queen Cottage Grounds
Queen's Cottage
Refreshment Pavilion
Japanese Gateway
King's Stone Gate
Pagoda
Erica Garden
NORTH SHEEN
Recreation Ground
Paddington Pool
North Sheen Cemetery
Hammersmith New Cemetery
Chapel
Mean High Water
Monde Lodge (site of)
Golf Course
R PARK
Tennis Courts
Sports Ground
Pavilion
Royal Mid-Surrey Golf Club
Richmond Athletic Ground
Grand Stand
Hospital
Works
LOWER RICHMOND ROAD
LOWER MORTLAKE ROAD
North Sheen Station
Allotment Gardens
RC Church
TA Centre
School
Richmond Station
RICHMOND GREEN
TEMPLE SHEEN ROAD
STANMORE ROAD
WINDHAM ROAD
CLIFFORD AVENUE
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FAIRHURST

Ordnance Survey Plan

Published 1975 - 1976

Source map scale - 1:10,000

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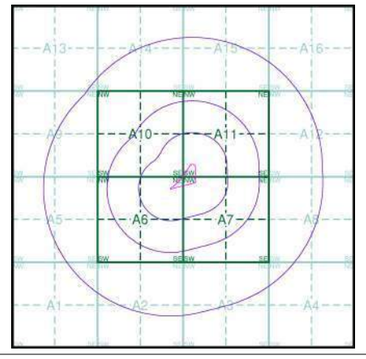
Map Name(s) and Date(s)

TQ17NE 1976 1:10,000	TQ27NW 1976 1:10,000
TQ17SE 1975 1:10,000	TQ27SW 1976 1:10,000

Historical Map - Slice A



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FAIRHURST

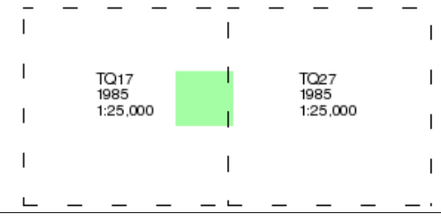
London

Published 1985

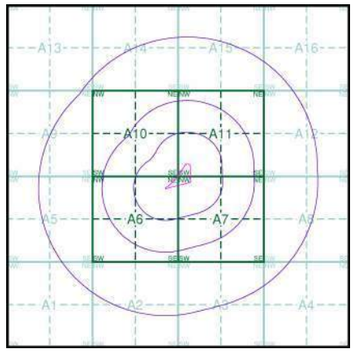
Source map scale - 1:25,000

These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.
They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)



Russian Map - Slice A



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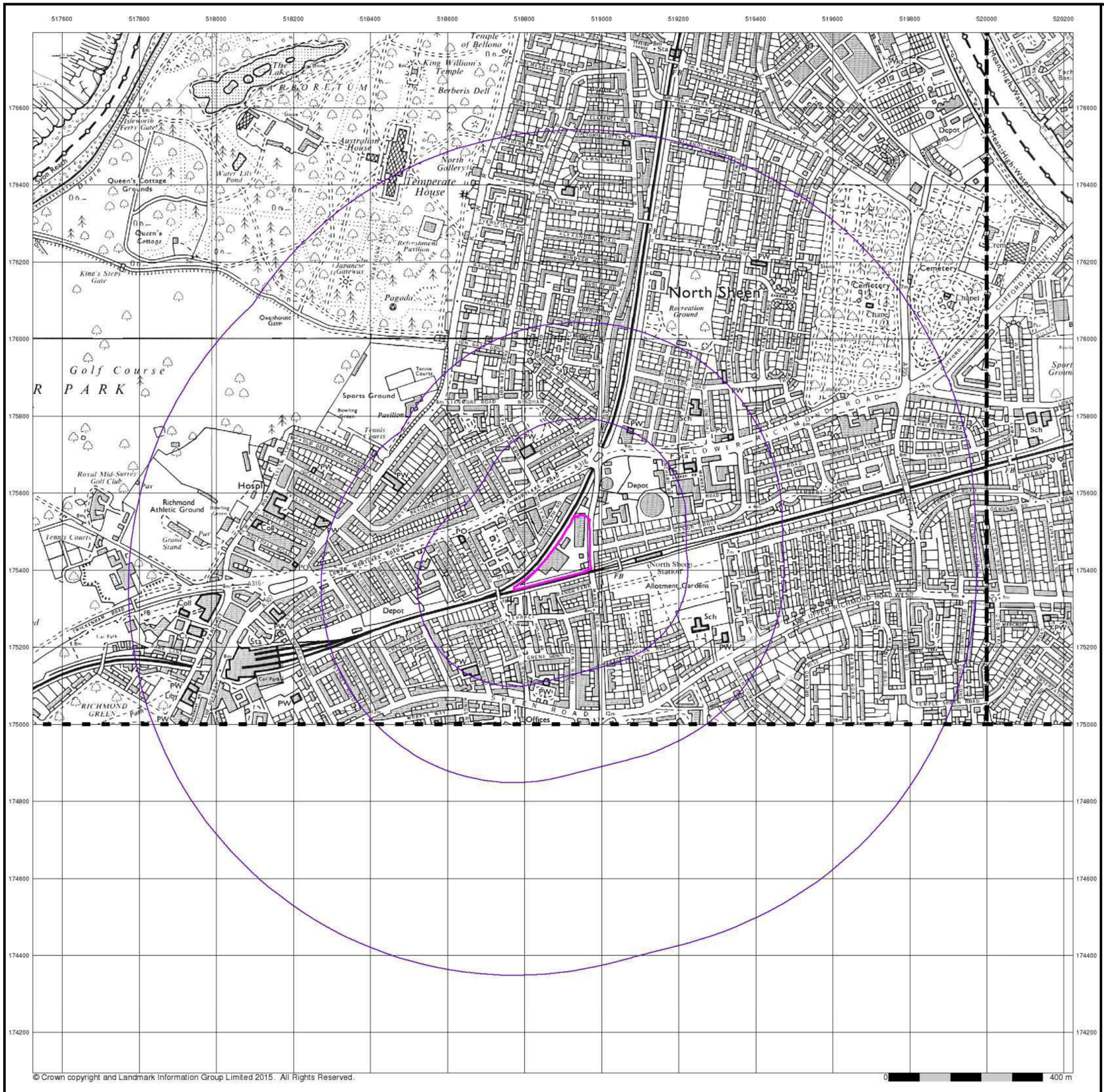

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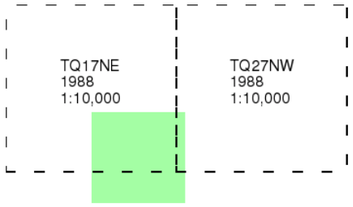
Ordnance Survey Plan

Published 1988

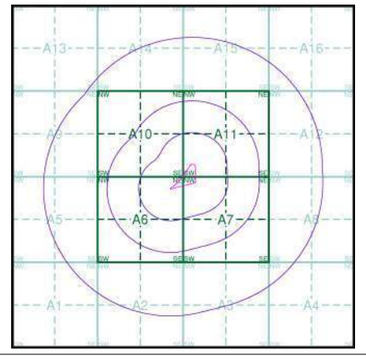
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

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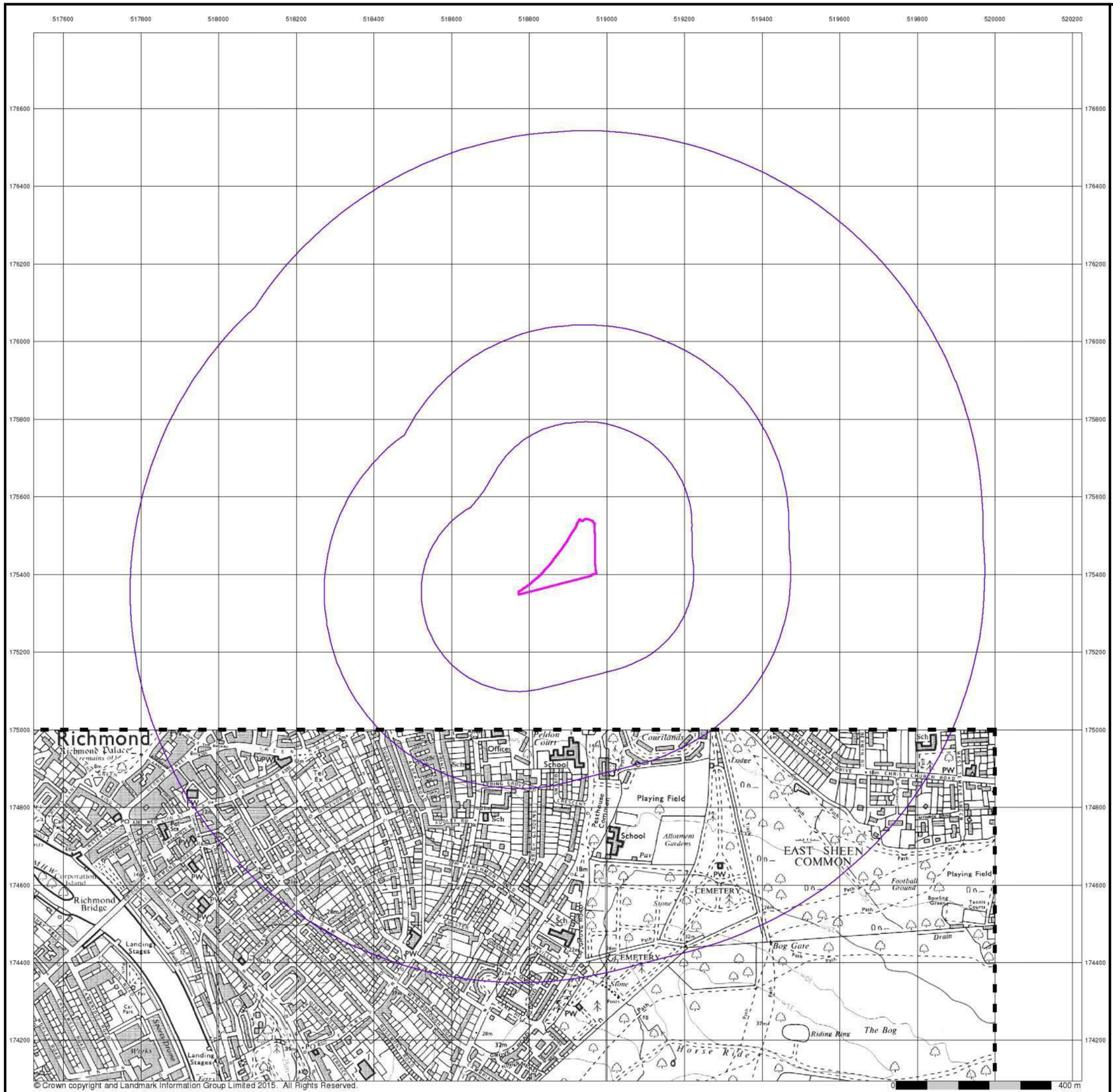
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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FAIRHURST

Ordnance Survey Plan

Published 1992

Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

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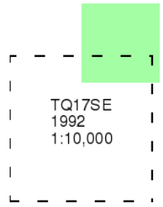
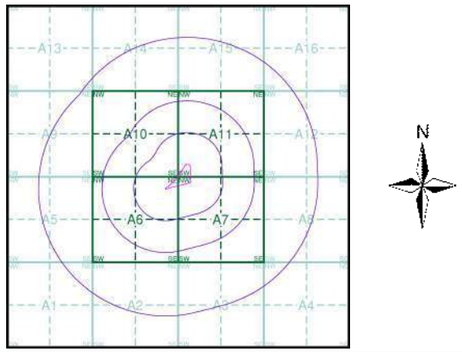


Historical Map - Slice A



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FAIRHURST

10k Raster Mapping

Published 1999

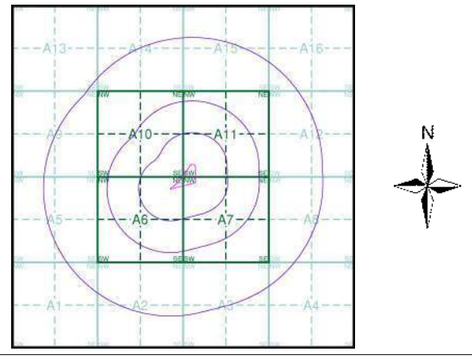
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

TQ17NE 1999 1:10,000	TQ27NW 1999 1:10,000
TQ17SE 1999 1:10,000	TQ27SW 1999 1:10,000

Historical Map - Slice A



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FAIRHURST

10k Raster Mapping

Published 2006

Source map scale - 1:10,000

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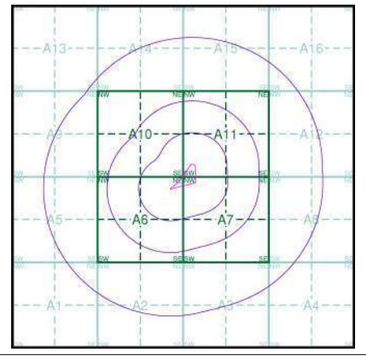
Map Name(s) and Date(s)

TQ17NE 2006 1:10,000	TQ27NW 2006 1:10,000
TQ17SE 2006 1:10,000	TQ27SW 2006 1:10,000

Historical Map - Slice A



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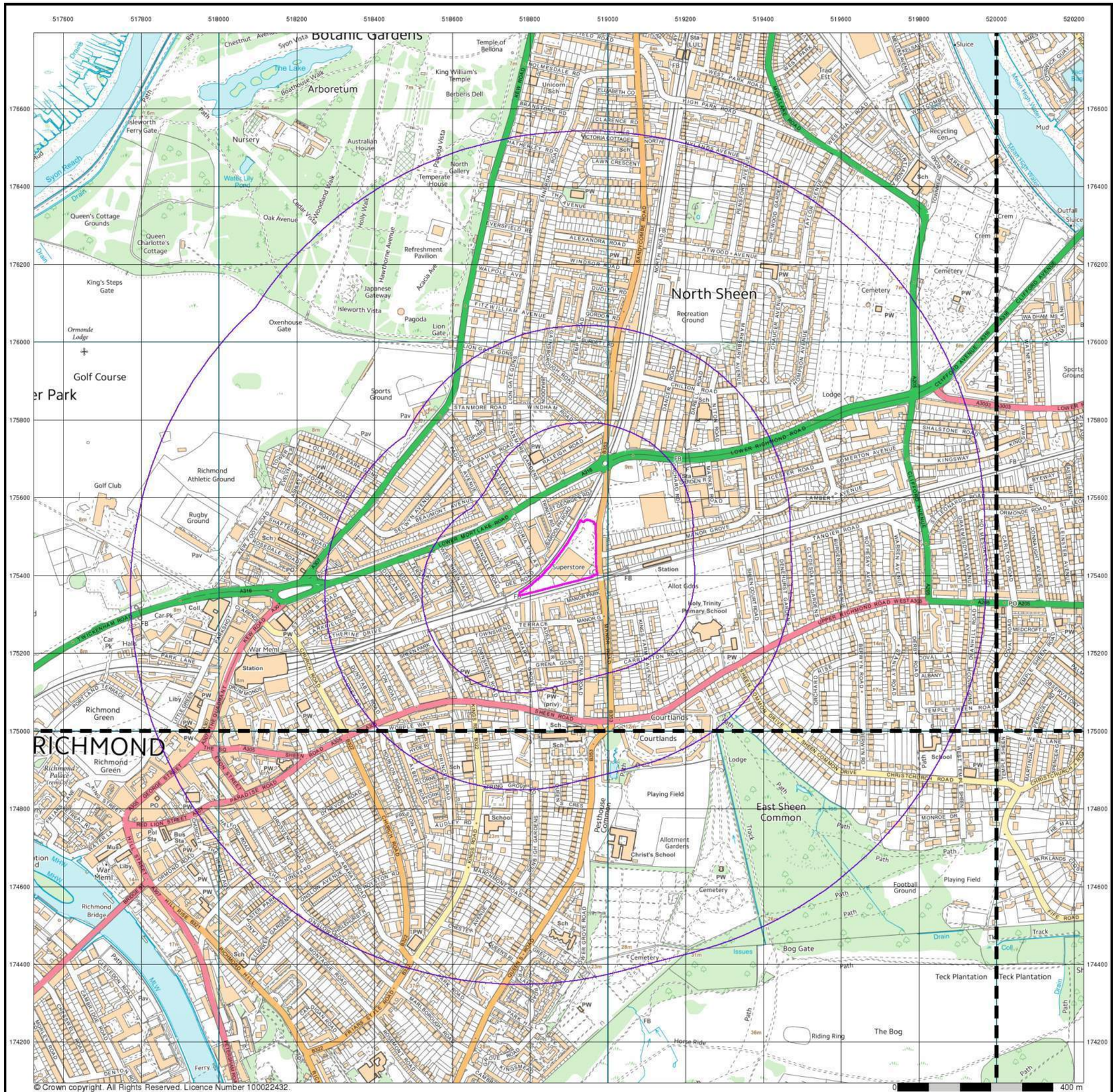
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Botanic Gardens
Arboretum
The Lake
Syon Reach
Nursery
Australian House
Temperate House
North Gallery
Water Lily Pond
Queen's Cottage Grounds
Queen Charlotte's Cottage
Oak Avenue
Woodland Walk
Holly Walk
Hawthorne Avenue
Refreshment Pavilion
Japanese Gateway
Isleworth Vista
Pagoda
Lion Gate
Oxenhouse Gate
King's Steps Gate
Isleworth Ferry Gate
Ormonde Lodge
Golf Course
Park
North Sheen
Recreation Ground
Sports Ground
Cemetery
Crem
Lodge
Richmond Athletic Ground
Golf Club
Rugby Ground
Superstore
Station
Allot Gdns
Holy Trinity Primary School
Courtlands
Richmond Green
Richmond Palace (rems)
Richmond Bridge
Playing Field
East Sheen Common
Allotment Gardens
Christ's School
Football Ground
Bog Gate
Teck Plantation
Riding Ring
The Bog
Horse Ride
Mortlake Crematorium
Mortlake Cemetery
Sluice
Outfall Sluice
Mud
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FAIRHURST

Surrey

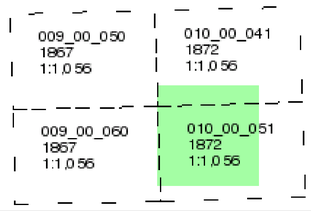
Published 1867 - 1872

Source map scale - 1:1,056

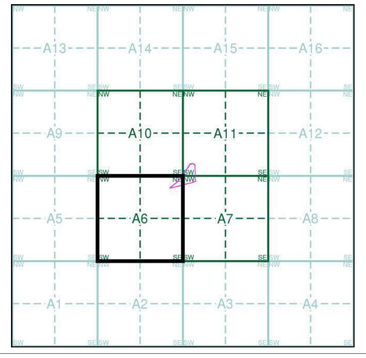
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys; although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500; the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)



Historical Town Plan - Segment A6



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	0

Site Details

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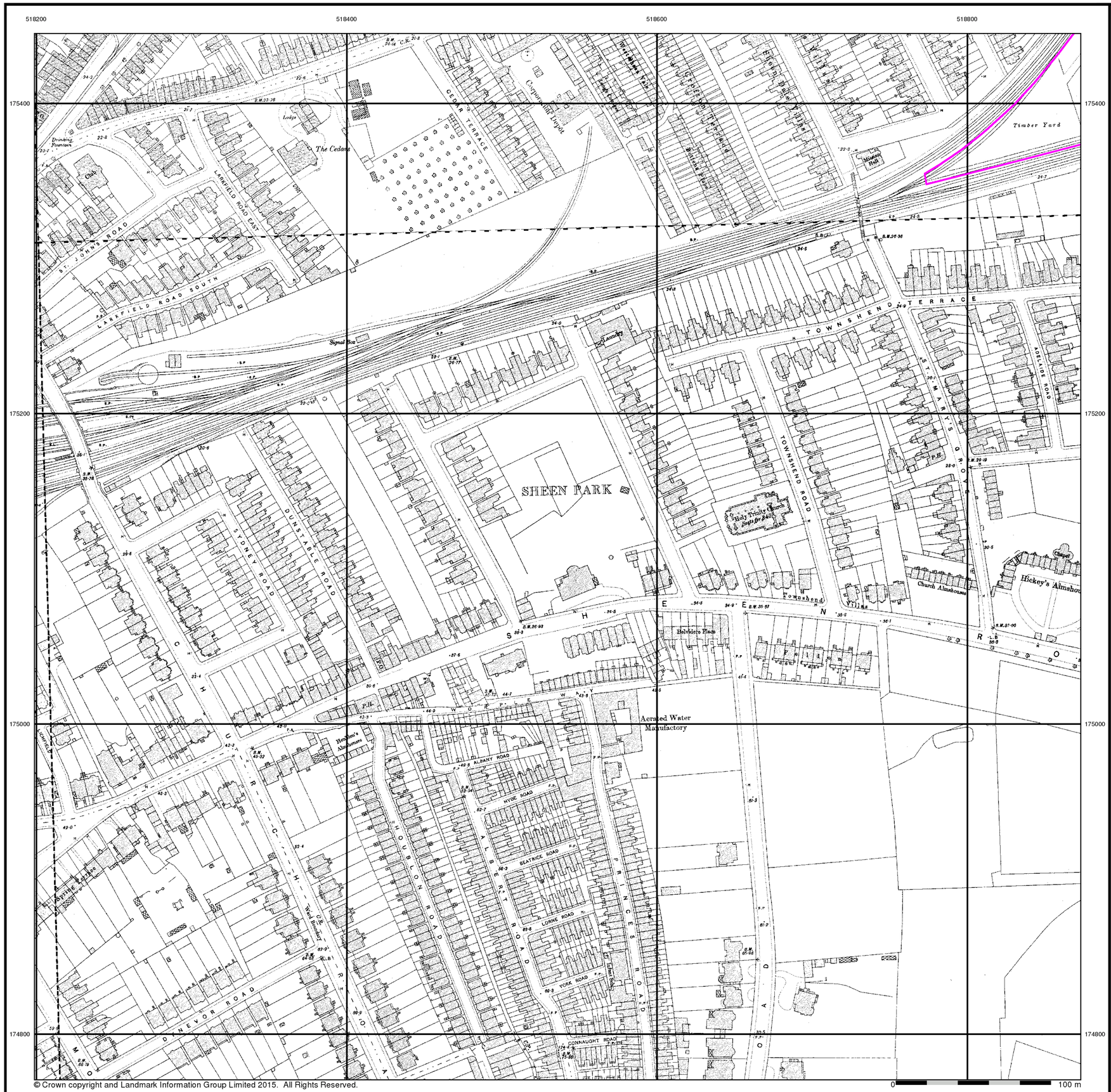

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FAIRHURST

London

Published 1894 - 1895

Source map scale - 1:1,056

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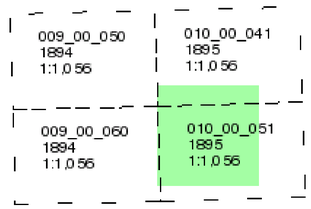
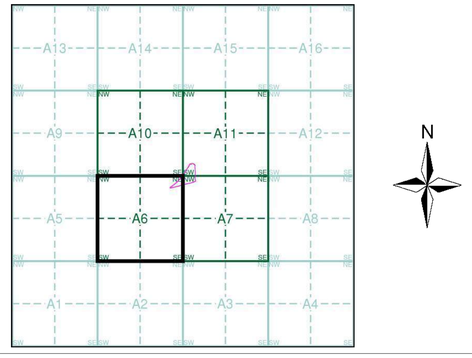
Map Name(s) and Date(s)



Historical Town Plan - Segment A6



Order Details

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0 100 m

FAIRHURST

Surrey

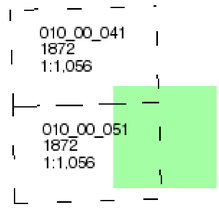
Published 1872

Source map scale - 1:1,056

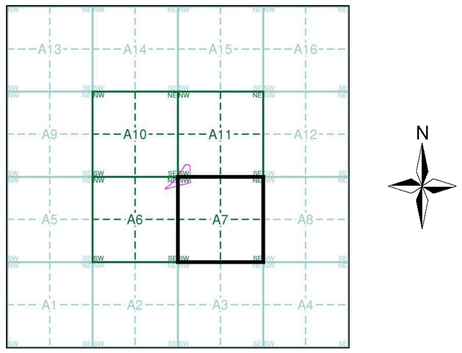
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys; although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500; the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)



Historical Town Plan - Segment A7



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FAIRHURST

London

Published 1895

Source map scale - 1:1,056

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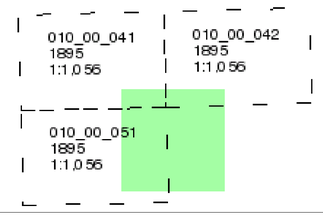
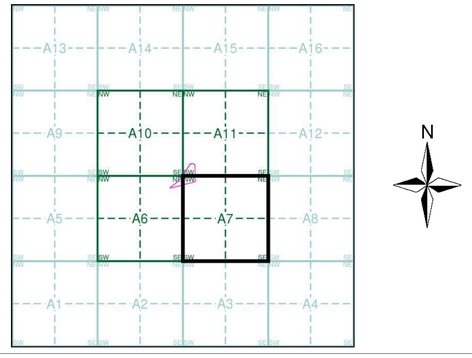
Map Name(s) and Date(s)



Historical Town Plan - Segment A7



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FAIRHURST

Surrey

Published 1867 - 1872

Source map scale - 1:1,056

The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys; although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500; the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

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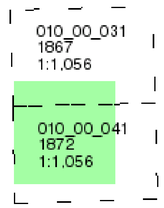
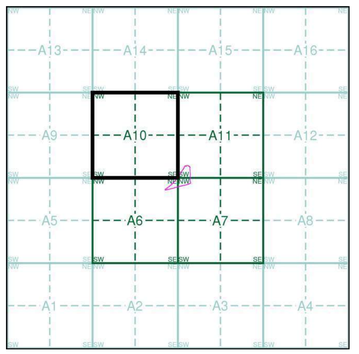


Historical Town Plan - Segment A10



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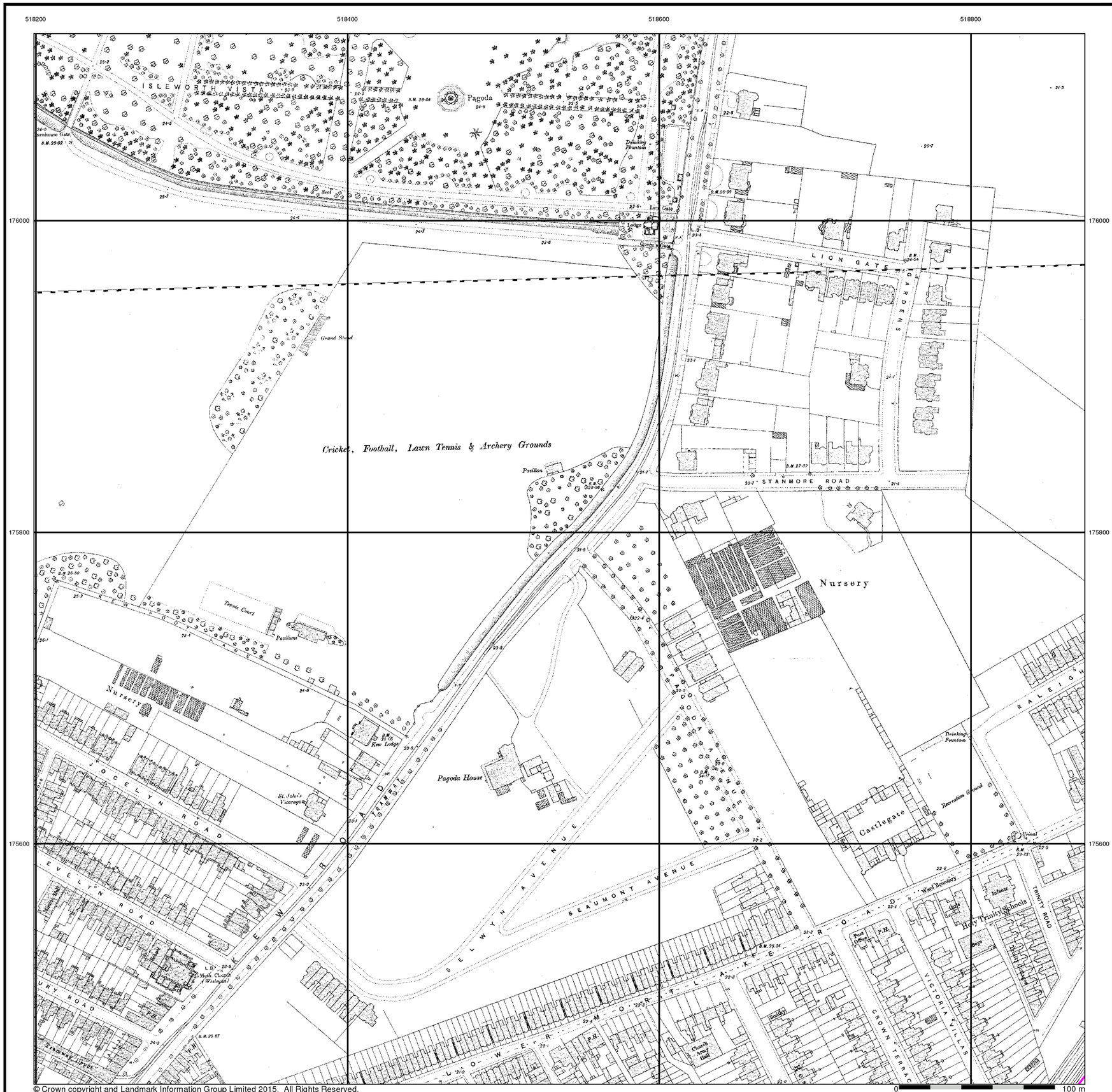

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FAIRHURST

London

Published 1895 - 1896

Source map scale - 1:1,056

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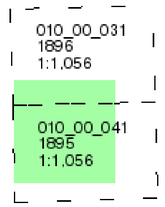
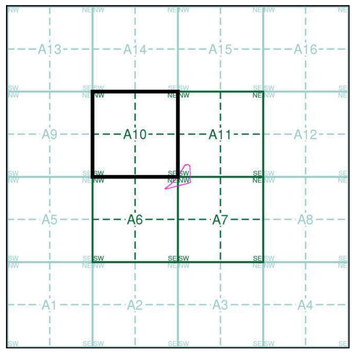
Map Name(s) and Date(s)



Historical Town Plan - Segment A10



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FAIRHURST

Surrey

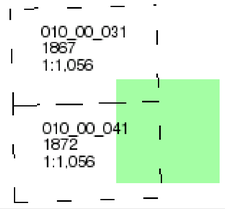
Published 1867 - 1872

Source map scale - 1:1,056

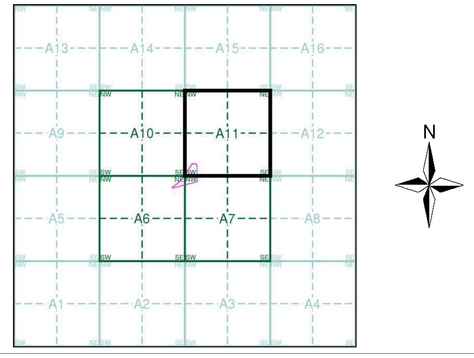
The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys; although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500; the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)



Historical Town Plan - Segment A11



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	0

Site Details

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FAIRHURST

London

Published 1895 - 1896

Source map scale - 1:1,056

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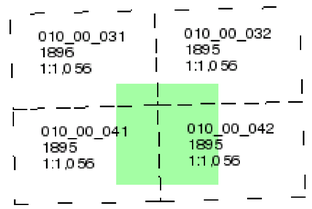
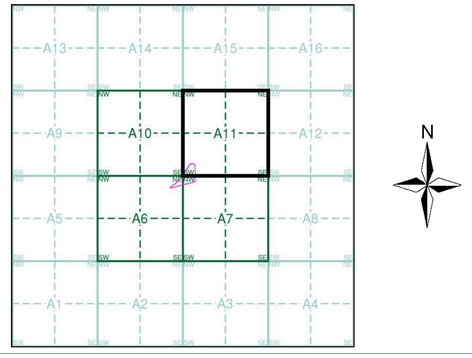


Historical Town Plan - Segment A11



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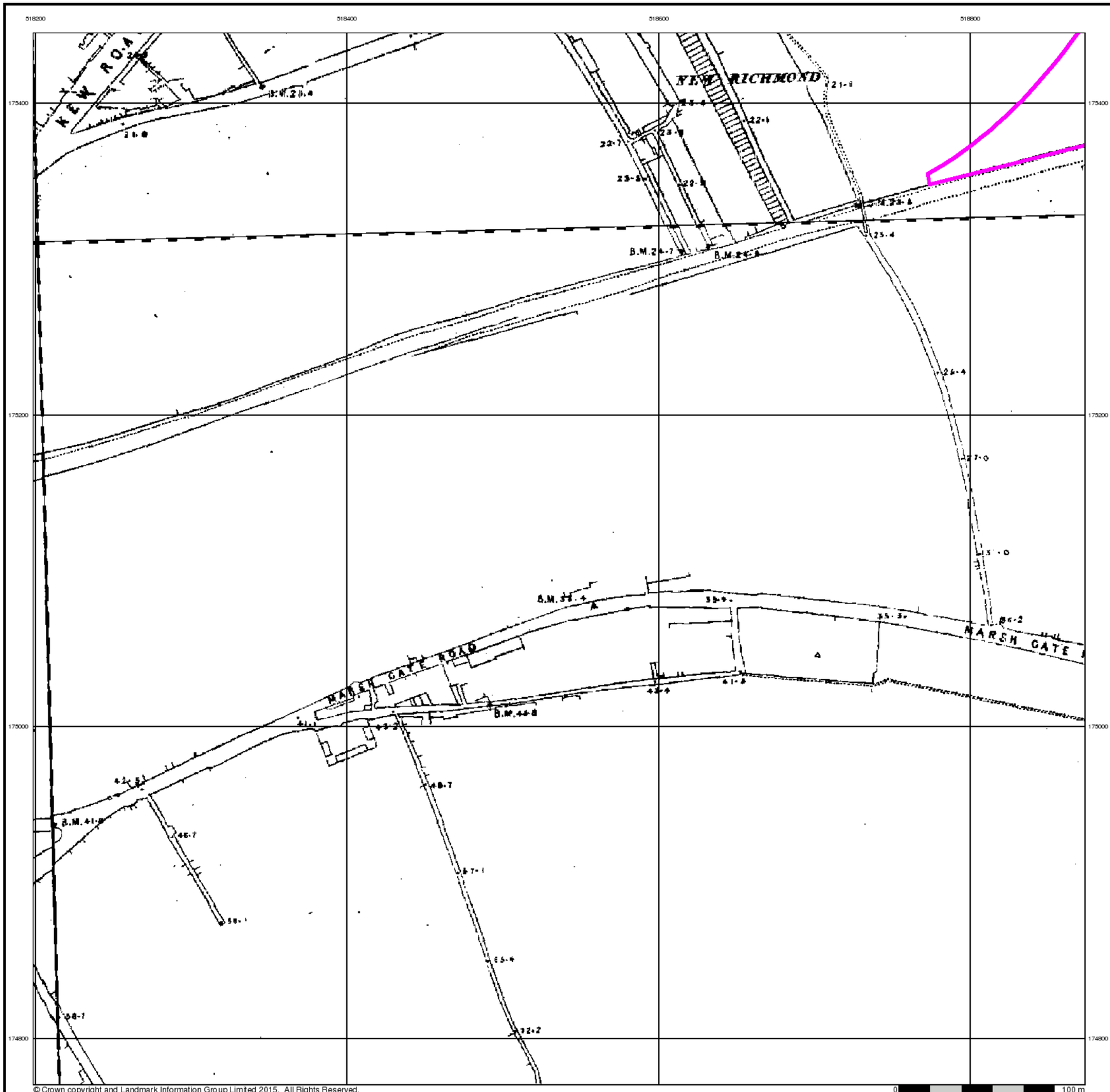

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FAIRHURST

London

Published 1850

Source map scale - 1:5,280

The historical town plans shown derive from Ordnance Survey mapping from the early to mid 1850s. The 1:2640 scale was introduced in the early 1850s, to survey districts covered by the Local Boards of Health and for a map of the Osborne Estate of Queen Victoria. The general style is similar to that of the early 1:2500s published shortly afterwards.
1:5280 scale was surveyed shortly afterwards in the mid 1850s as general purpose mapping with a standard of content similar to the more contemporary 1:10.560 mapping. The scale was also used for a reduction of the 1:1056 'skeleton survey' of London that was undertaken between 1848 and 1850.

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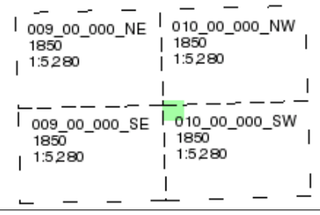
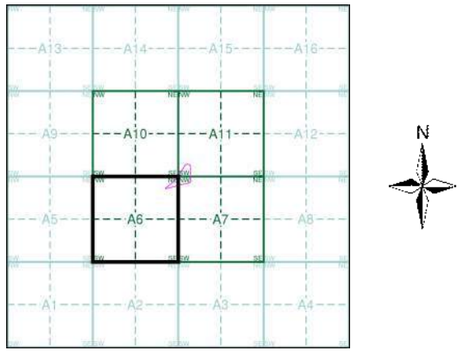


Historical Town Plan - Segment A6



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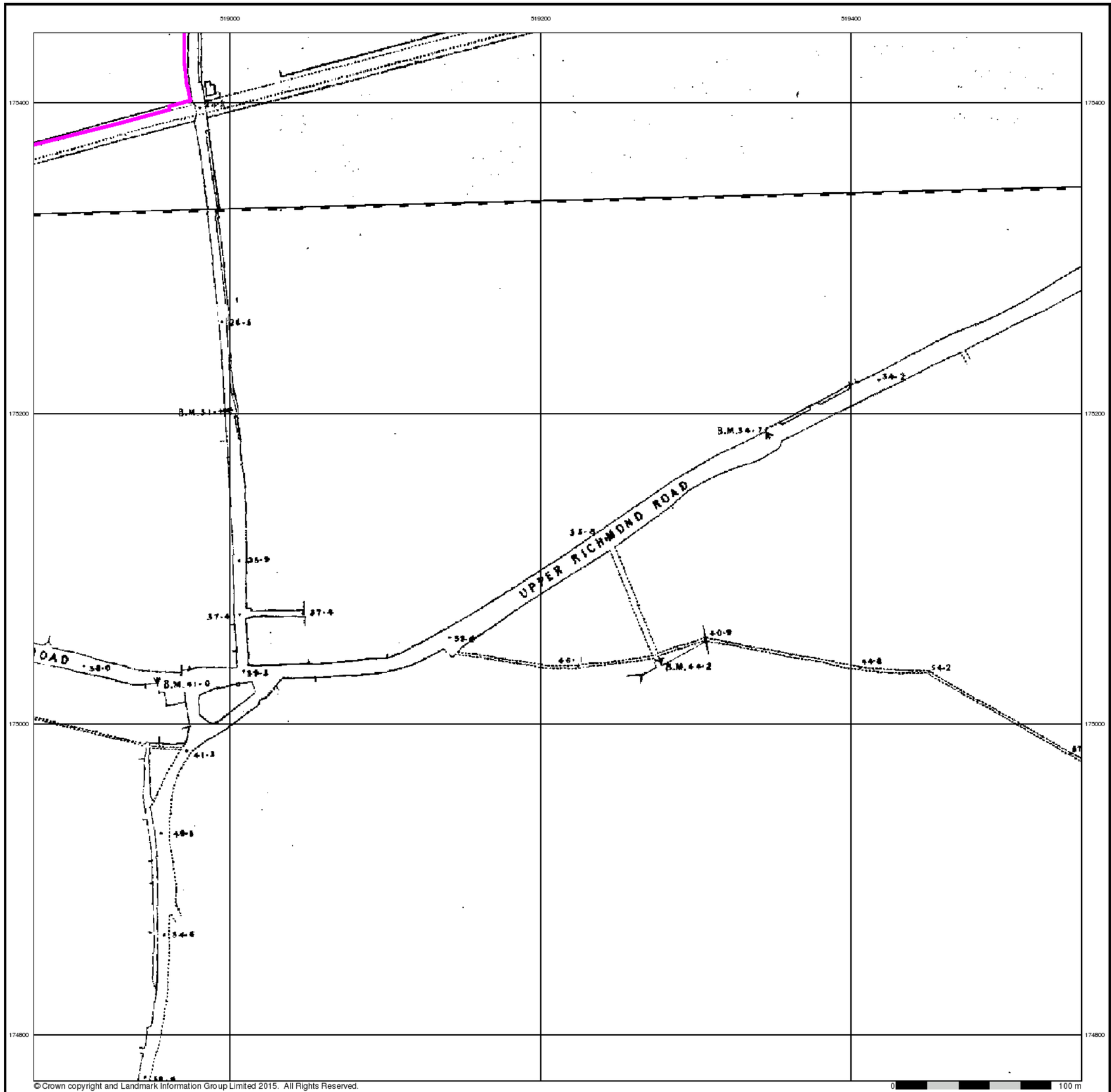

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FAIRHURST

London

Published 1850

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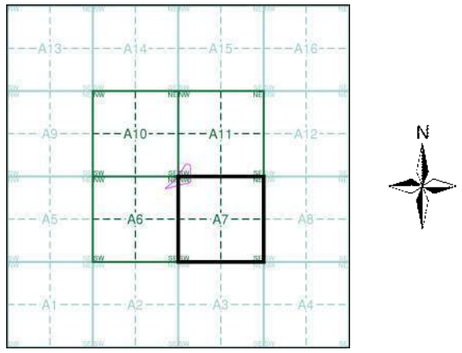
Map Name(s) and Date(s)

010_00_000_NW
1850
1:5,280

010_00_000_SW
1850
1:5,280

Historical Town Plan - Segment A7



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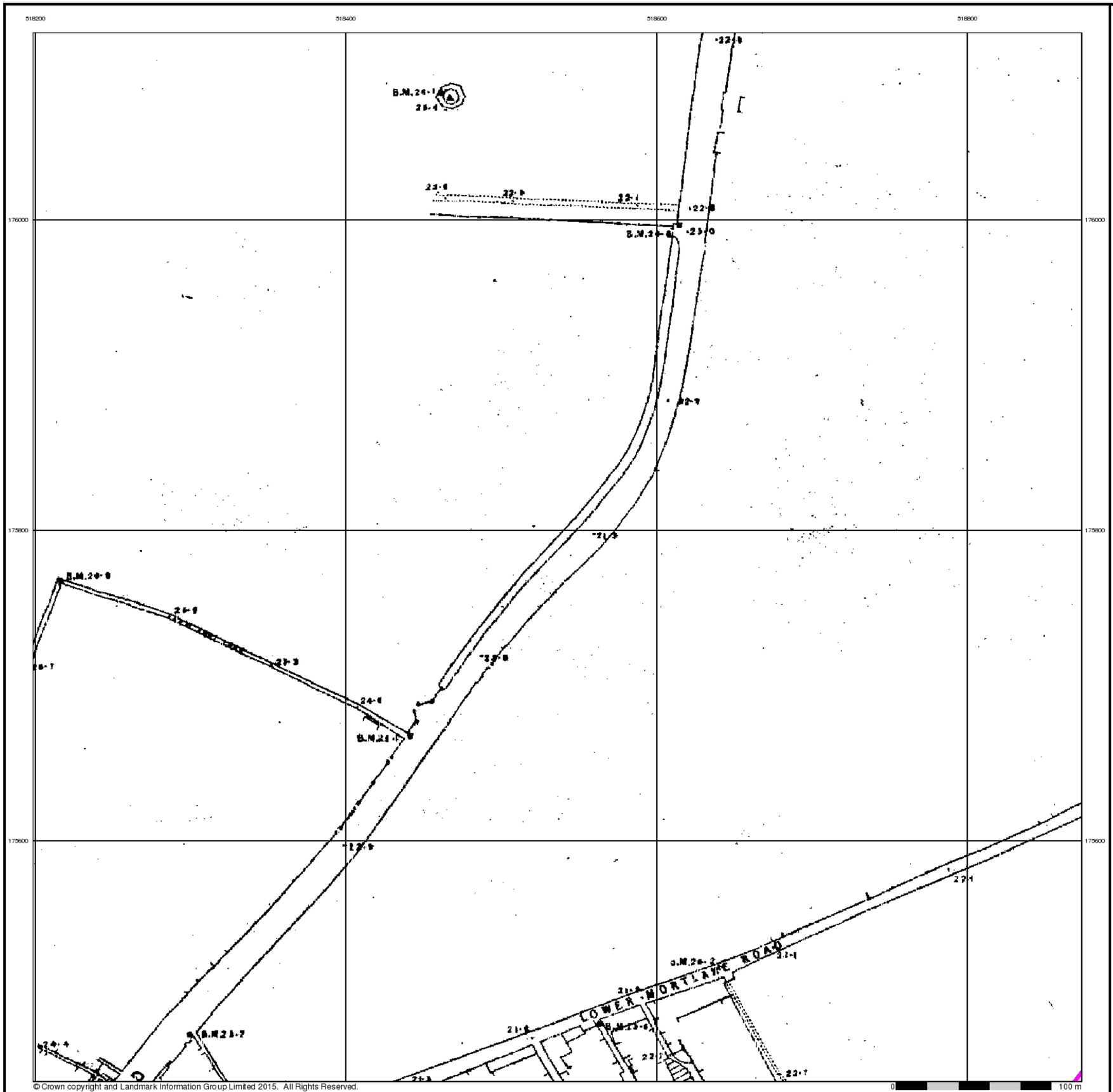

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FAIRHURST

London

Published 1850

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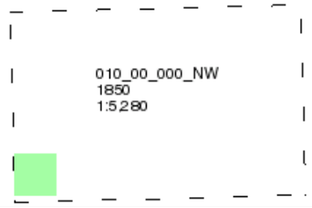
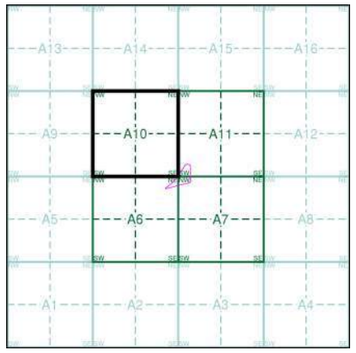


Historical Town Plan - Segment A10



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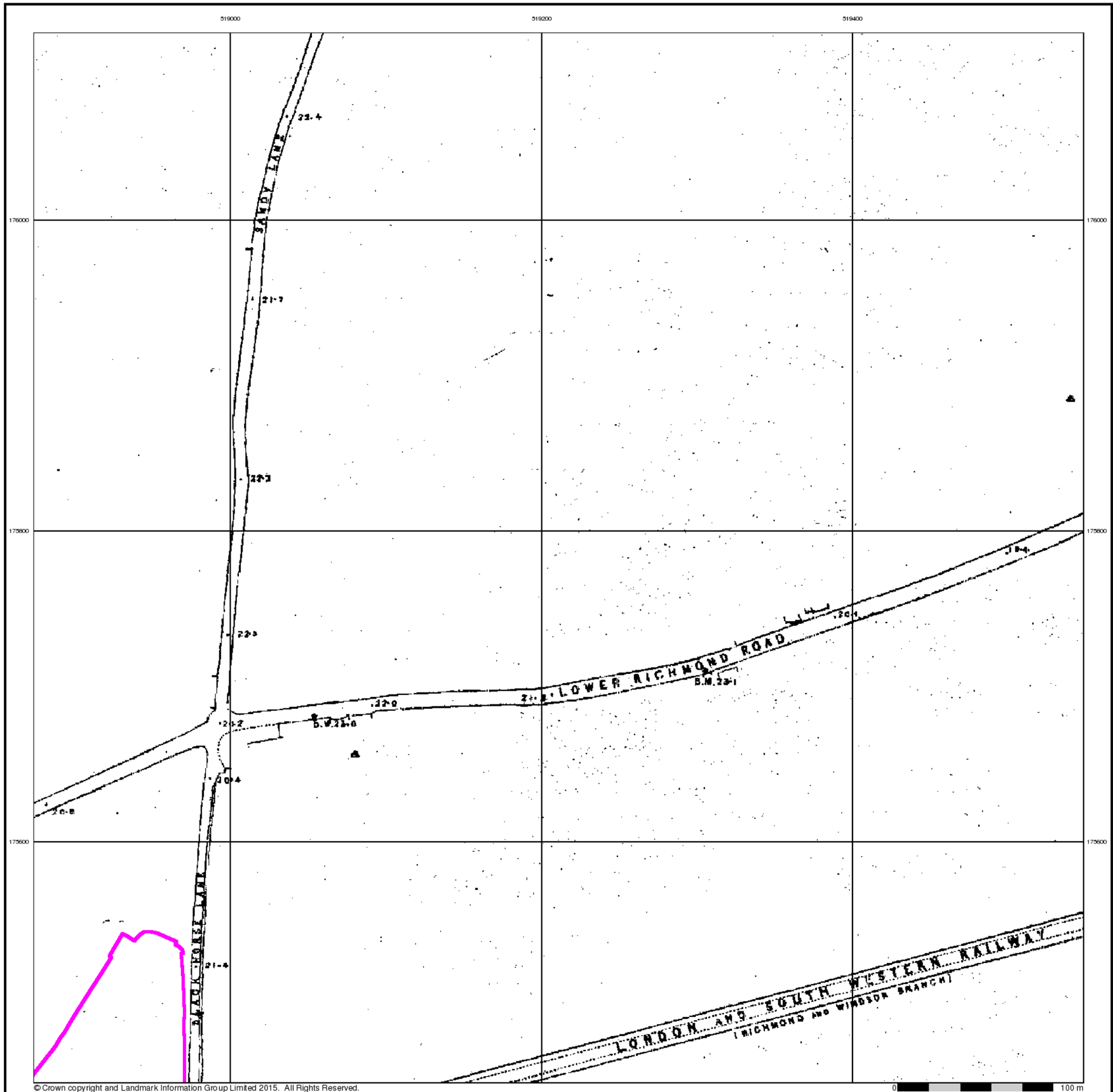

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FAIRHURST

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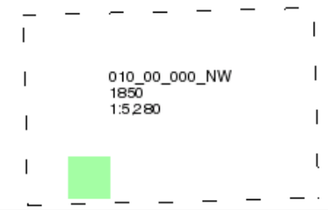
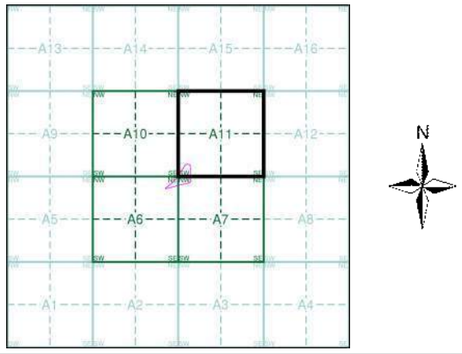


Historical Town Plan - Segment A11



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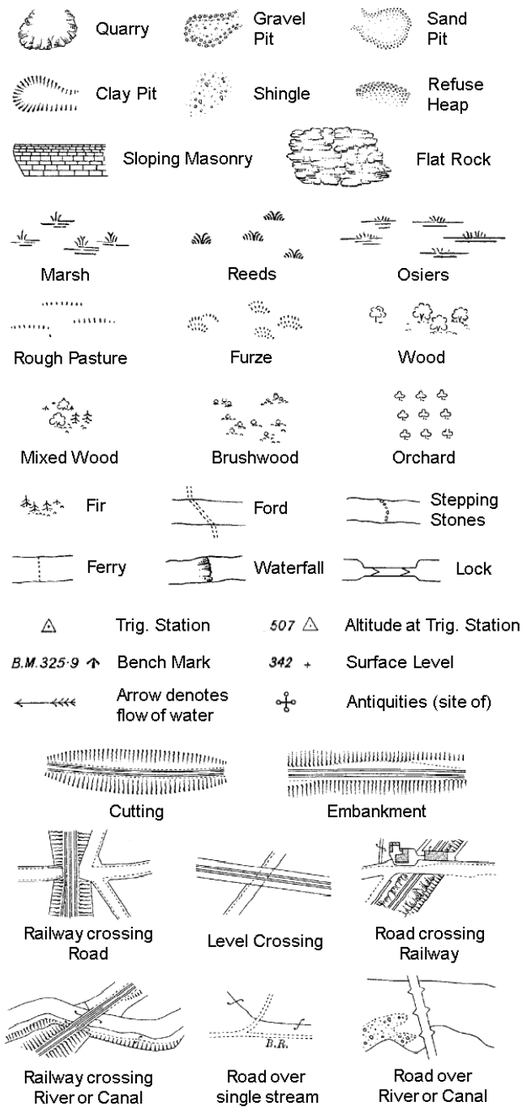
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

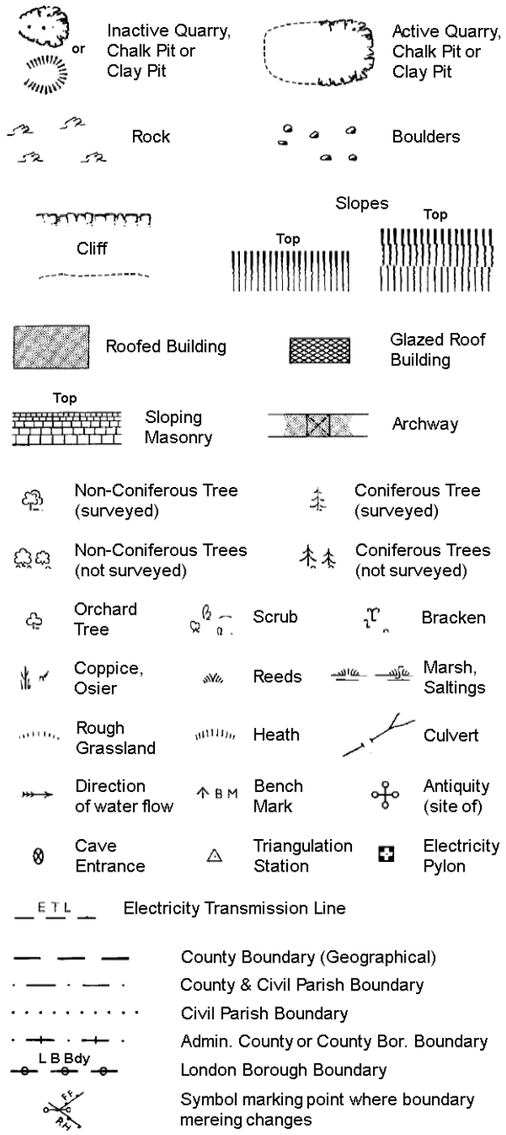
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

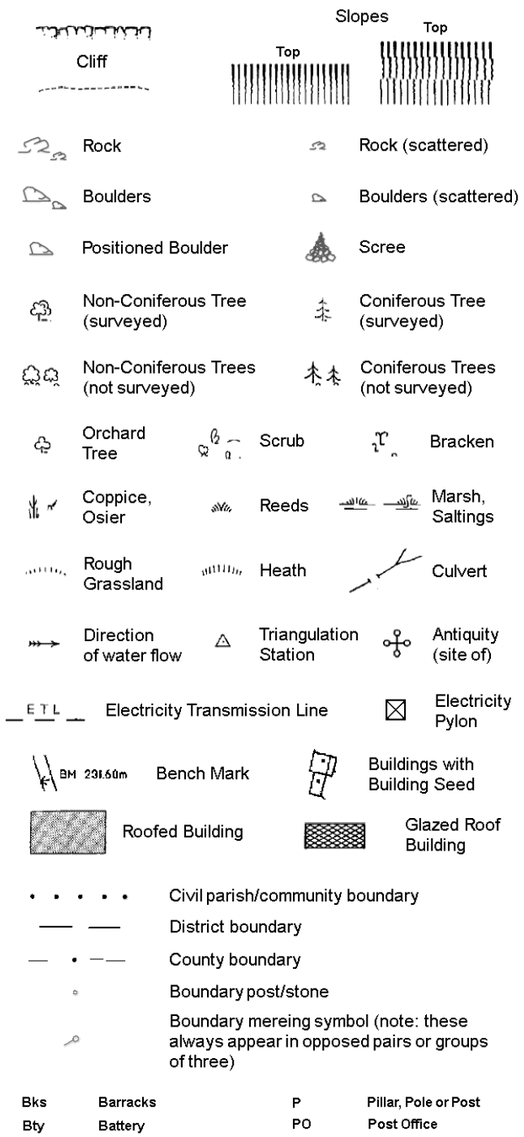
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

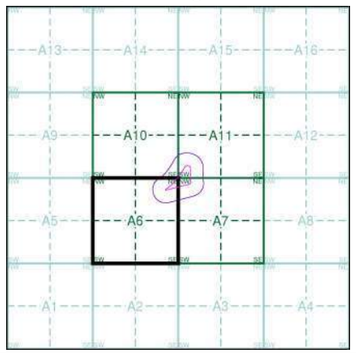
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Middlesex	1:2,500	1865 - 1881	2
Surrey	1:2,500	1868	3
Surrey	1:2,500	1868	4
Surrey	1:2,500	1879 - 1894	5
London	1:2,500	1896	6
Surrey	1:2,500	1898	7
Surrey	1:2,500	1913	8
Middlesex	1:2,500	1915	9
Surrey	1:2,500	1934 - 1936	10
Middlesex	1:2,500	1935	11
Historical Aerial Photography	1:1,250	1947	12
Ordnance Survey Plan	1:2,500	1960	13
Ordnance Survey Plan	1:1,250	1960	14
Additional SIMs	1:2,500	1960	15
Additional SIMs	1:1,250	1960 - 1972	16
Supply of Unpublished Survey Information	1:1,250	1973 - 1974	17
Ordnance Survey Plan	1:1,250	1974 - 1991	18
Additional SIMs	1:1,250	1974 - 1991	19
Additional SIMs	1:1,250	1983 - 1989	20
Additional SIMs	1:1,250	1989	21
Large-Scale National Grid Data	1:1,250	1991	22
Large-Scale National Grid Data	1:1,250	1992	23
Large-Scale National Grid Data	1:1,250	1995	24
Large-Scale National Grid Data	1:1,250	1996	25
Historical Aerial Photography	1:2,500	1999	26

Historical Map - Segment A6



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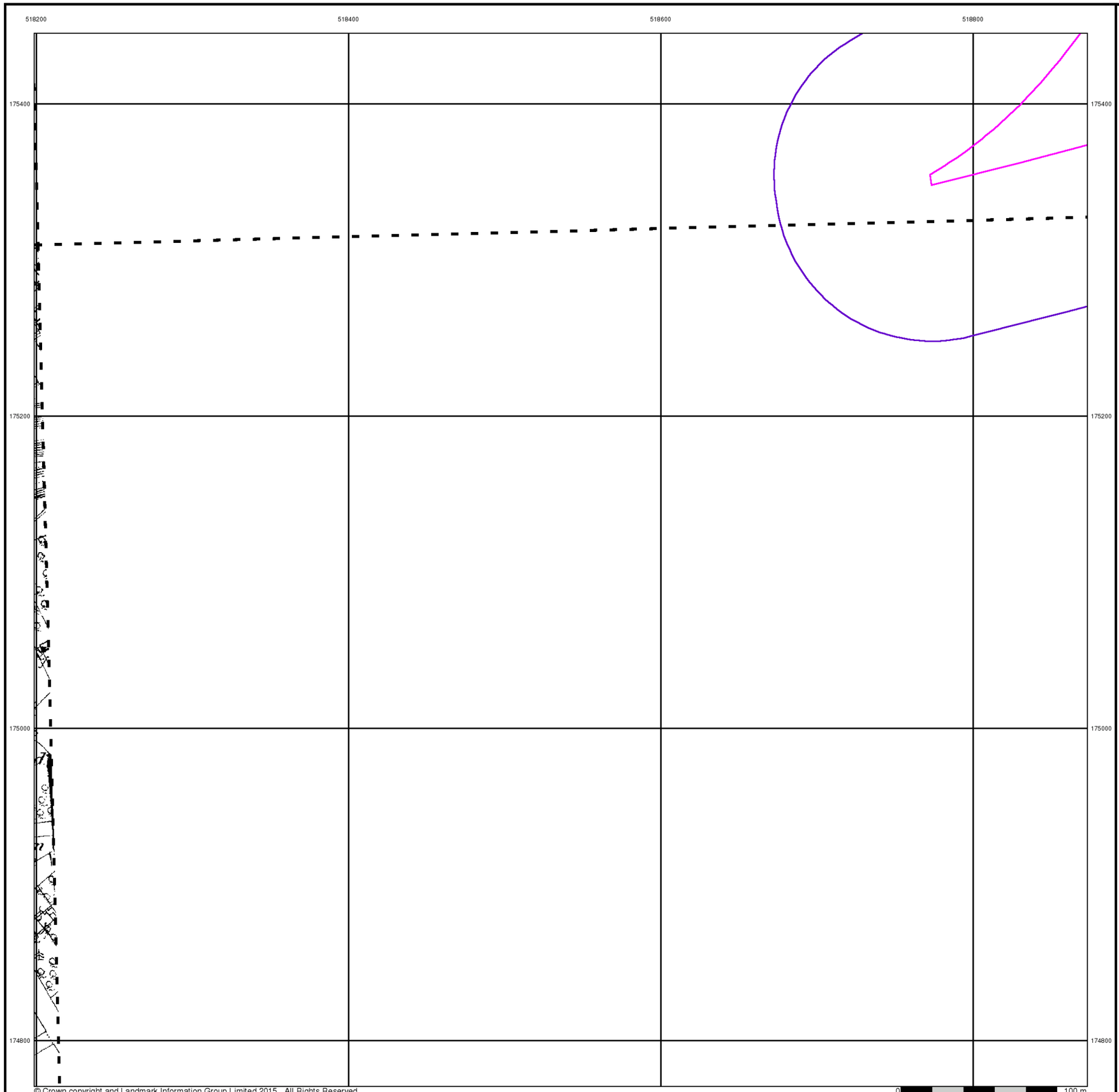

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0 100 m

FAIRHURST

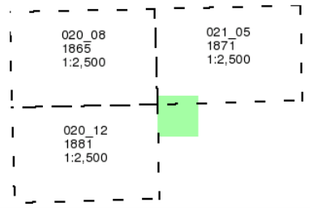
Middlesex

Published 1865 - 1881

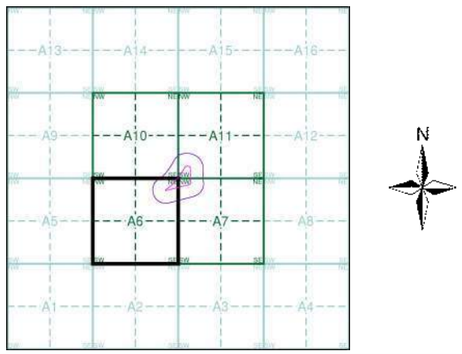
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A6



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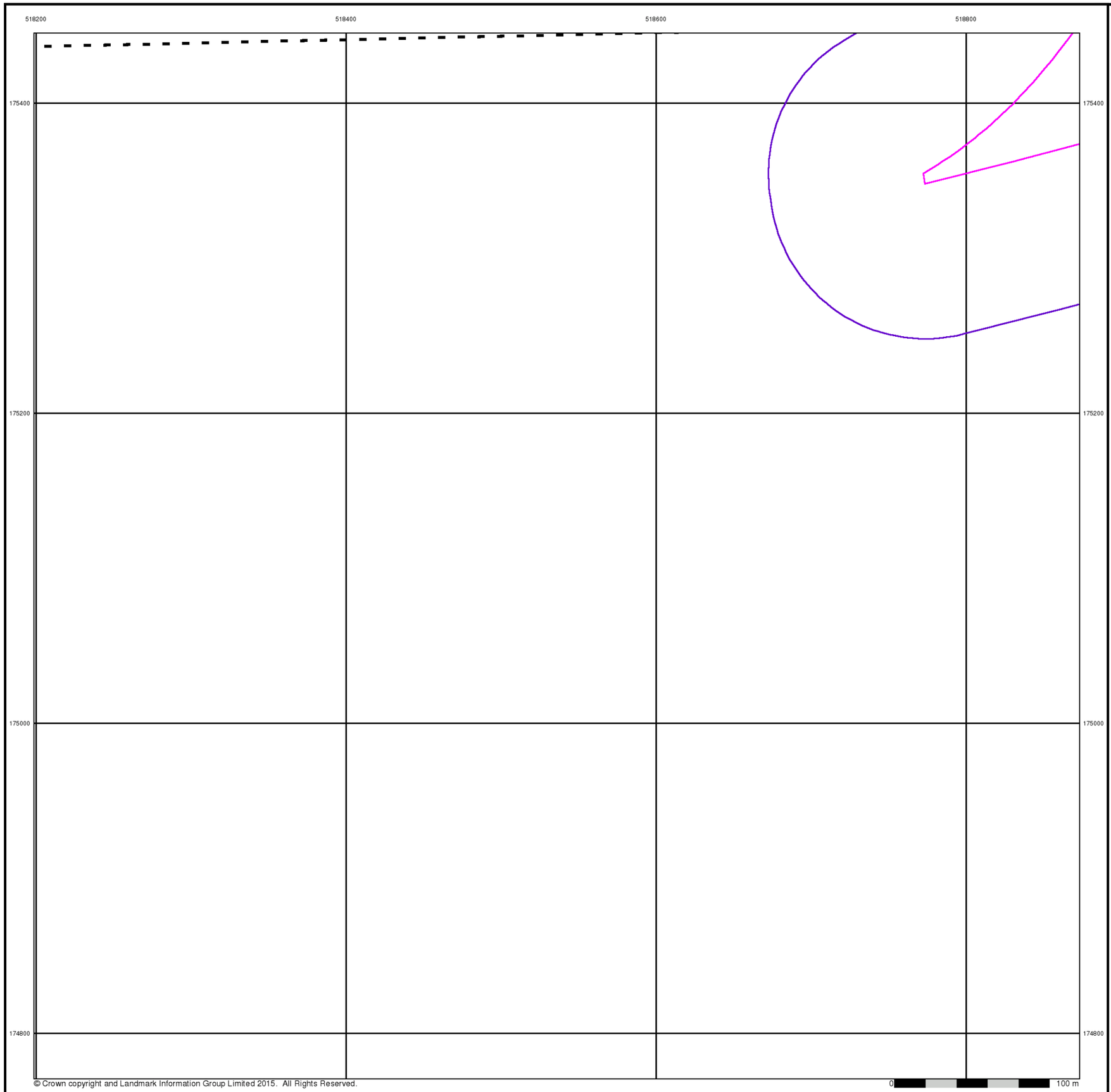

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0 100 m

FAIRHURST

Surrey

Published 1868

Source map scale - 1:2,500

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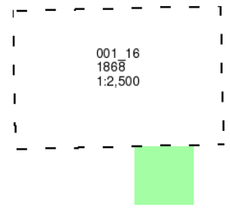
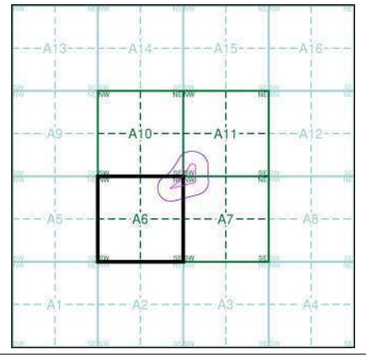


Historical Map - Segment A6



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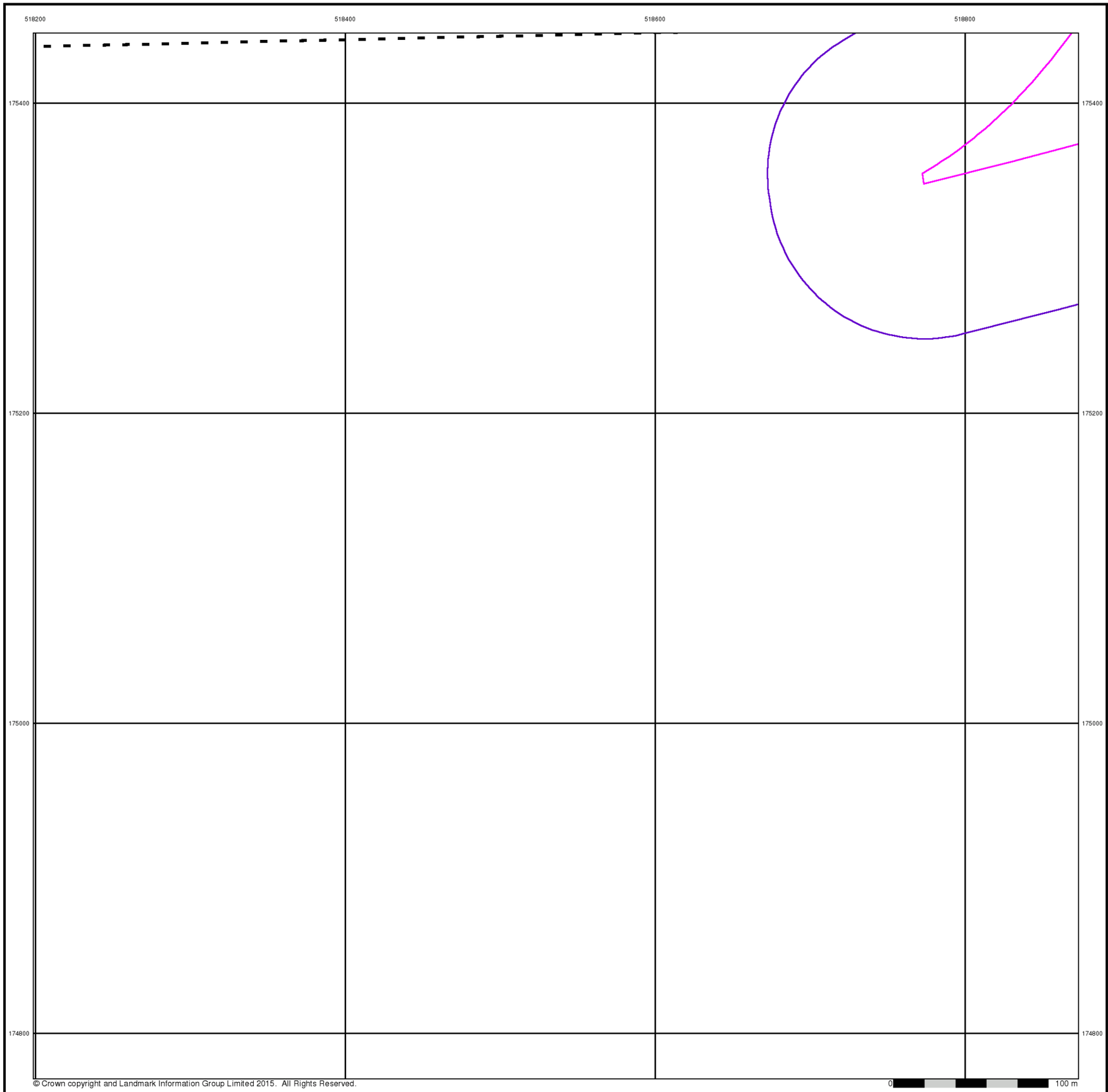

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0 100 m

FAIRHURST

Surrey

Published 1868

Source map scale - 1:2,500

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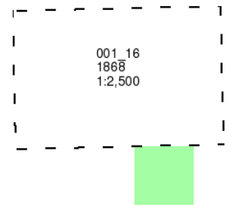
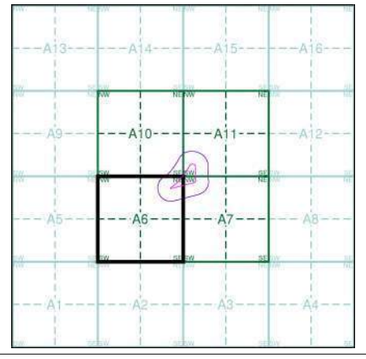
Map Name(s) and Date(s)



Historical Map - Segment A6



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

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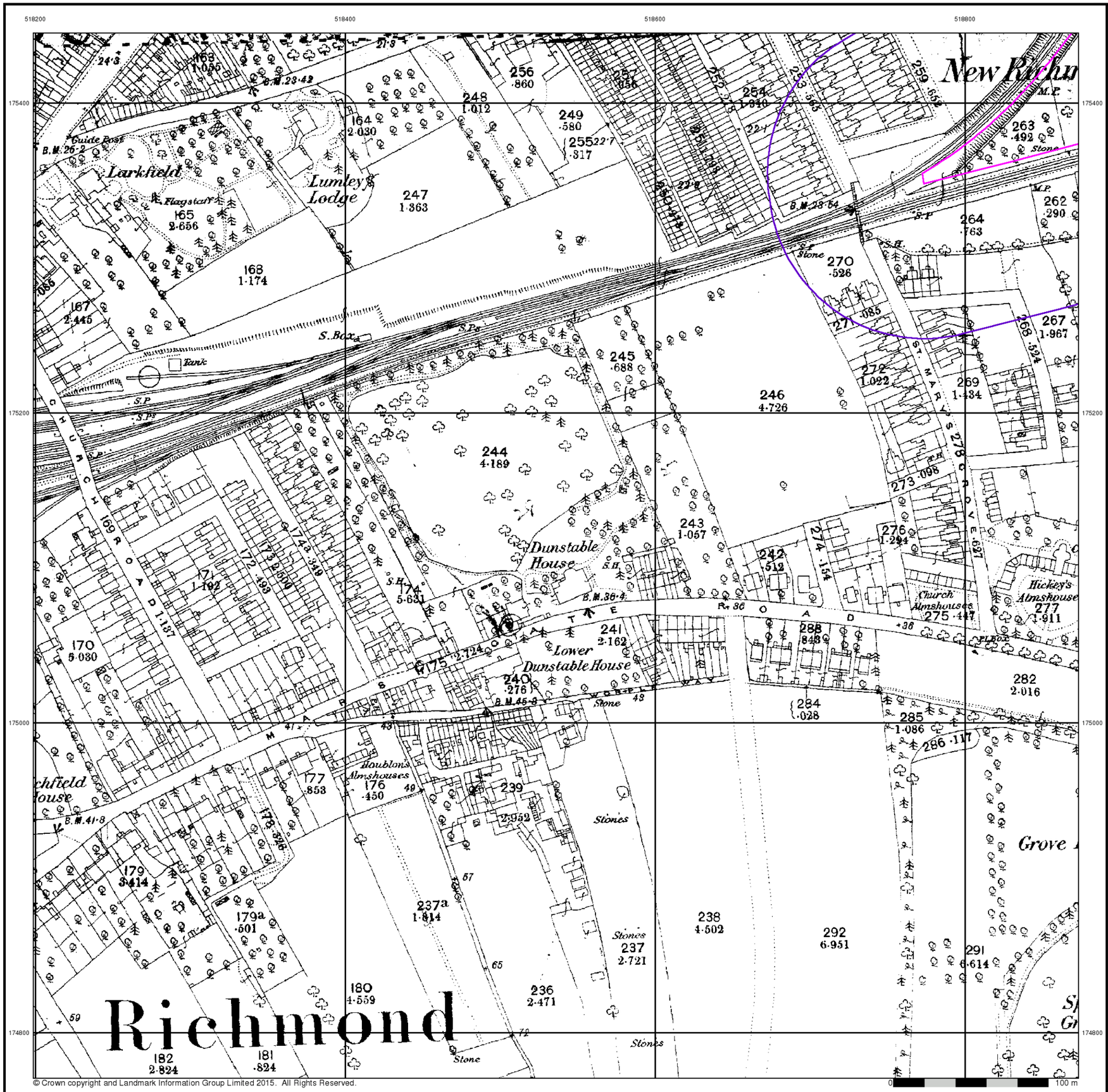
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



FAIRHURST

Surrey

Published 1879 - 1894

Source map scale - 1:2,500

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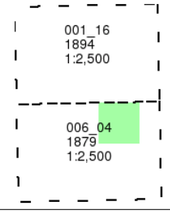
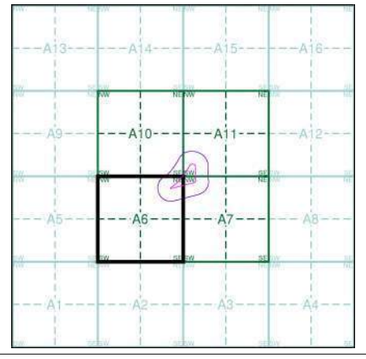
Map Name(s) and Date(s)



Historical Map - Segment A6



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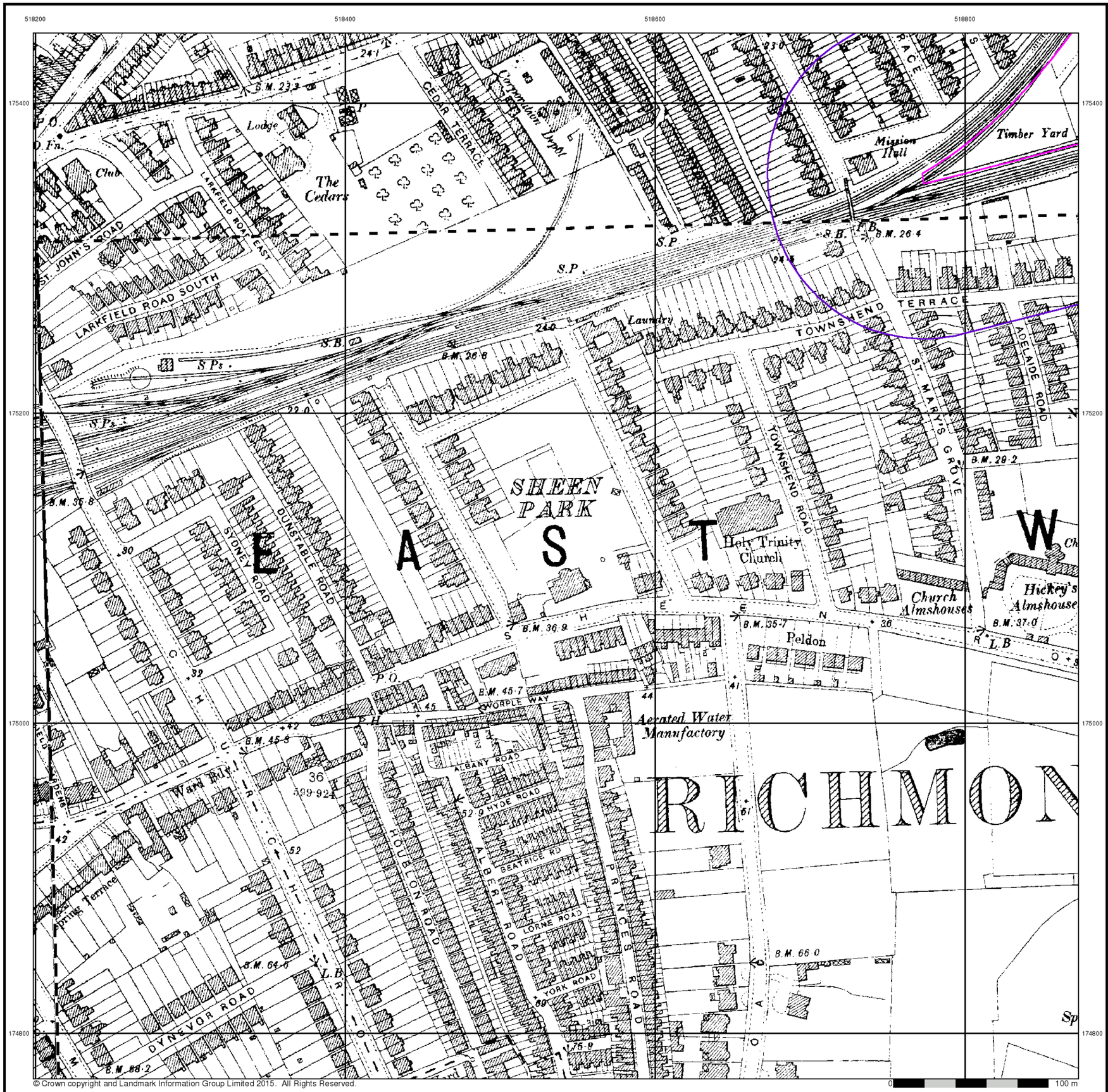

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FAIRHURST

London

Published 1896

Source map scale - 1:2,500

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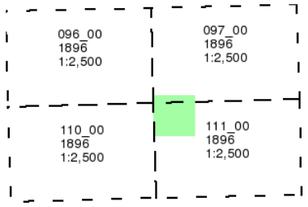
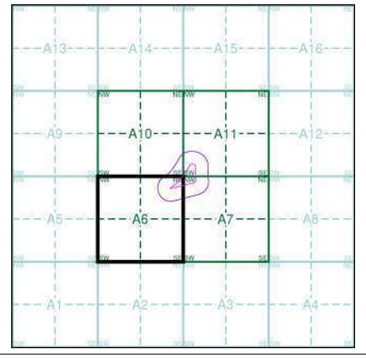
Map Name(s) and Date(s)



Historical Map - Segment A6



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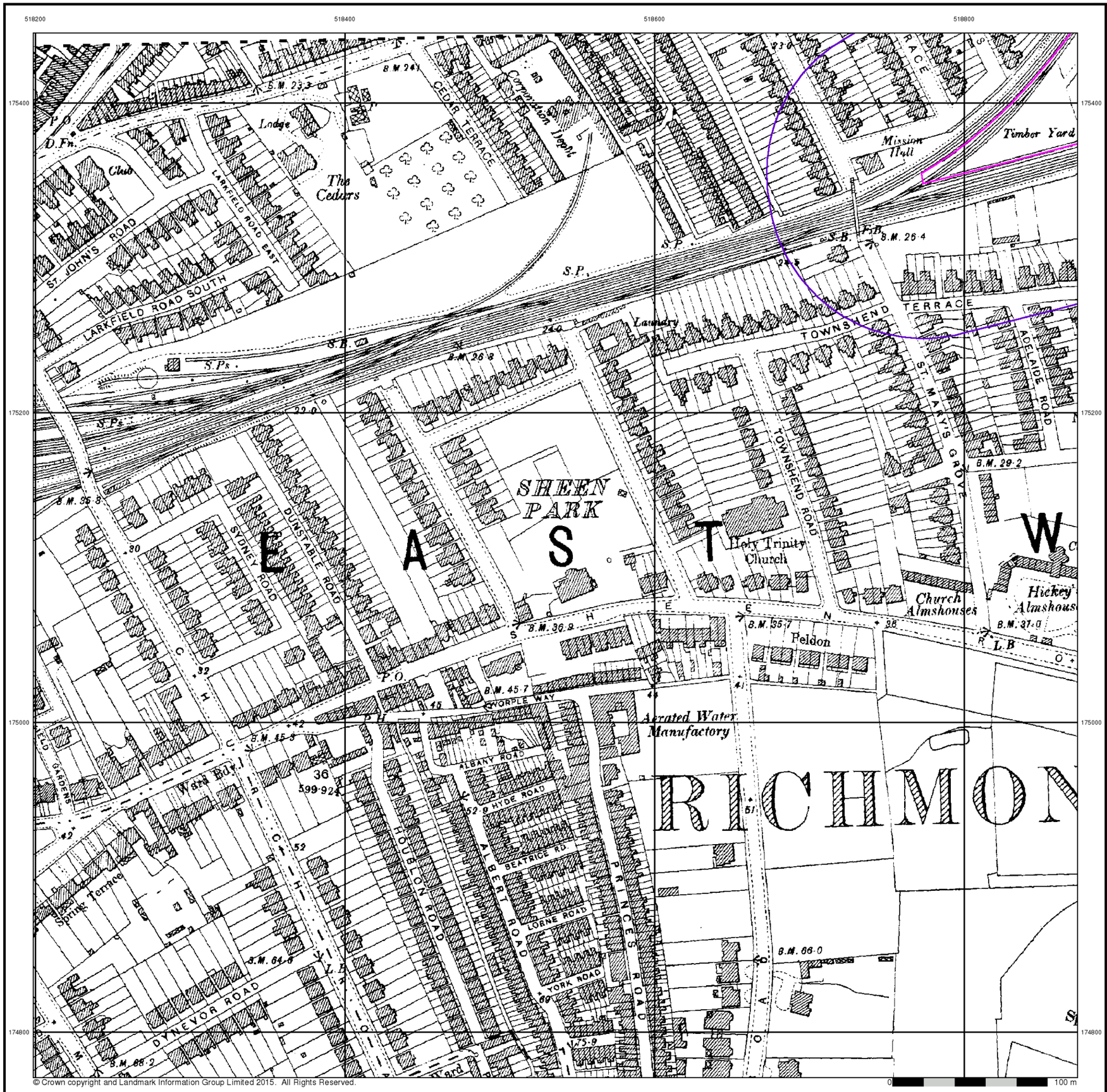


FAIRHURST

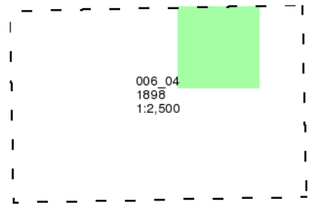
Surrey

Published 1898

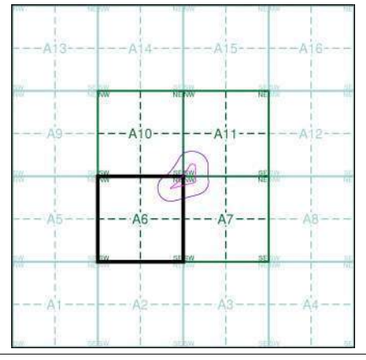
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A6



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FAIRHURST

Surrey

Published 1913

Source map scale - 1:2,500

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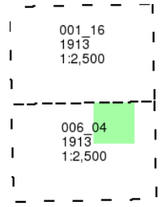
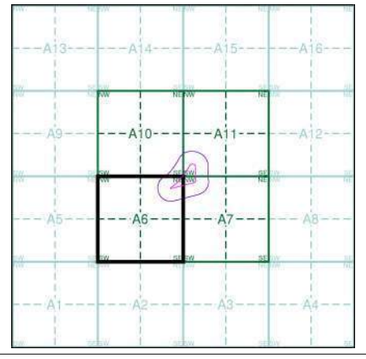
Map Name(s) and Date(s)



Historical Map - Segment A6



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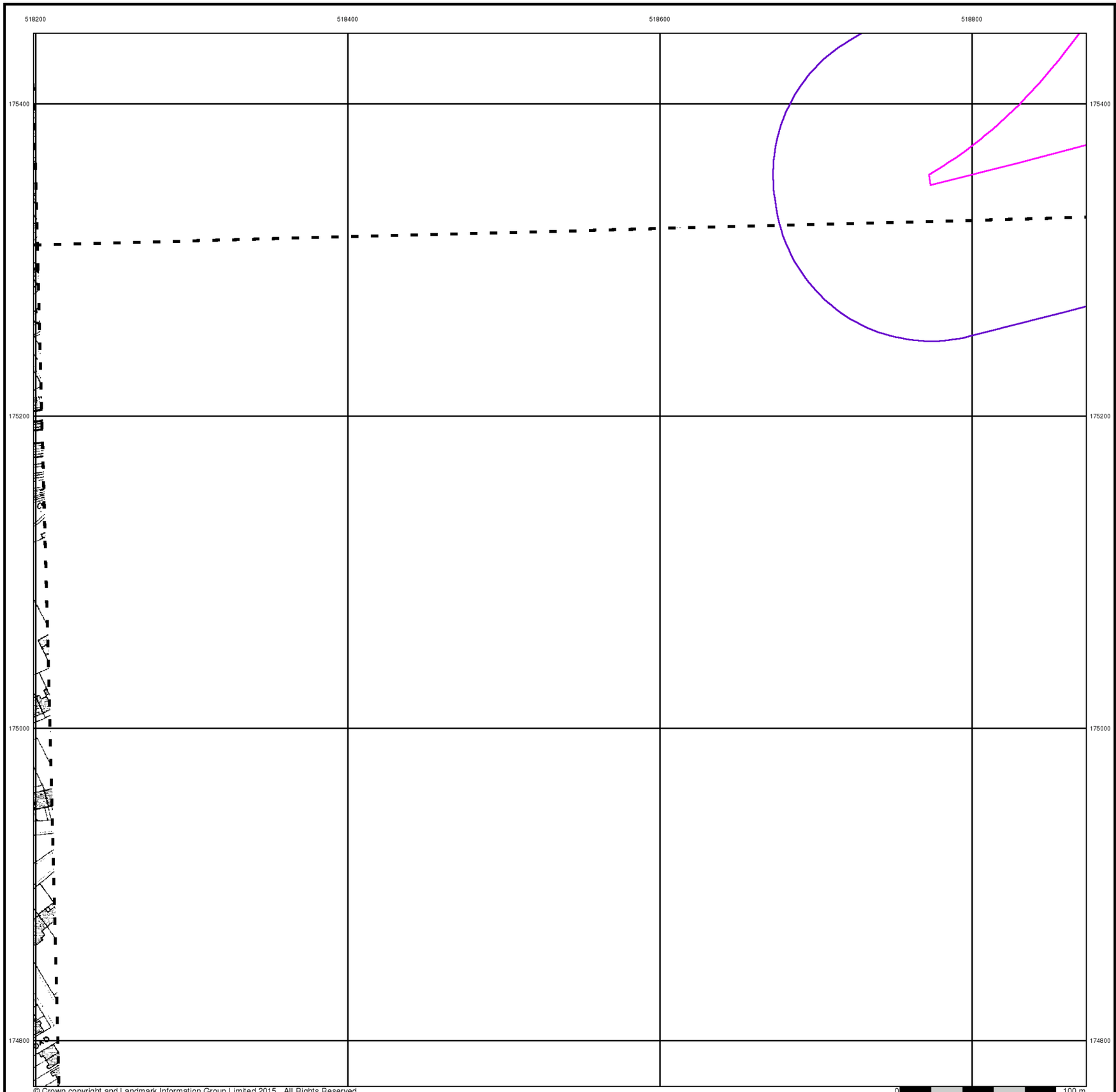

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FAIRHURST

Middlesex

Published 1915

Source map scale - 1:2,500

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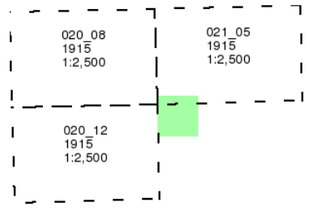
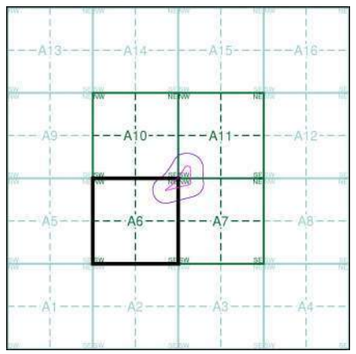
Map Name(s) and Date(s)



Historical Map - Segment A6



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FAIRHURST

Surrey

Published 1934 - 1936

Source map scale - 1:2,500

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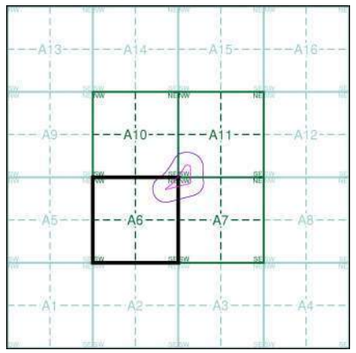
Map Name(s) and Date(s)

001_16
1934
1:2,500

006_04
1936
1:2,500

Historical Map - Segment A6



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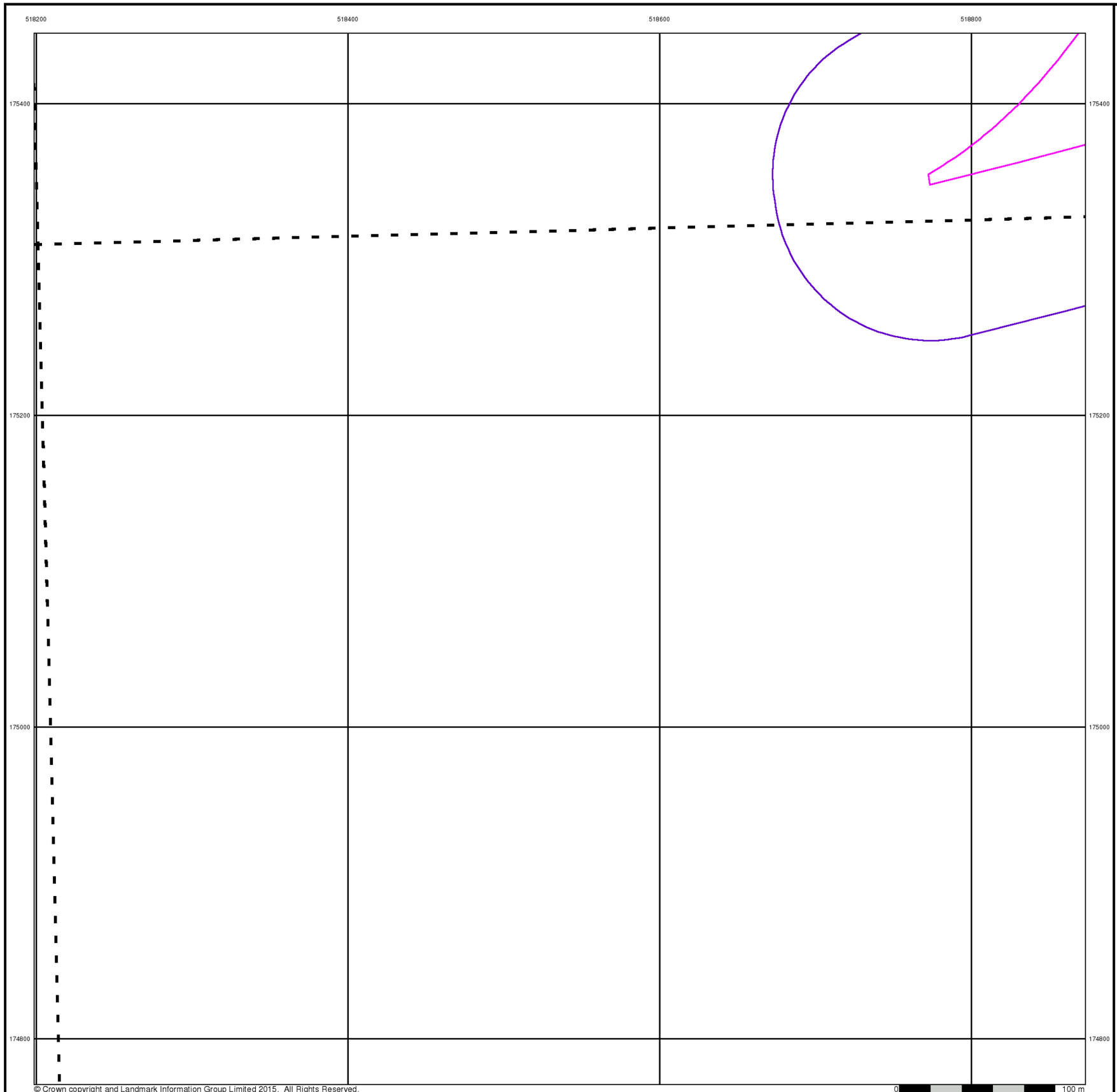

FAIRHURST

Middlesex

Published 1935

Source map scale - 1:2,500

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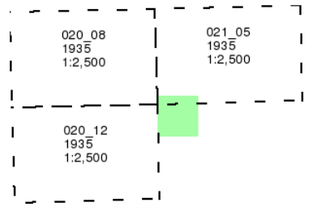
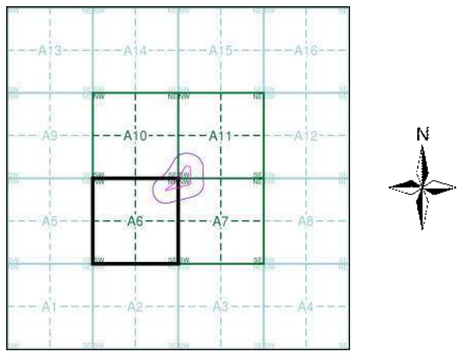
Map Name(s) and Date(s)



Historical Map - Segment A6



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Historical Aerial Photography

Published 1947

Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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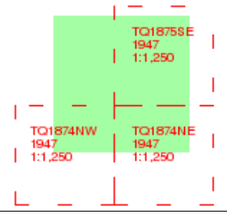
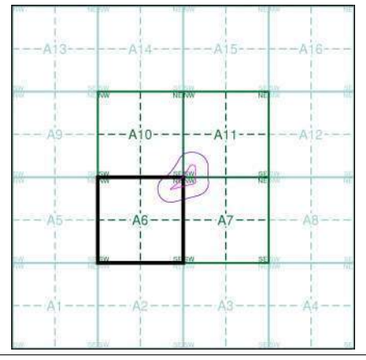
Map Name(s) and Date(s)



Historical Aerial Photography - Segment A6



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FAIRHURST

Ordnance Survey Plan

Published 1960

Source map scale - 1:2,500

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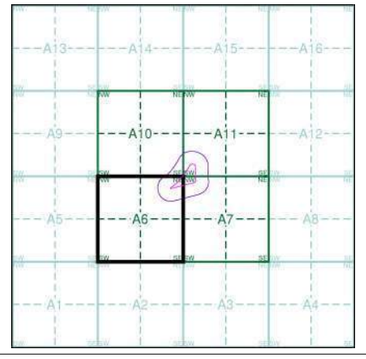
Map Name(s) and Date(s)

TQ1875
1960
1:2,500

TQ1874
1960
1:2,500

Historical Map - Segment A6



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518600
518800
175400
175200
175000
174800
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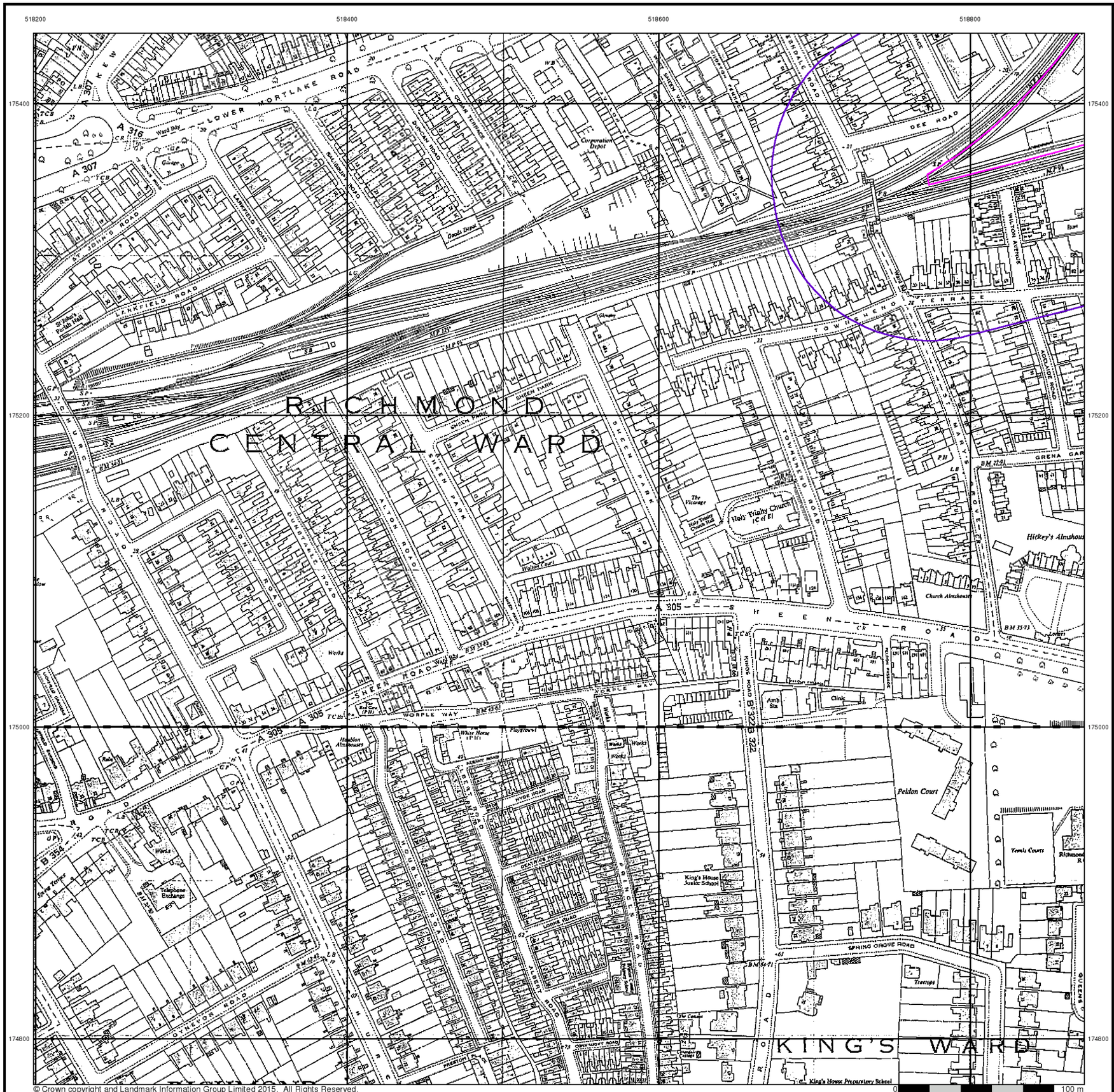
KEW
SHEEN ROAD
WORPLE WAY
LARKFIELD ROAD
ST JOHN'S ROAD
CARFIELD ROAD
SALISBURY ROAD
DUNCAN ROAD
CEDAR TERRACE
Corporation Depot
Goods Depot
QUEEN'S ROAD
CROFTON TERRACE
DEE ROAD
TOWNSHEND TERRACE
WILTON AVENUE
ADELAIDE ROAD
SHEEN PARK
Holy Trinity Church (C of E)
The Vicarage
Church Almshouses
Hickey's Almshouses
GRENA GARDENS
KINGS ROAD
Clinic
Amb Sta
The White Rose (P H)
Playground
Peldon Court
Tennis Courts
King's House Junior School
SPRING GROVE ROAD
Treetops
The Cottage
HUGHAN'S ROAD
HYDE ROAD
BEATRICE ROAD
LORNE ROAD
ALBERT ROAD
YORK ROAD
CONNAUGHT ROAD
PRESTON PLACE
QUEENS ROAD
Telephone Exchange
Spring Terrace
Highlands Court
Works
Ruin
Ward Bdy
Gdns
Garage
Ramp (P H)
Glasshouse
Ruins
Weir Rd
Ward Bdy
Ward Bdy
Ward Bdy



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FAIRHURST

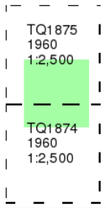
Additional SIMs

Published 1960

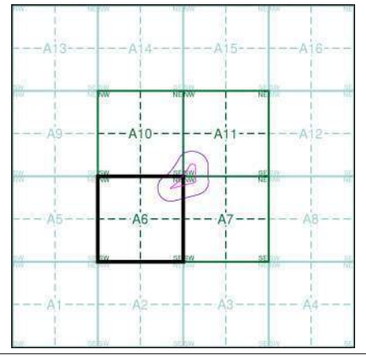
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



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FAIRHURST

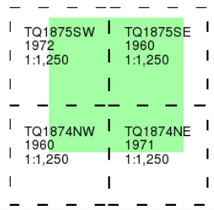
Additional SIMs

Published 1960 - 1972

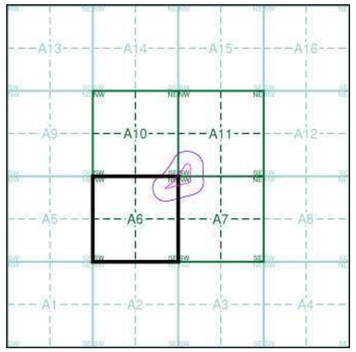
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



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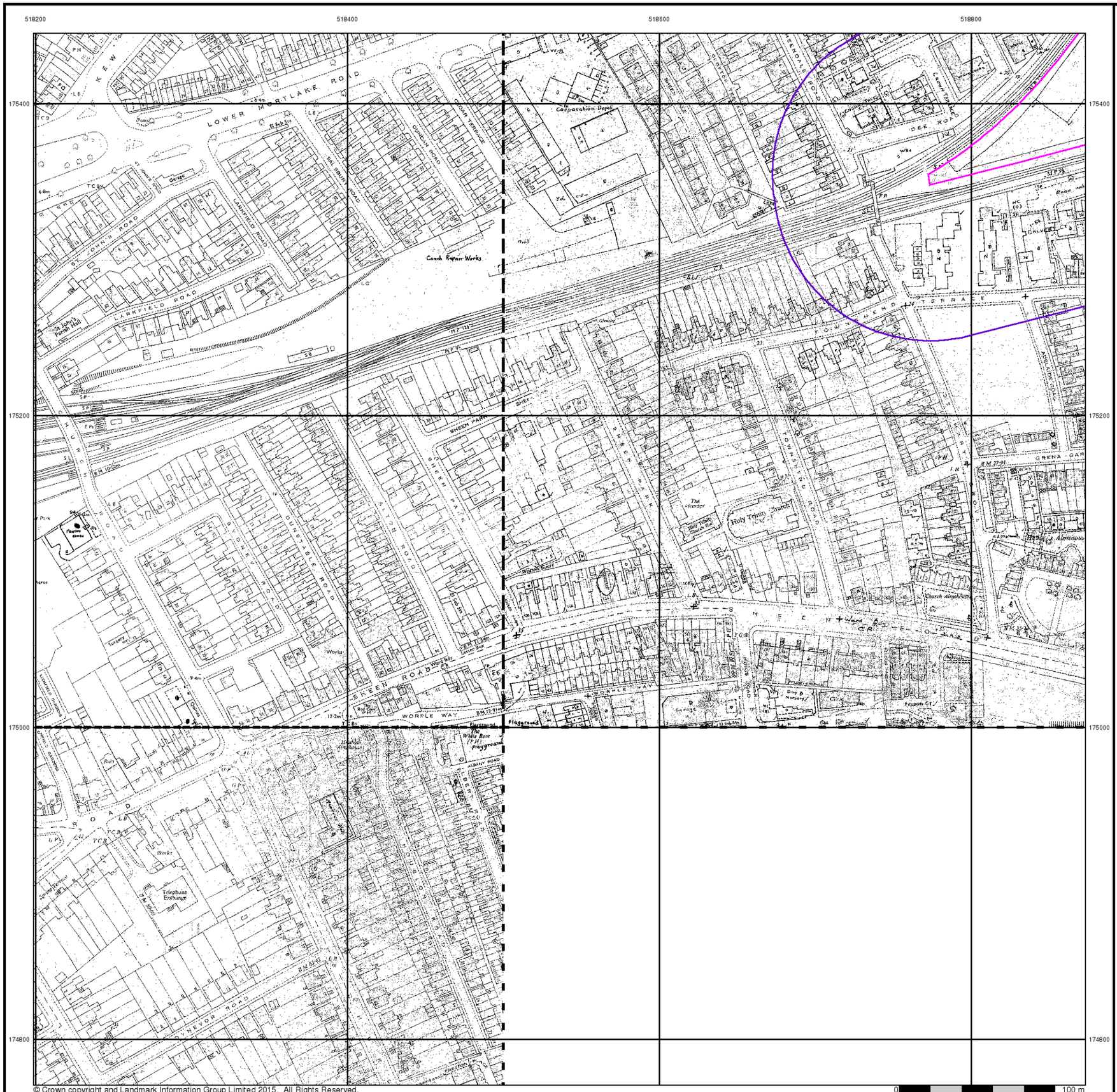

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FAIRHURST

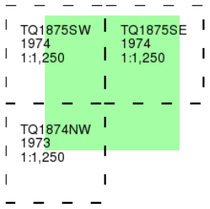
Supply of Unpublished Survey Information

Published 1973 - 1974

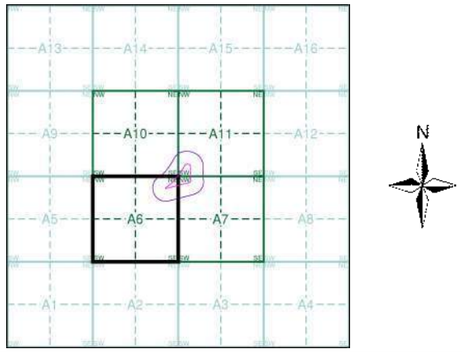
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



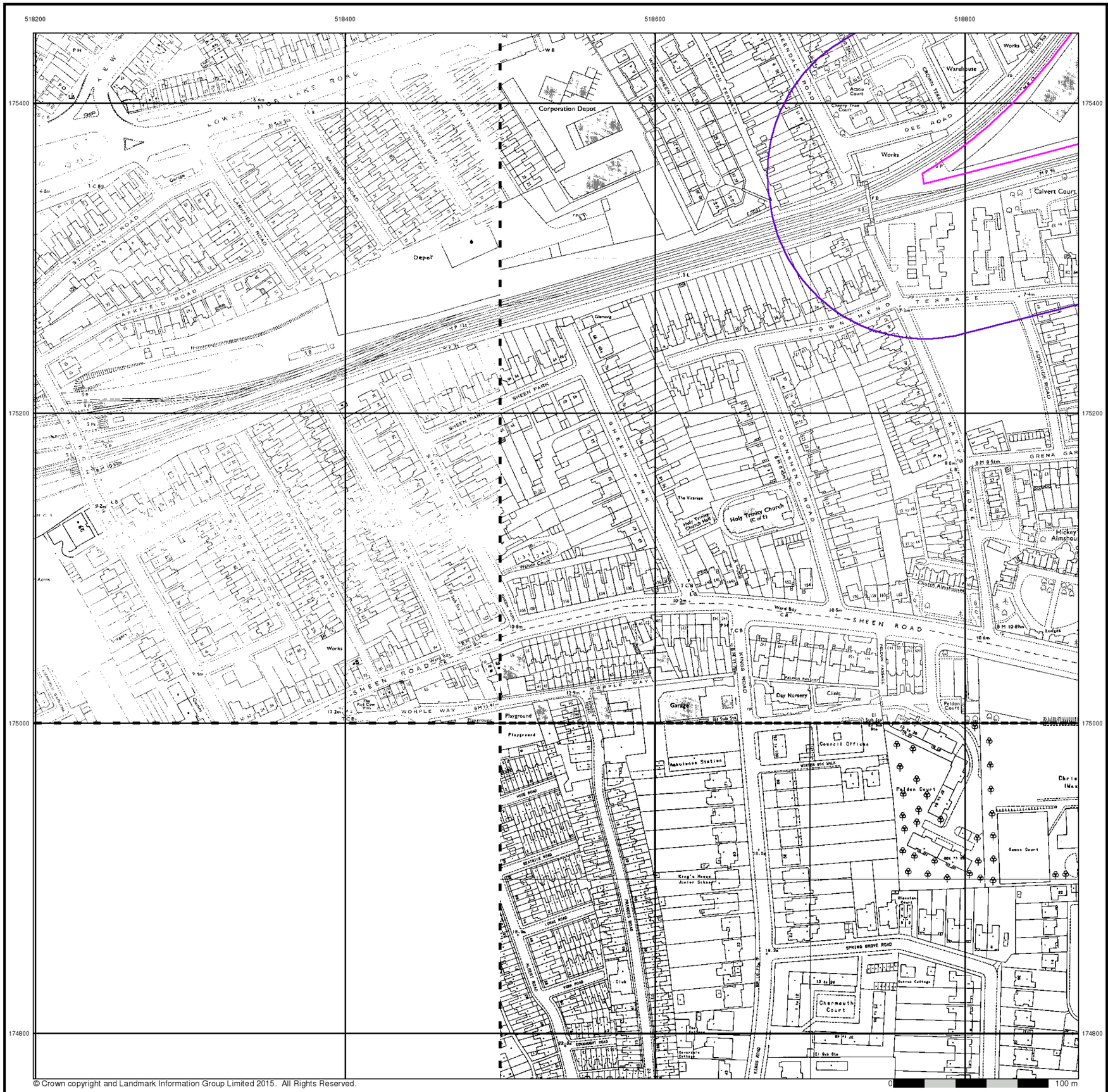
Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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FAIRHURST

Ordnance Survey Plan

Published 1974 - 1991

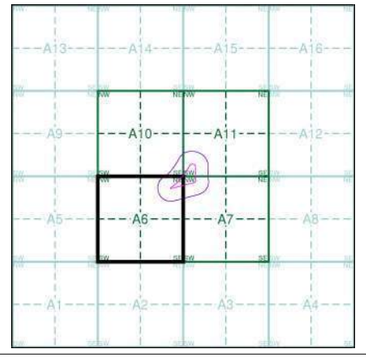
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TQ1875SW 1983 1:1,250
TQ1875SE 1974 1:1,250
TQ1874NE 1991 1:1,250

Historical Map - Segment A6



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FAIRHURST

Additional SIMs

Published 1974 - 1991

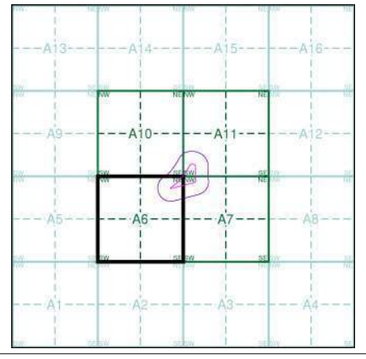
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1875SW 1983 1:1,250	TQ1875SE 1974 1:1,250
TQ1874NW 1982 1:1,250	TQ1874NE 1991 1:1,250

Historical Map - Segment A6



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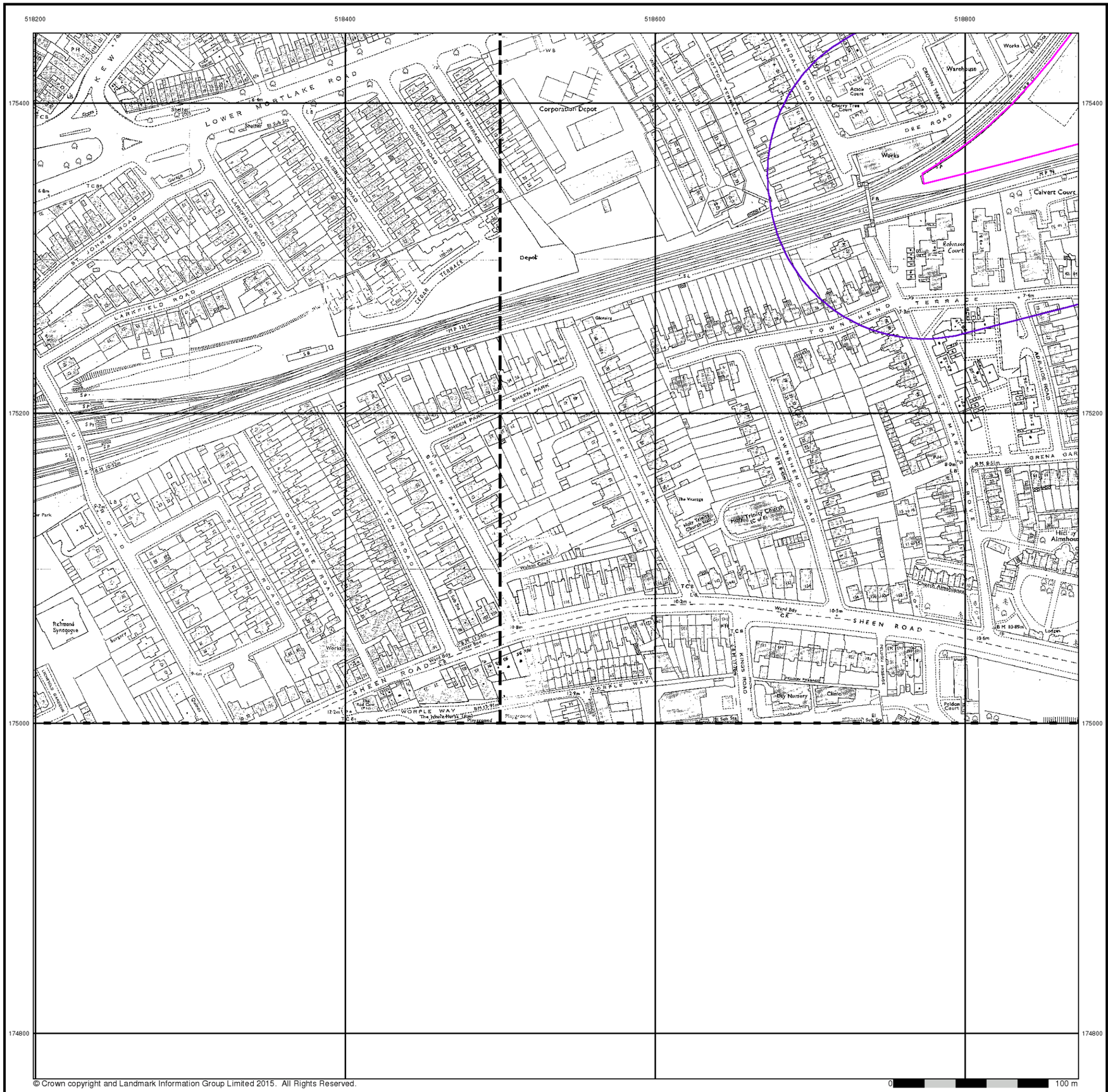

FAIRHURST

Additional SIMs

Published 1983 - 1989

Source map scale - 1:1,250

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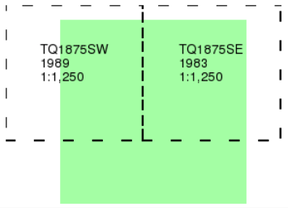
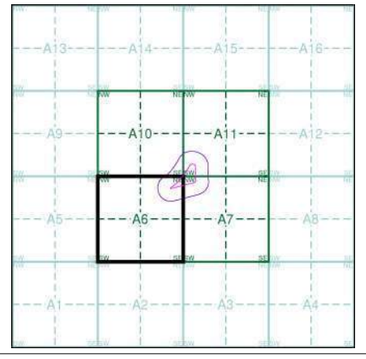
Map Name(s) and Date(s)



Historical Map - Segment A6



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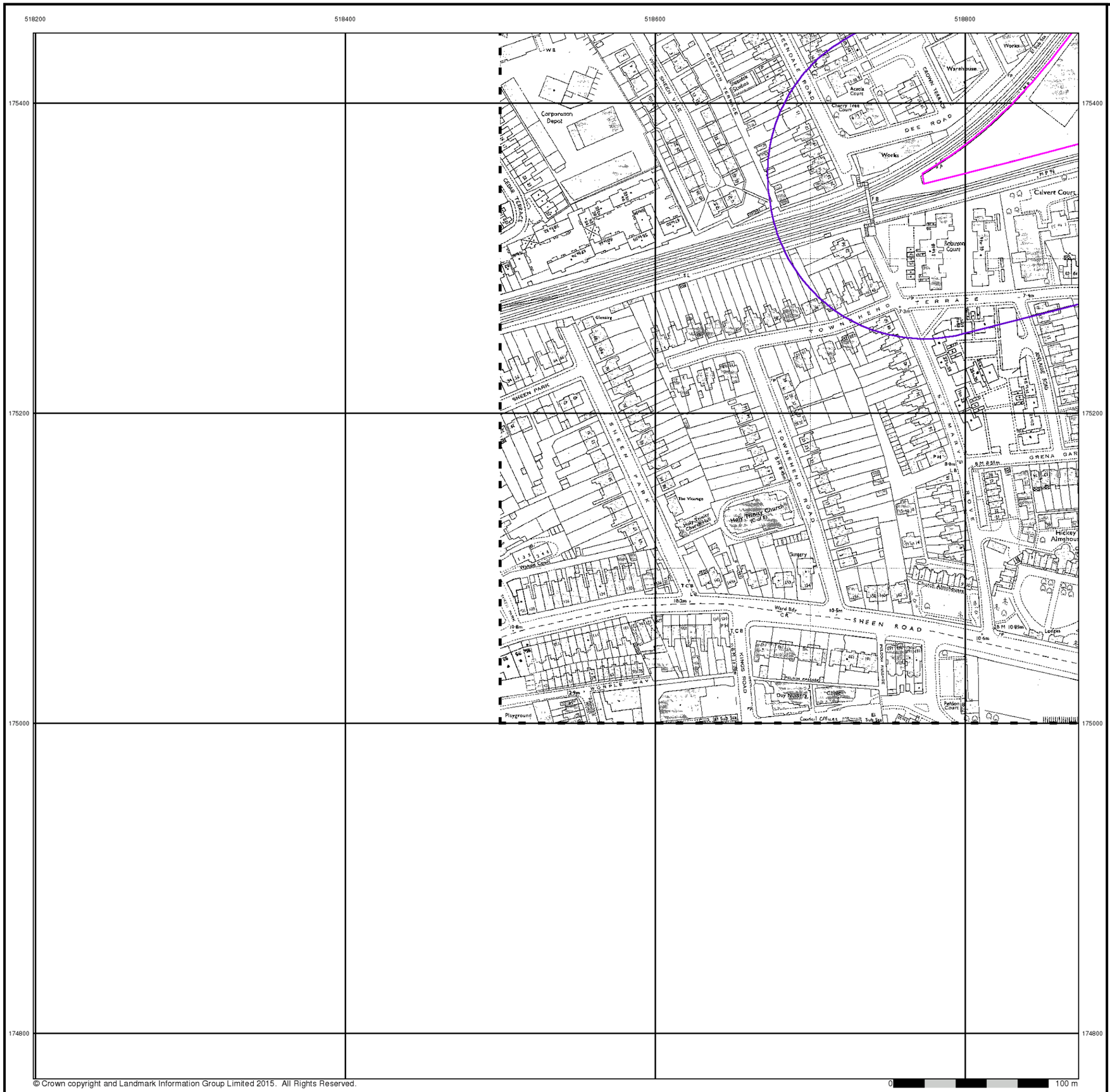

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FAIRHURST

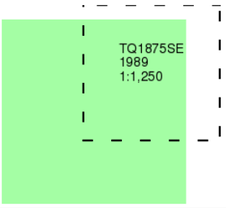
Additional SIMs

Published 1989

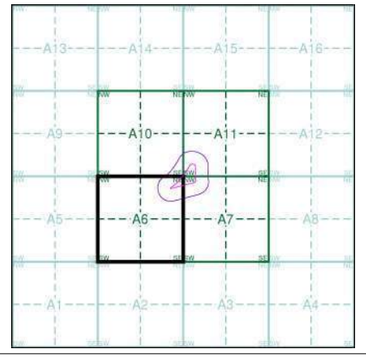
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



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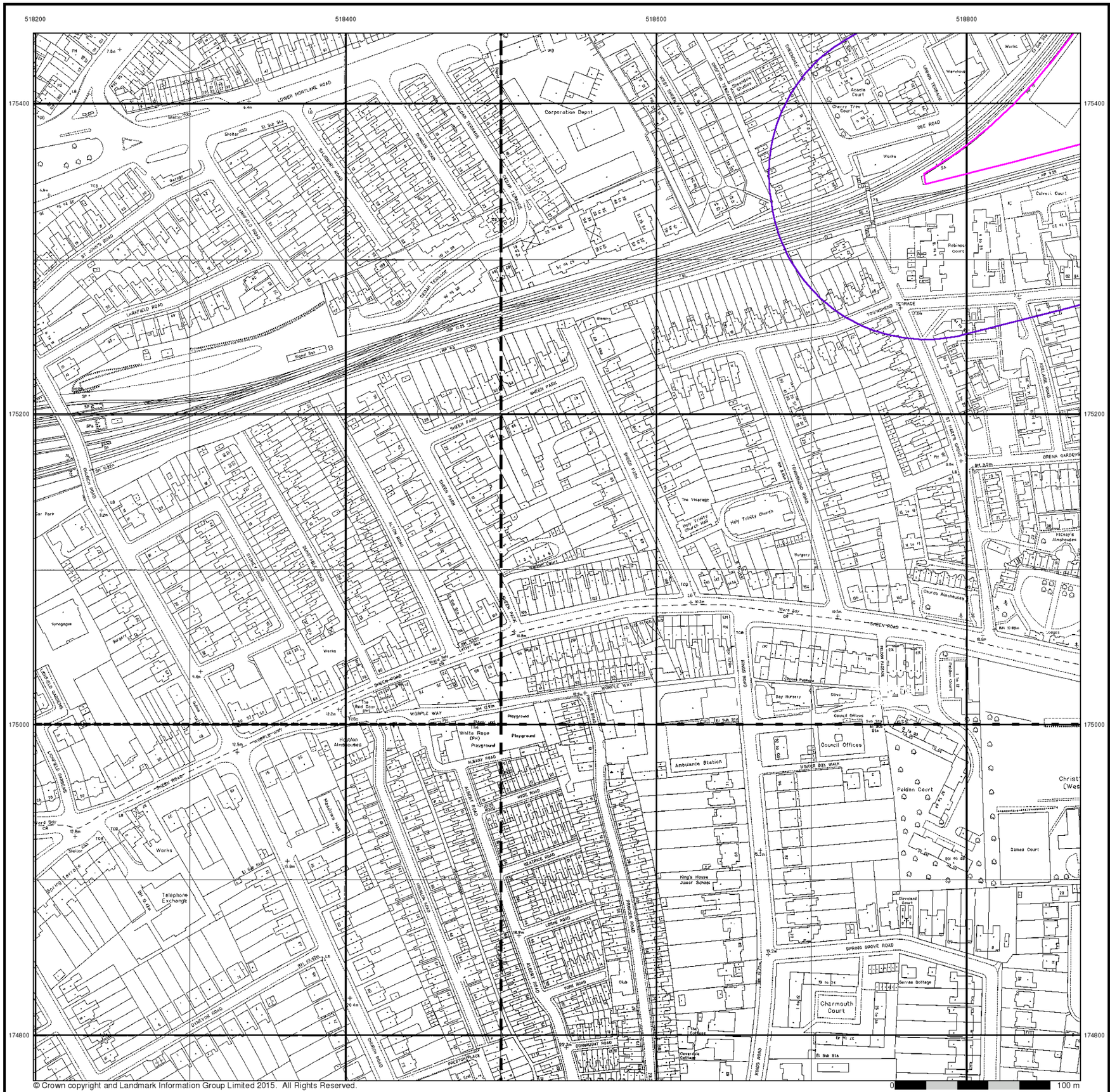

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FAIRHURST

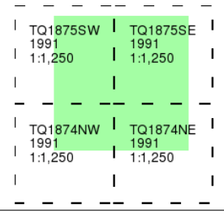
Large-Scale National Grid Data

Published 1991

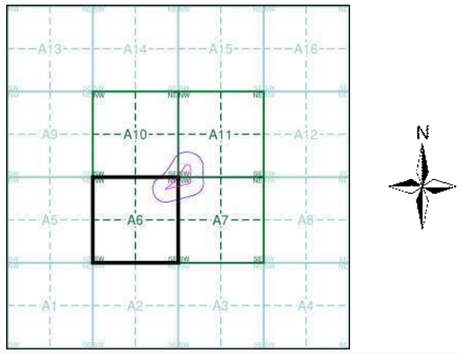
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



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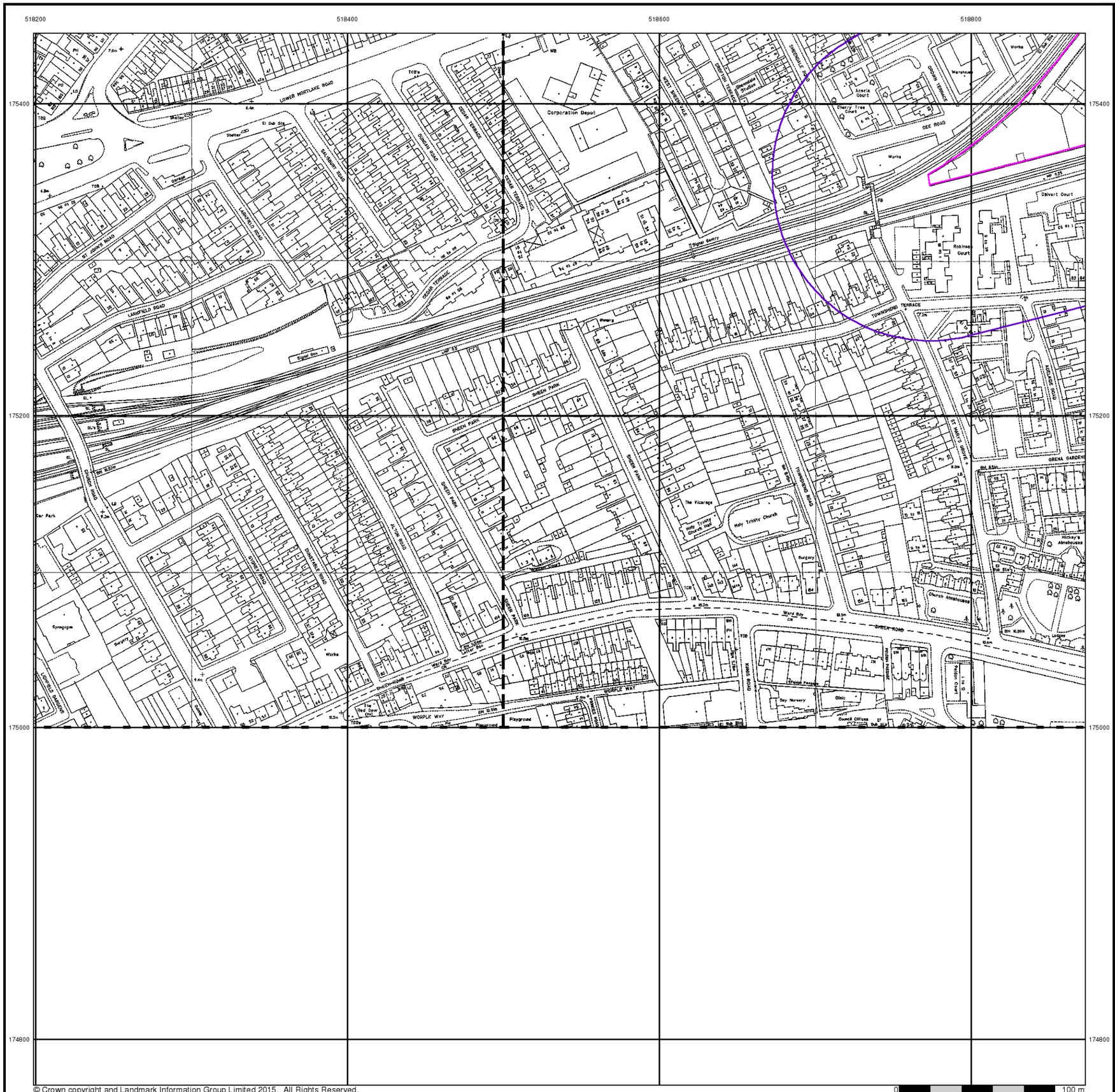


FAIRHURST

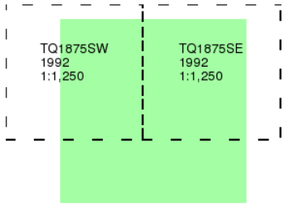
Large-Scale National Grid Data

Published 1992

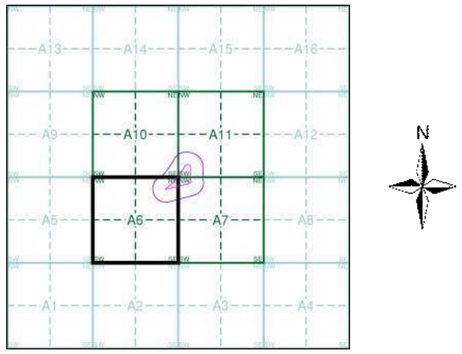
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



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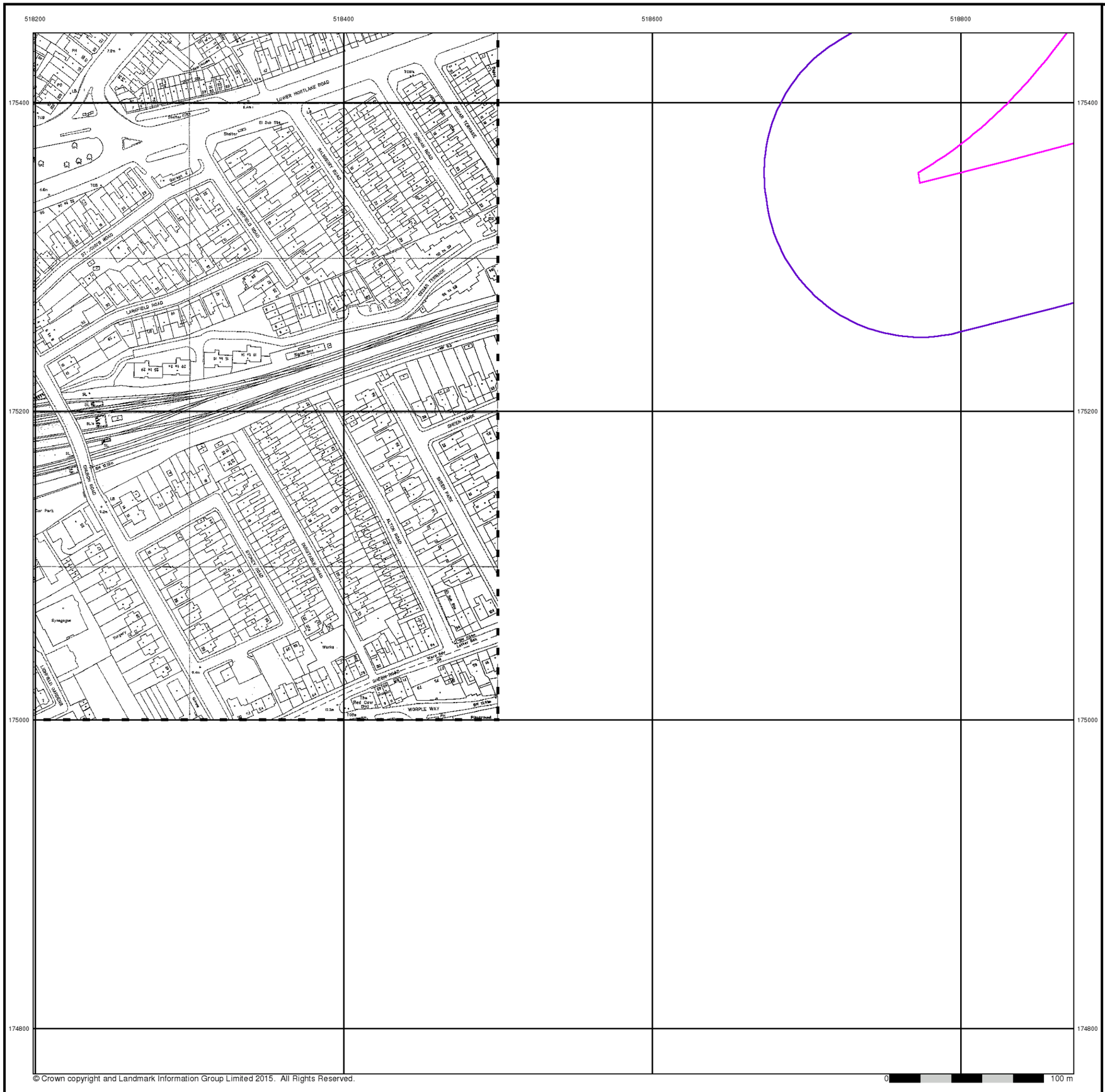

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FAIRHURST

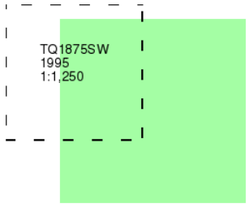
Large-Scale National Grid Data

Published 1995

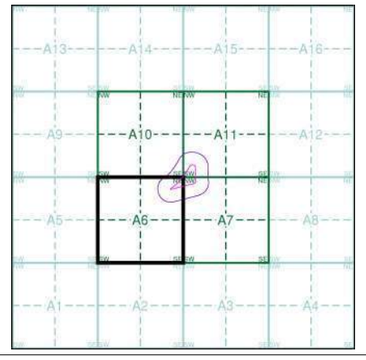
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



Order Details

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Slice:	A
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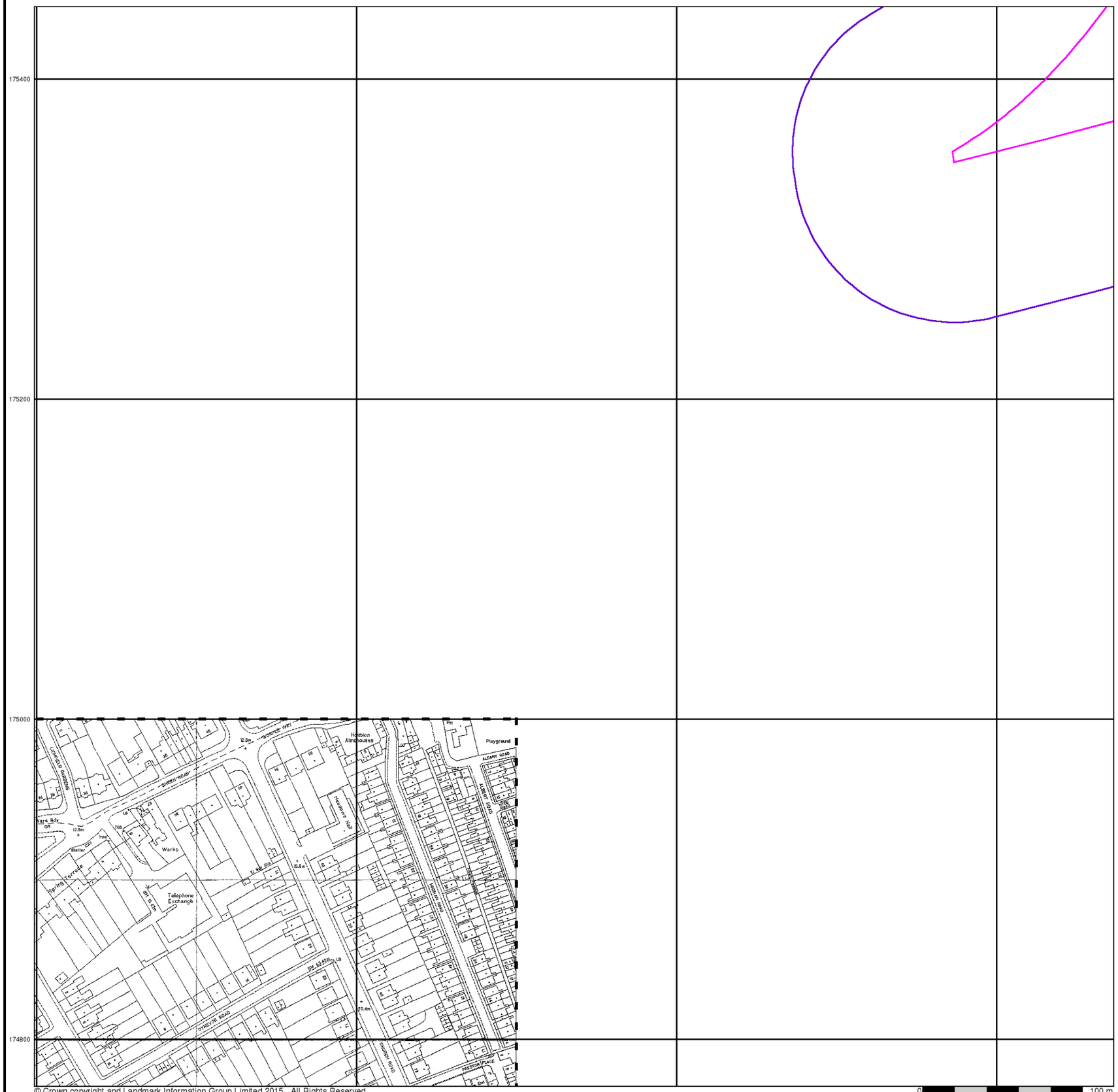

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FAIRHURST

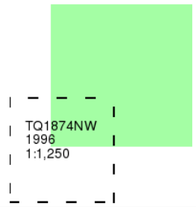
Large-Scale National Grid Data

Published 1996

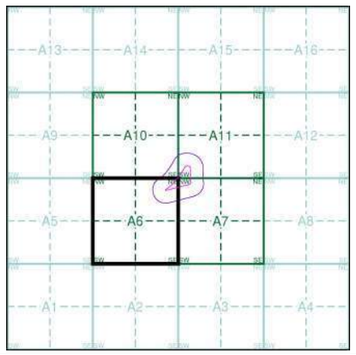
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A6



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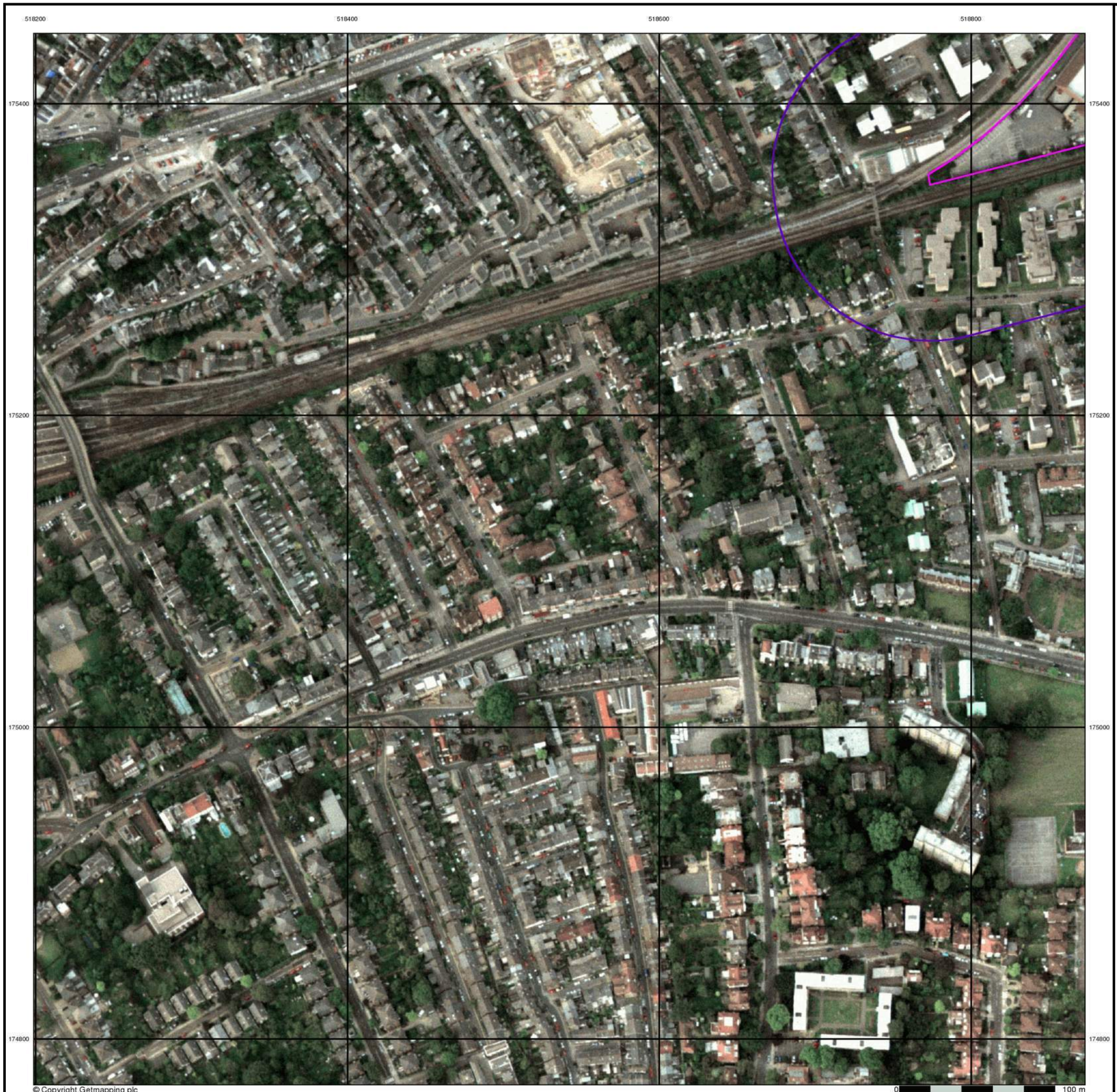


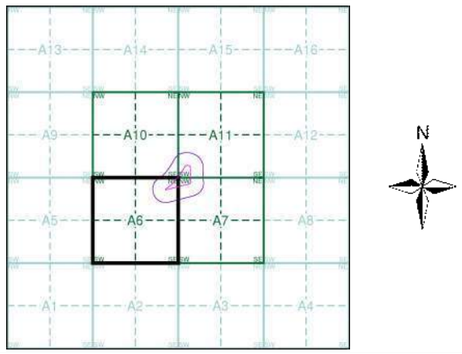
FAIRHURST

Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A6



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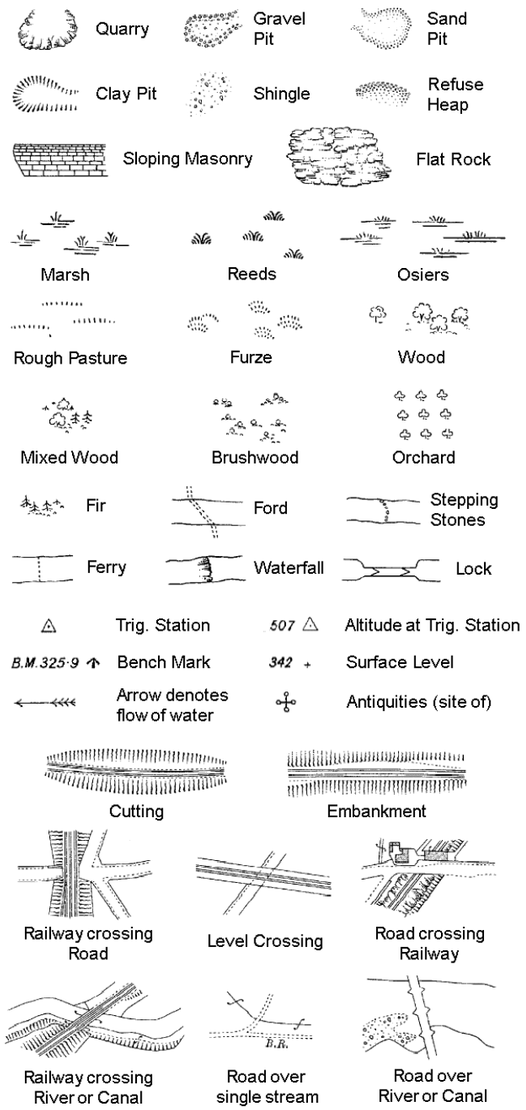
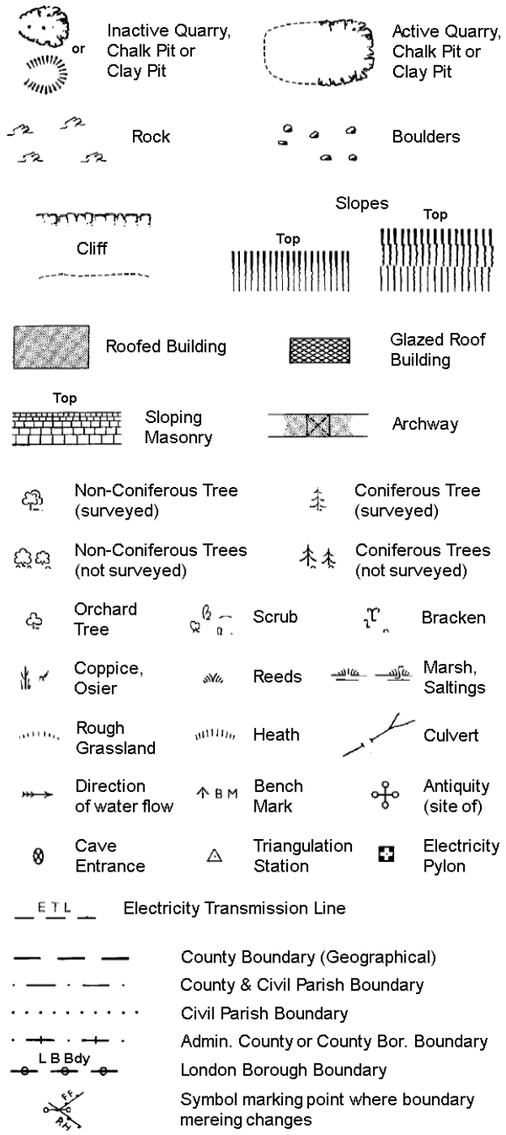
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



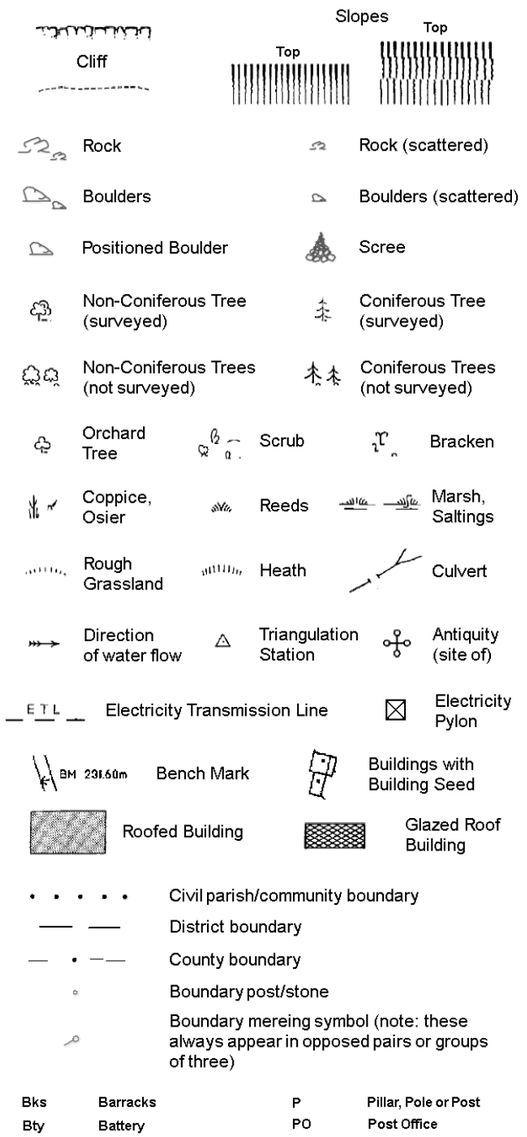
B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



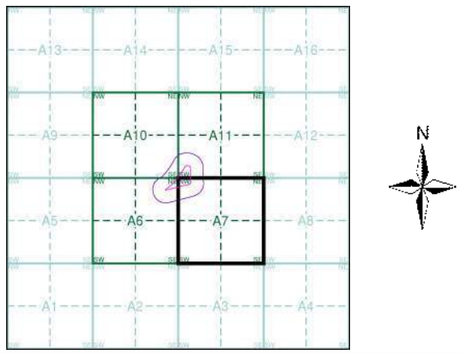
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Surrey	1:2,500	1869 - 1879	2
Middlesex	1:2,500	1871	3
London	1:2,500	1896	4
Surrey	1:2,500	1898	5
Surrey	1:2,500	1913	6
Middlesex	1:2,500	1915	7
Surrey	1:2,500	1935 - 1936	8
Middlesex	1:2,500	1935	9
Historical Aerial Photography	1:1,250	1947	10
Ordnance Survey Plan	1:1,250	1959 - 1960	11
Additional SIMs	1:1,250	1959 - 1980	12
Ordnance Survey Plan	1:2,500	1960	13
Additional SIMs	1:2,500	1960	14
Supply of Unpublished Survey Information	1:1,250	1973 - 1974	15
Additional SIMs	1:1,250	1973 - 1991	16
Ordnance Survey Plan	1:1,250	1974 - 1991	17
Additional SIMs	1:1,250	1983	18
Additional SIMs	1:1,250	1989	19
Large-Scale National Grid Data	1:1,250	1991	20
Large-Scale National Grid Data	1:1,250	1992	21
Historical Aerial Photography	1:2,500	1999	22

Historical Map - Segment A7



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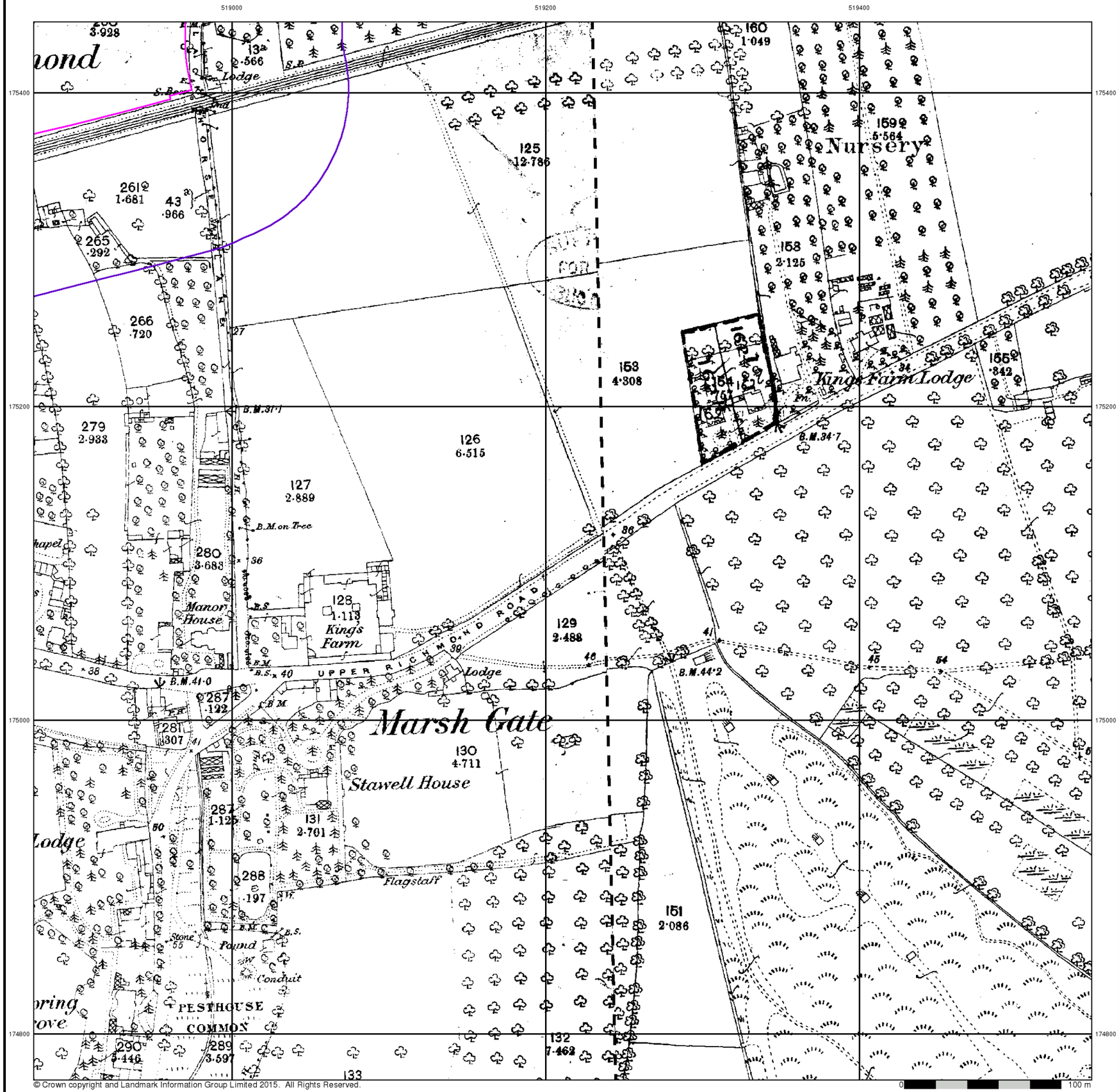


FAIRHURST

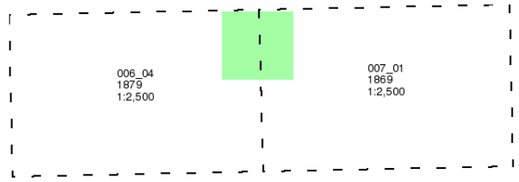
Surrey

Published 1869 - 1879

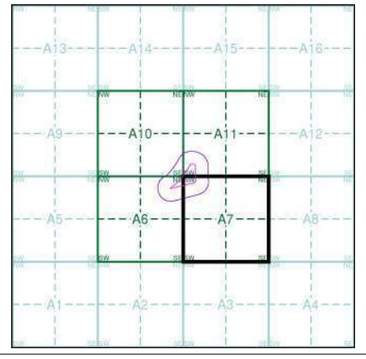
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

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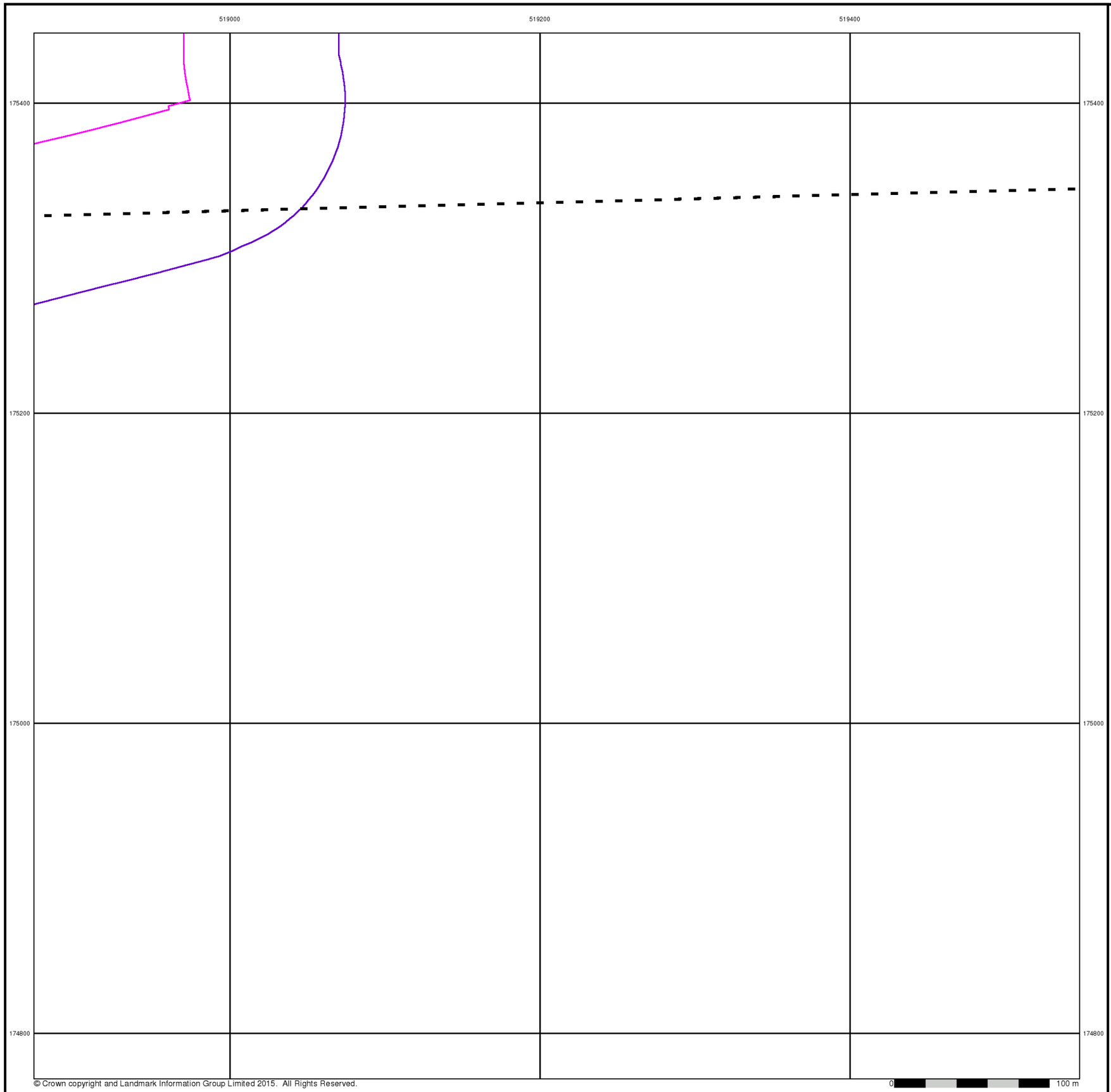

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0 100 m

FAIRHURST

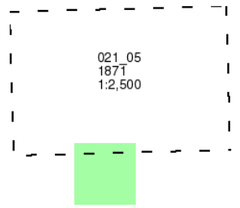
Middlesex

Published 1871

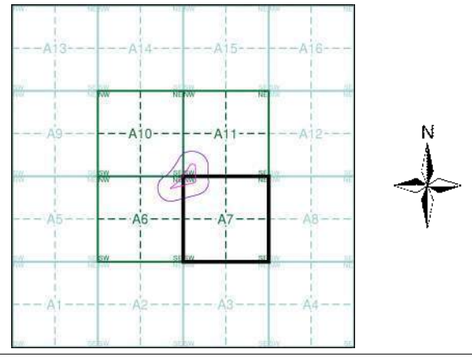
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A7



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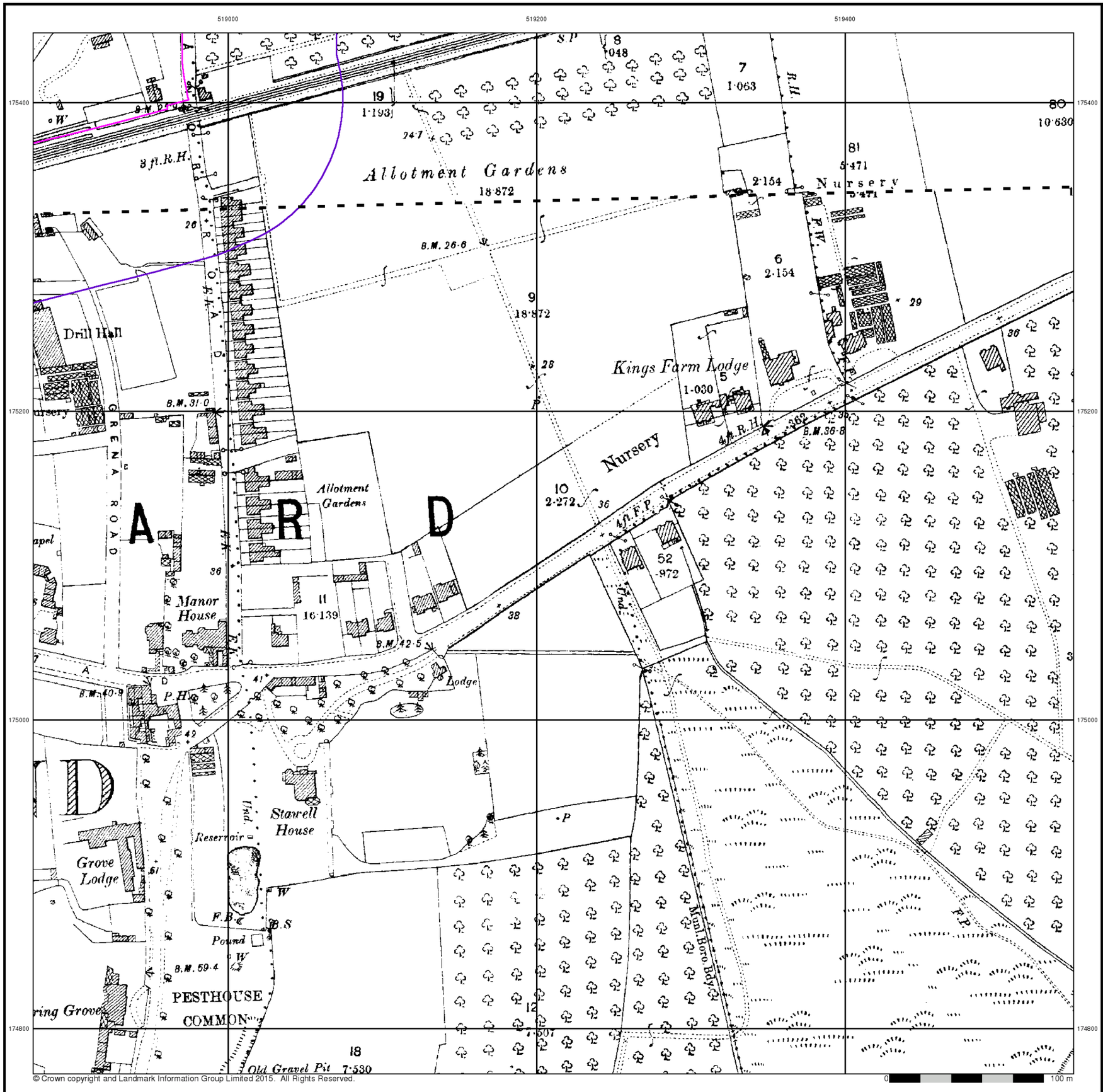

FAIRHURST

London

Published 1896

Source map scale - 1:2,500

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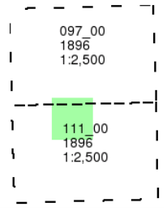
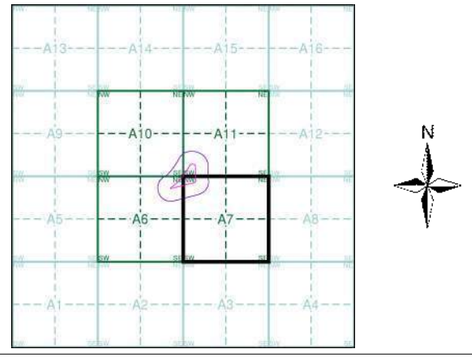
Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
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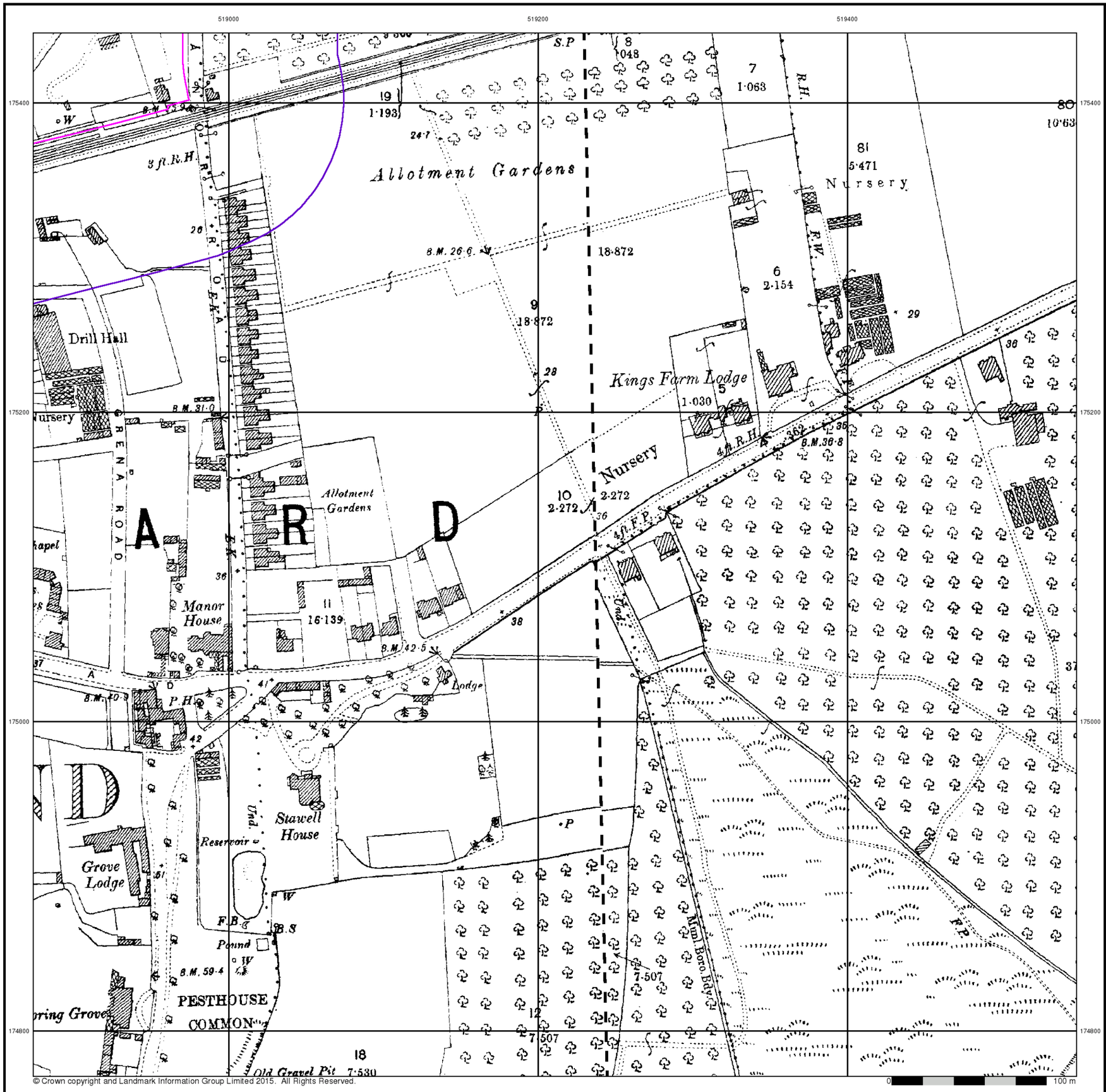

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FAIRHURST

Surrey

Published 1898

Source map scale - 1:2,500

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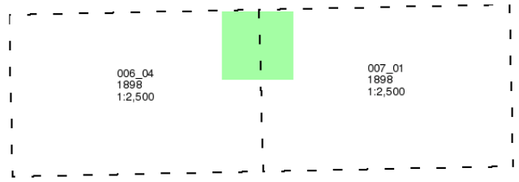
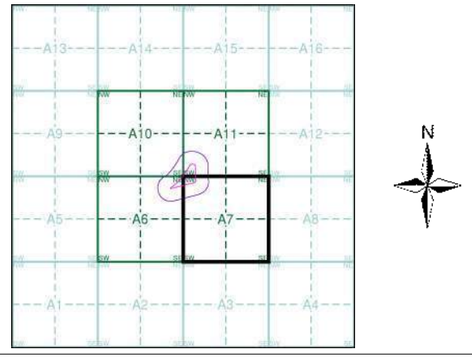
Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

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FAIRHURST

Surrey

Published 1913

Source map scale - 1:2,500

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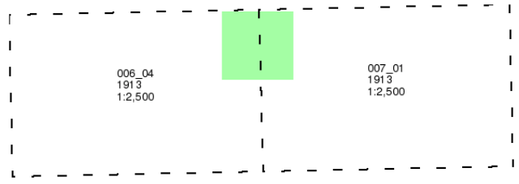
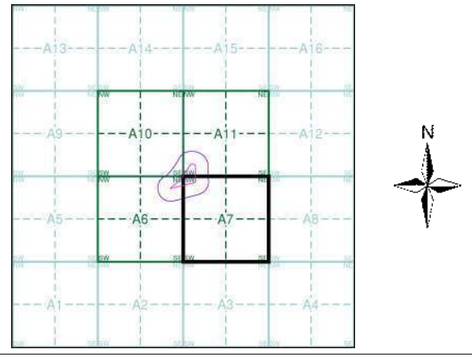
Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
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Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

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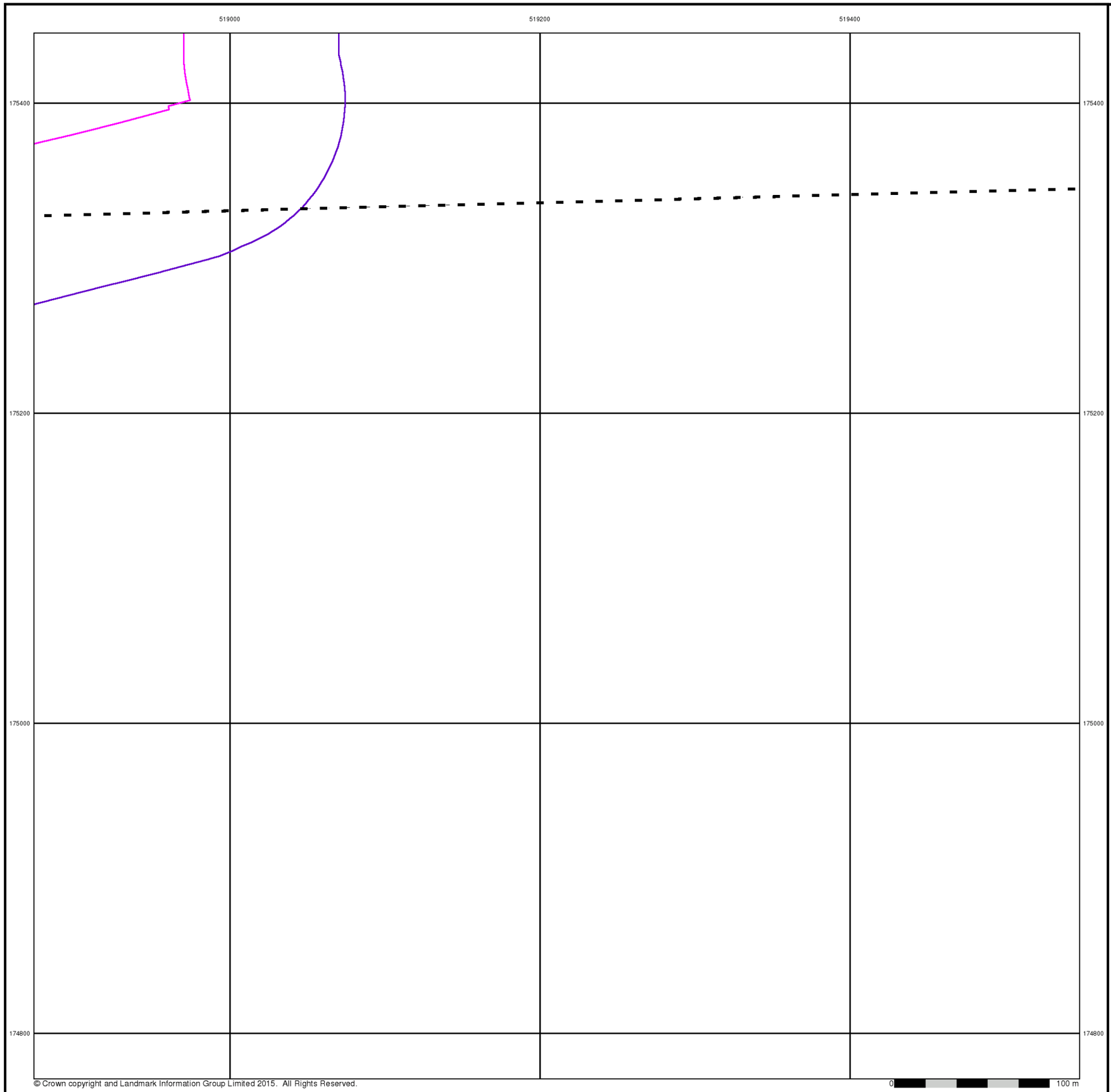

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0 100 m

FAIRHURST

Middlesex

Published 1915

Source map scale - 1:2,500

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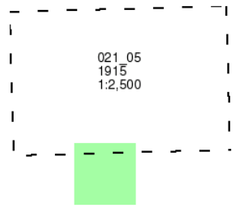
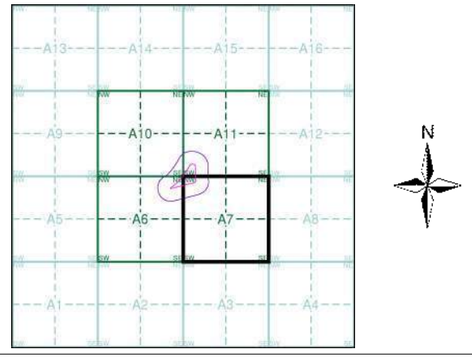
Map Name(s) and Date(s)



Historical Map - Segment A7



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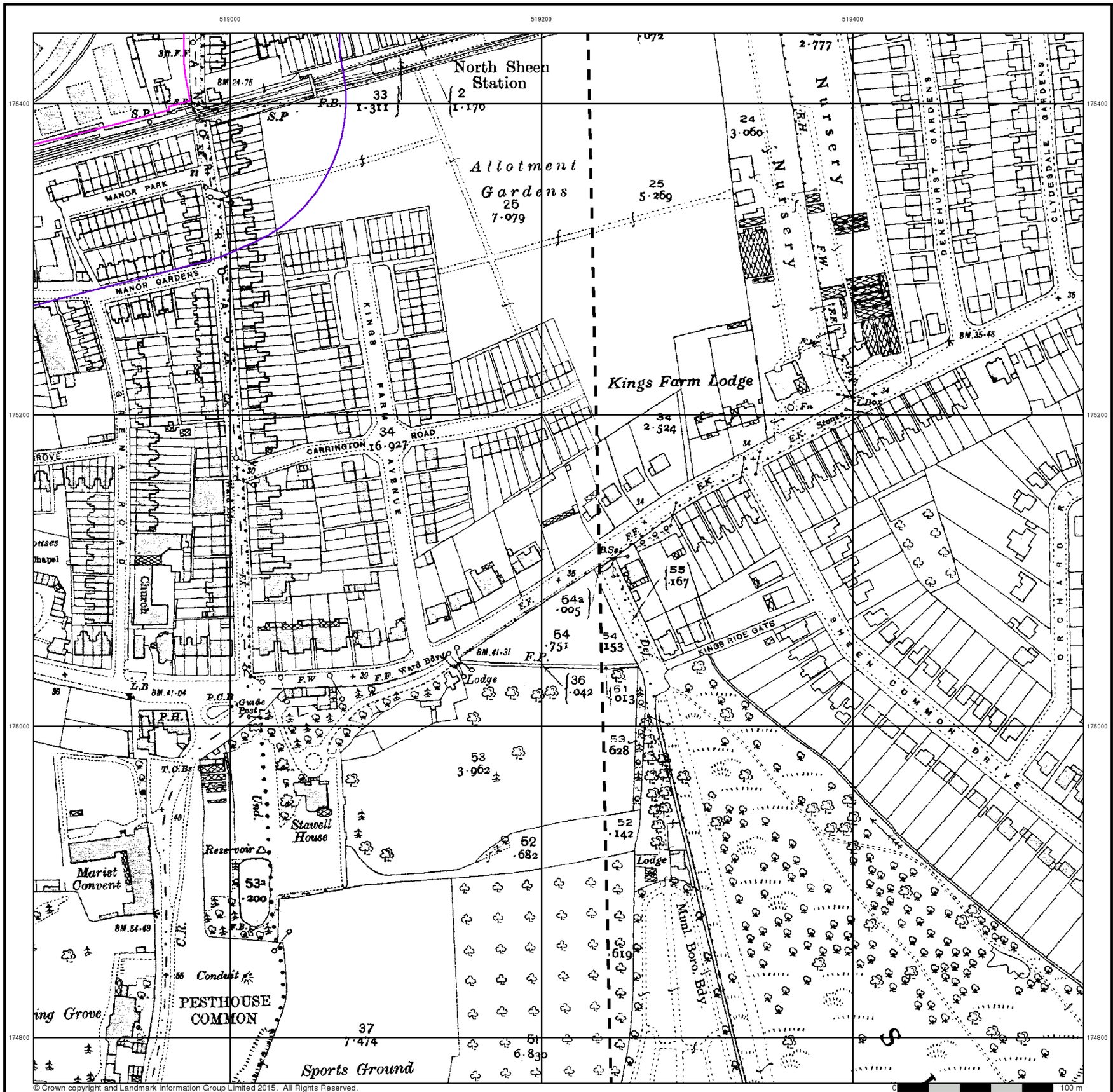


FAIRHURST

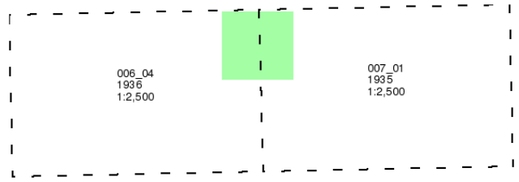
Surrey

Published 1935 - 1936

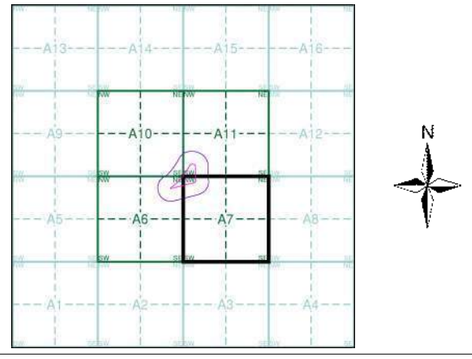
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

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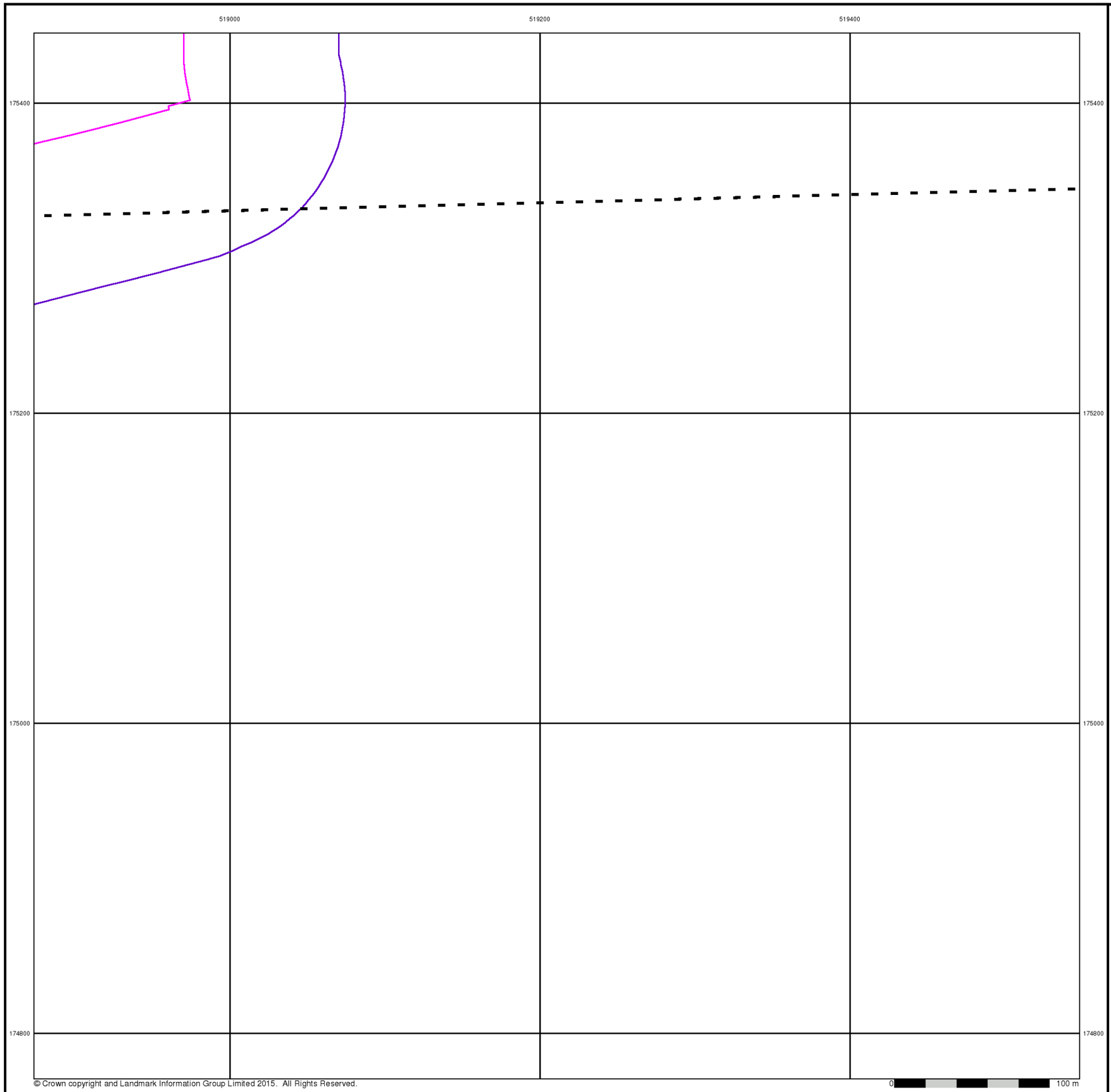

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0 100 m

FAIRHURST

Middlesex

Published 1935

Source map scale - 1:2,500

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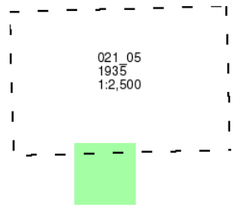
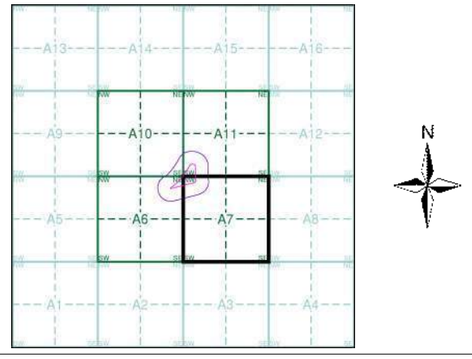
Map Name(s) and Date(s)



Historical Map - Segment A7



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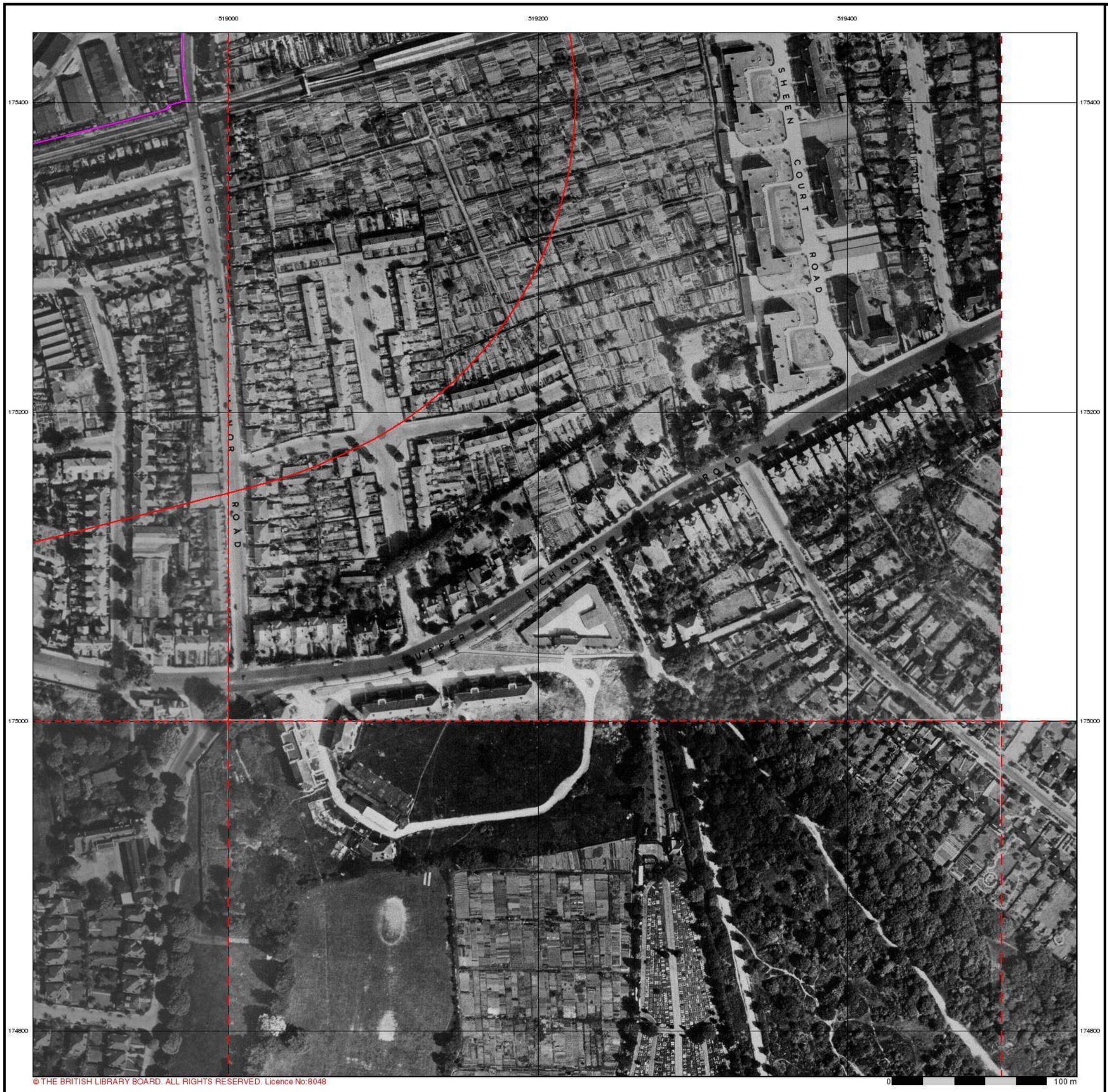

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FAIRHURST

Historical Aerial Photography

Published 1947

Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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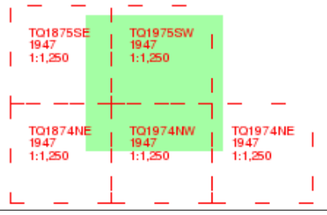
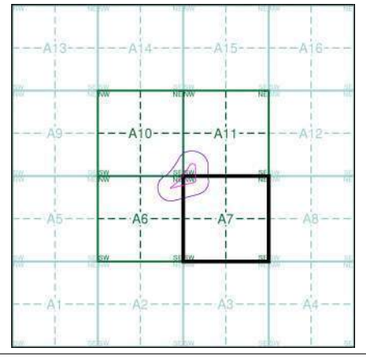
Map Name(s) and Date(s)



Historical Aerial Photography - Segment A7



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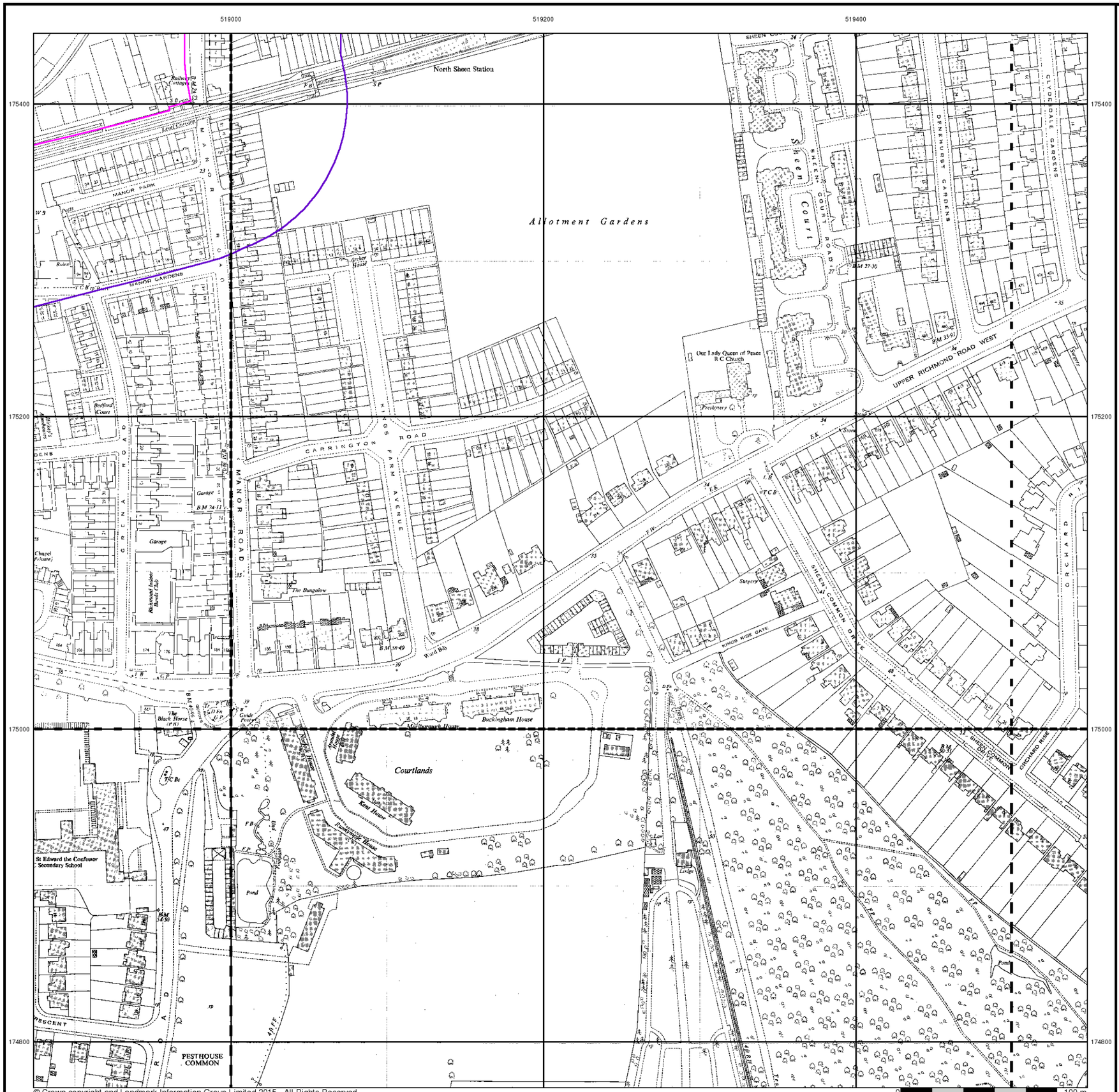

FAIRHURST

Ordnance Survey Plan

Published 1959 - 1960

Source map scale - 1:1,250

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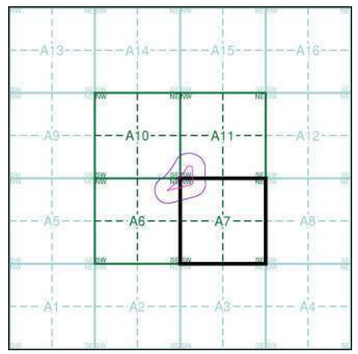
Map Name(s) and Date(s)

TQ1875SE 1960 1:1,250	TQ1975SW 1960 1:1,250	TQ1975SE 1960 1:1,250
TQ1874NE 1960 1:1,250	TQ1974NW 1959 1:1,250	TQ1974NE 1959 1:1,250

Historical Map - Segment A7



Order Details

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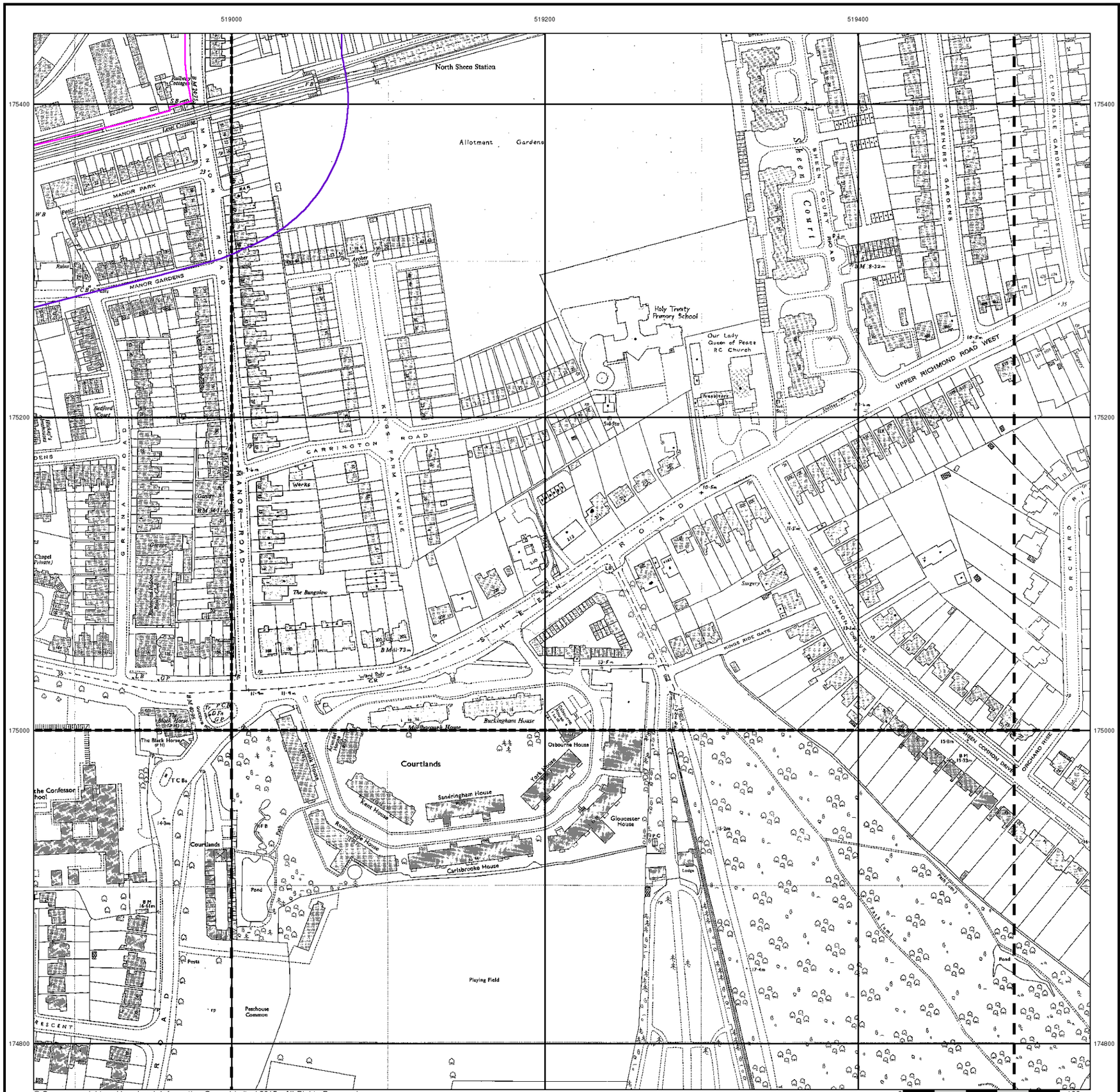


FAIRHURST

Additional SIMs

Published 1959 - 1980

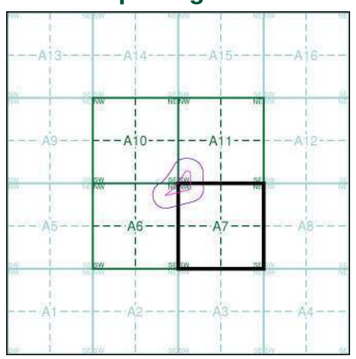
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1875SE 1960 1:1,250	TQ1975SW 1980 1:1,250	TQ1975SE 1960 1:1,250
TQ1874NE 1971 1:1,250	TQ1974NW 1974 1:1,250	TQ1974NE 1959 1:1,250

Historical Map - Segment A7



Order Details

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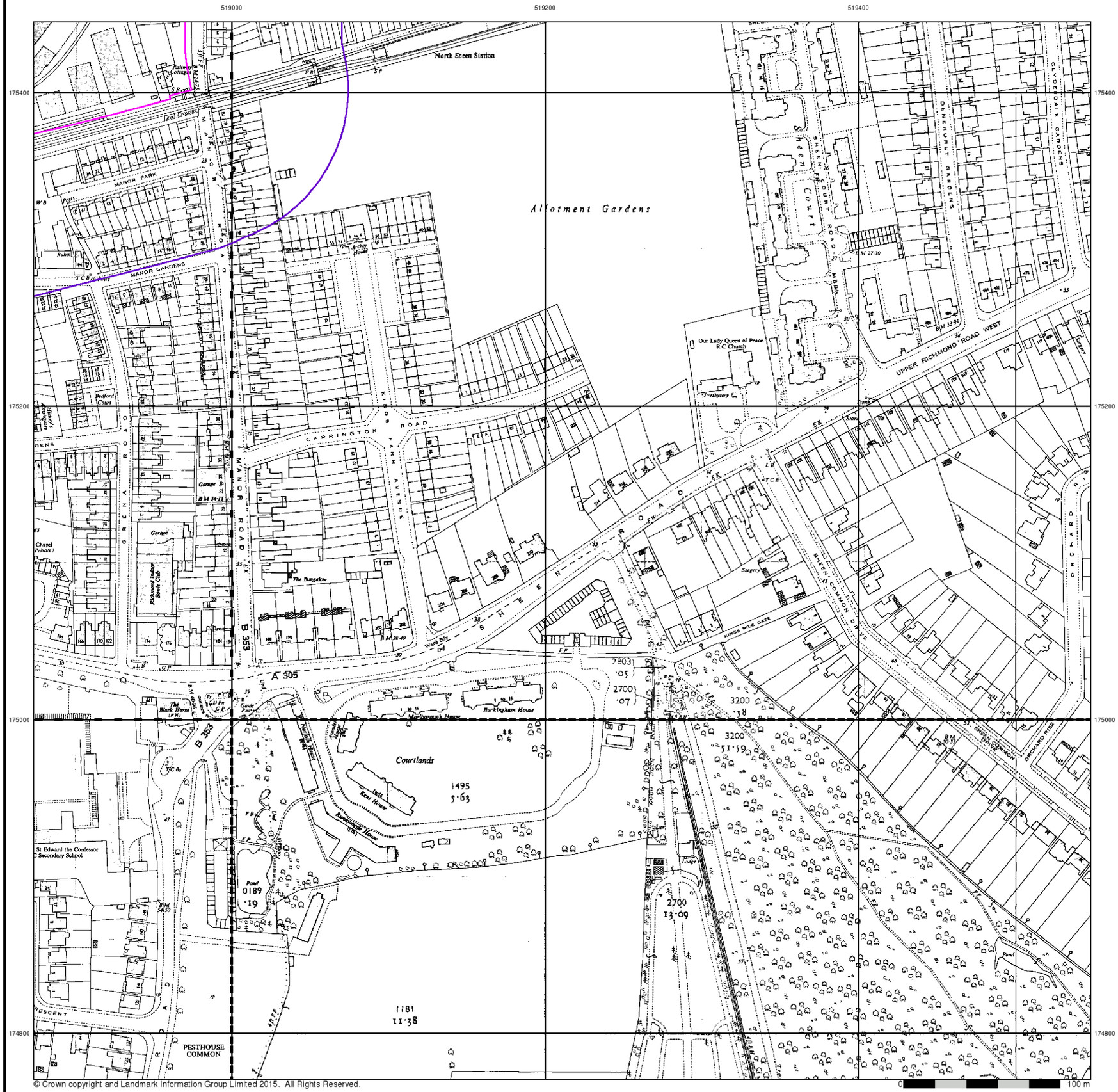
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519200
519400
175400
175200
175000
174800
North Sheen Station
Allotment Gardens
MANOR PARK
MANOR GARDENS
MANOR ROAD
CARRINGTON FARM AVENUE
KINGS ROAD
Our Lady Queen of Peace R C Church
Presbytery
UPPER RICHMOND ROAD WEST
SHEEN COURT ROAD
DENEHURST GARDENS
CLIVEDEN OAK GARDENS
SHEEN COMMON DRIVE
ORCHARD RISE
A 305
B 353
Courtlands
Marlborough House
Buckingham House
Ravenswood House
St Edward the Confessor R C Secondary School
PESTHOUSE COMMON
Pond
Garage
Chapel (Private)
The Bungalow
The Black Horse (P.H.)
Sunken Garden
Tennis Courts
Bowling Green
Archery Ground
Sluice
Sub Sta
Ladies
Gents
Refuge
Ruins
Footpath
Path
Steps
Hedge
Wall
Fence
Gate
Trees
Shrubs
Rough
Grass
Sand
Gravel
Asphalt
Concrete
Brick
Stone
Iron
Wood
Glass
Slate
Tile
Thatch
Lead
Copper
Zinc
Steel
Aluminium
Plastic
Rubber
Paper
Cardboard
Fabric
Leather
Ceramic
Porcelain
Enamel
Paint
Varnish
Oil
Water
Air
Earth
Fire
Metal
Mineral
Vegetable
Animal
Human
Machine
Vehicle
Aircraft
Boat
Train
Bicycle
Motorcycle
Car
Bus
Lorry
Van
Taxi
Ambulance
Fire Engine
Police Car
Tractor
Crane
Digger
Roller
Mixer
Pump
Generator
Compressor
Drill
Saw
Hammer
Screwdriver
Spanner
Wrench
Pliers
Chisel
Knife
Scissors
Needle
Thread
Button
Zip
Buckle
Belt
Shoe
Boot
Sock
Glove
Hat
Helmet
Cap
Scarf
Tie
Shirt
Trousers
Skirt
Dress
Coat
Jacket
Suit
Uniform
Badge
Flag
Banner
Sign
Notice
Poster
Leaflet
Book
Magazine
Newspaper
Letter
Envelope
Stamp
Postcard
Photograph
Painting
Drawing
Sculpture
Statue
Monument
Memorial
Plaque
Clock
Watch
Calendar
Diary
Pen
Pencil
Eraser
Ruler
Protractor
Compass
Calculator
Computer
Keyboard
Mouse
Monitor
Printer
Scanner
Camera
Film
Video
Television
Radio
Telephone
Mobile Phone
Satellite
Antenna
Mast
Tower
Chimney
Flue
Vent
Duct
Pipe
Valve
Tap
Meter
Switch
Socket
Plug
Cable
Wire
Battery
Light
Lamp
Bulb
Fuse
Circuit
Board
Chip
Memory
Hard Disk
Floppy Disk
CD
DVD
USB
Network
Internet
Email
Website
Blog
Forum
Chat
Game
Toy
Doll
Teddy Bear
Ball
Bat
Racket
Net
Goal
Post
Pitch
Court
Track
Field
Stadium
Arena
Gym
Pool
Diving Board
Changing Room
Shower
Toilet
Urinal
Basin
Mirror
Towel
Soap
Shampoo
Toothbrush
Toothpaste
Razor
Comb
Brush
Hairdryer
Perfume
Deodorant
Cosmetic
Jewellery
Ring
Necklace
Bracelet
Earring
Watch
Clock
Key
Lock
Door
Window
Wall
Floor
Ceiling
Roof
Chimney
Fireplace
Heater
Radiator
Boiler
Thermostat
Light
Switch
Socket
Plug
Cable
Wire
Battery
Generator
Solar Panel
Wind Turbine
Water Wheel
Dam
Reservoir
Well
Pump
Tank
Pipe
Valve
Tap
Meter
Sink
Bath

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FAIRHURST

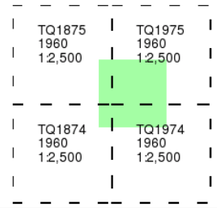
Additional SIMs

Published 1960

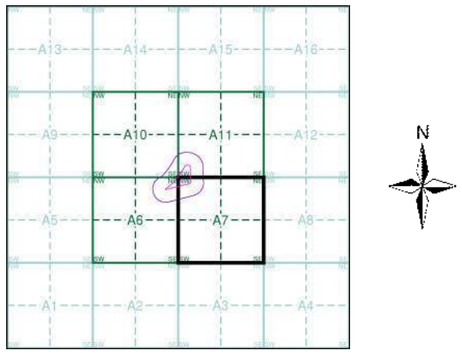
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

FAIRHURST

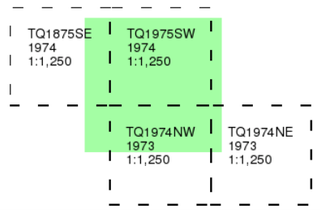
Supply of Unpublished Survey Information

Published 1973 - 1974

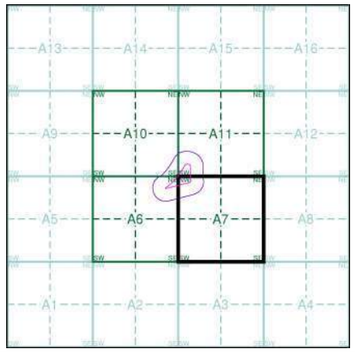
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A7



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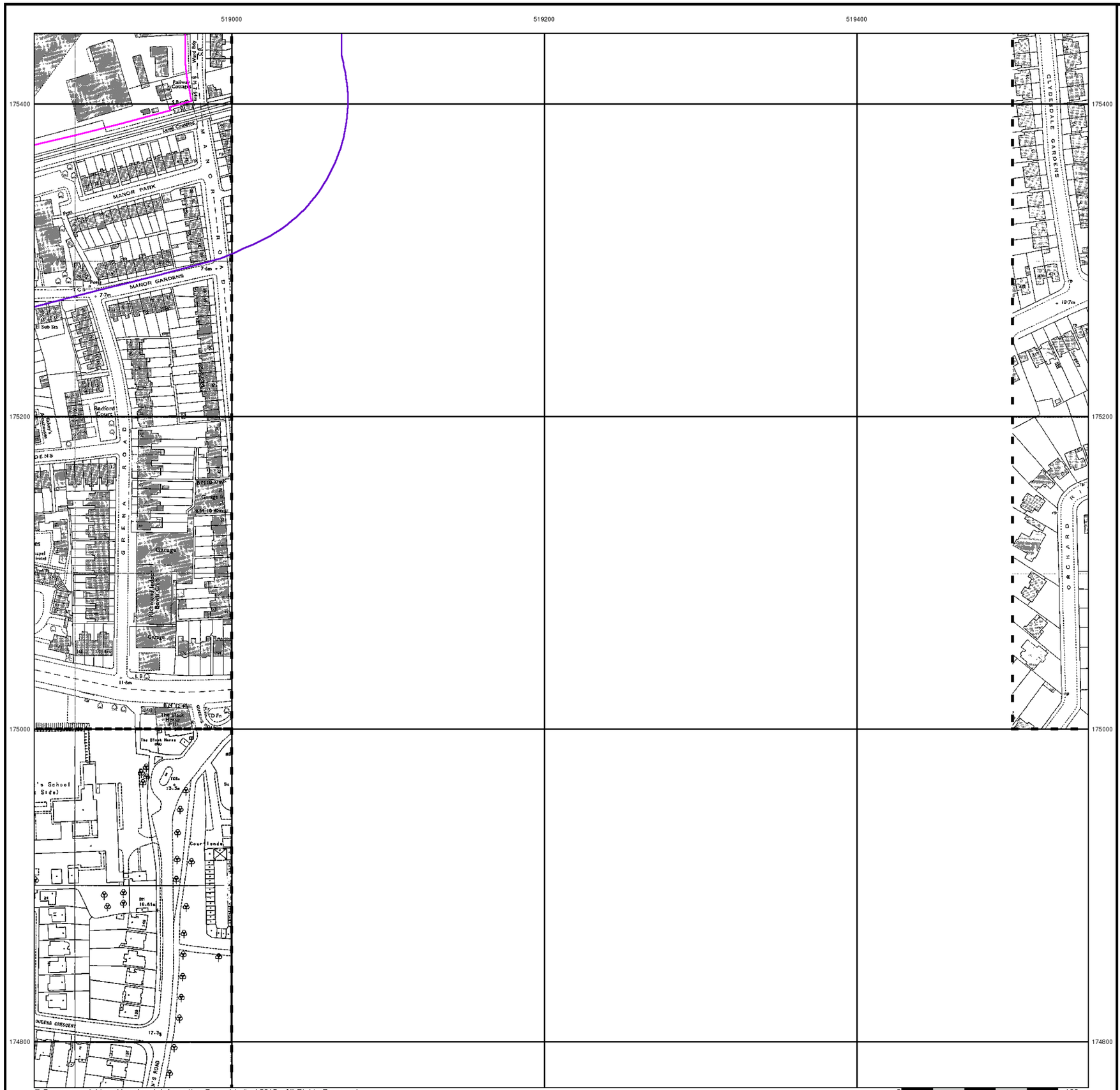

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0 100 m

FAIRHURST

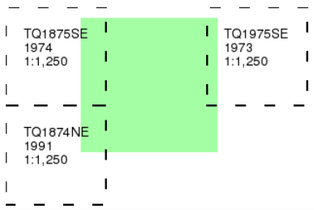
Additional SIMs

Published 1973 - 1991

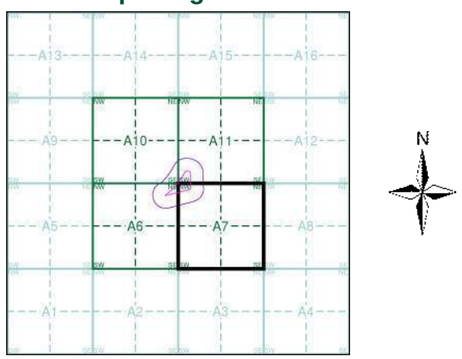
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

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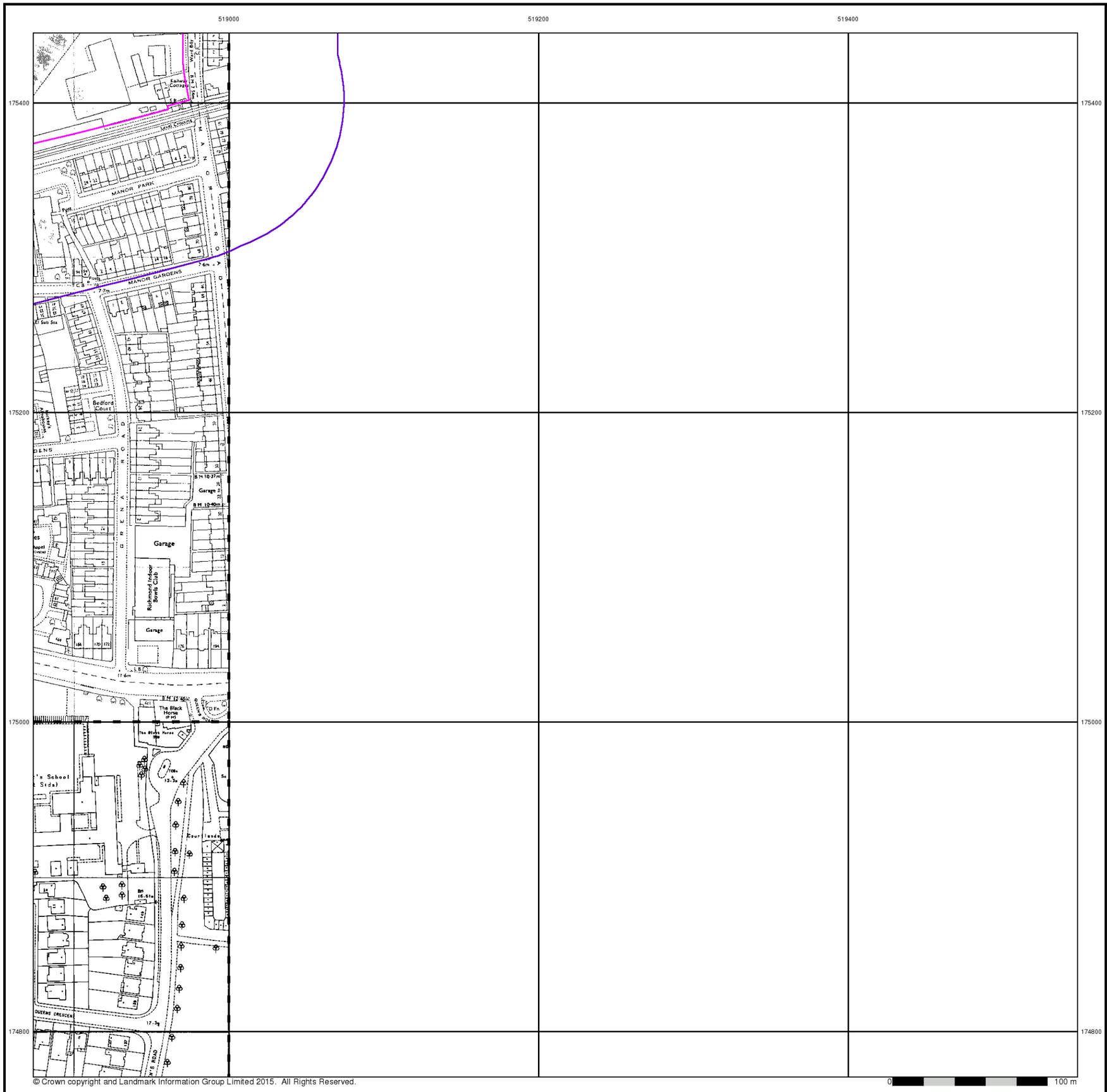

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FAIRHURST

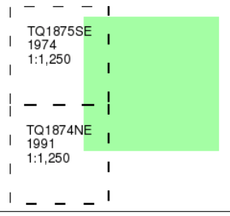
Ordnance Survey Plan

Published 1974 - 1991

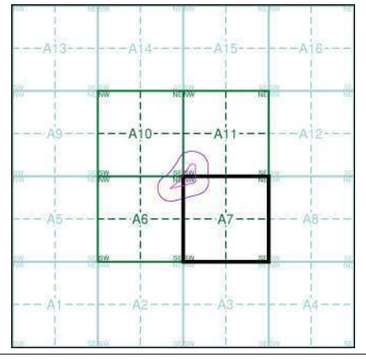
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
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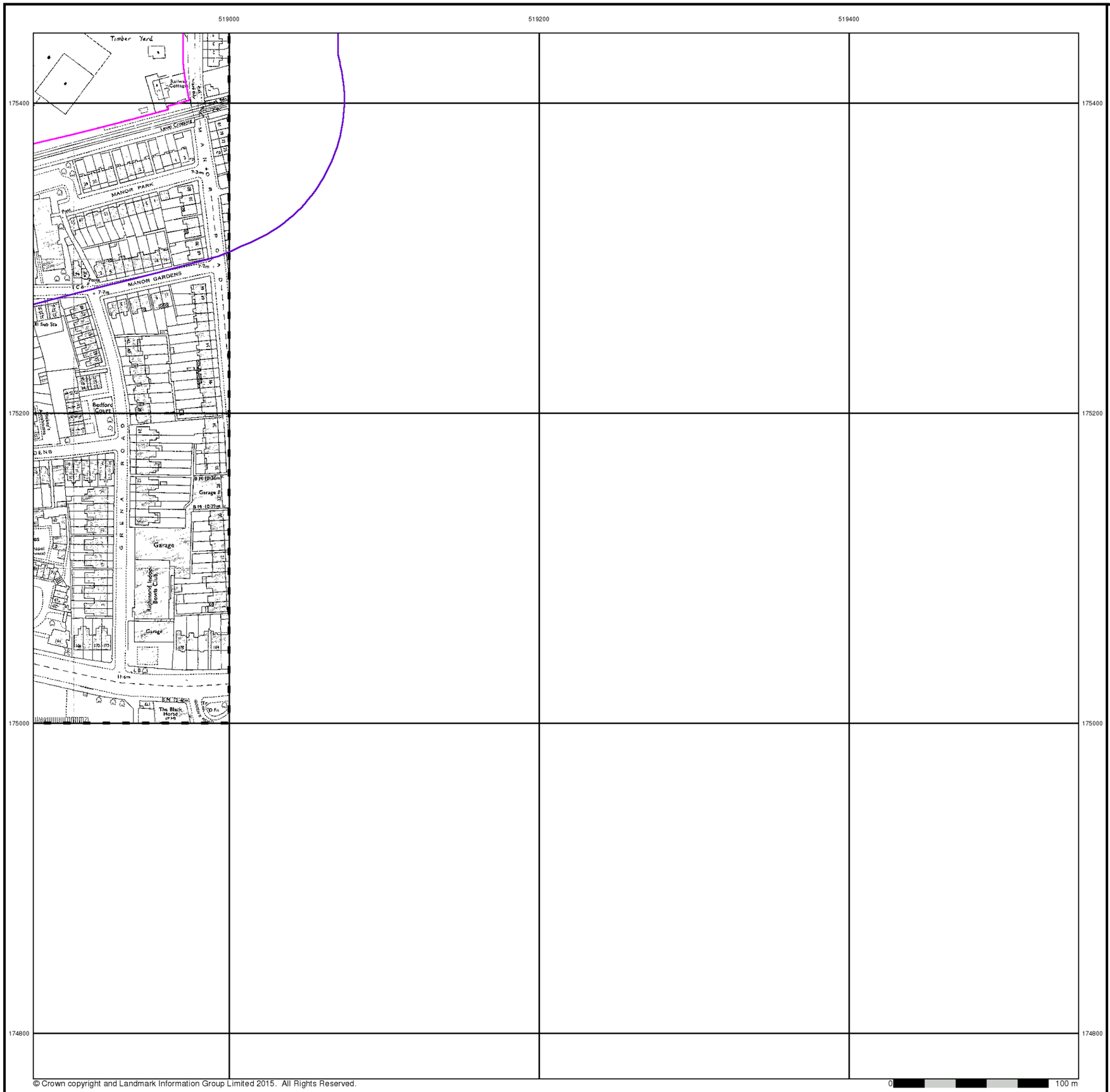


FAIRHURST

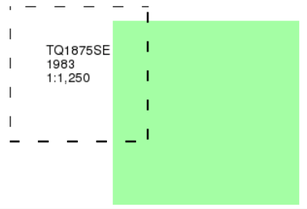
Additional SIMs

Published 1983

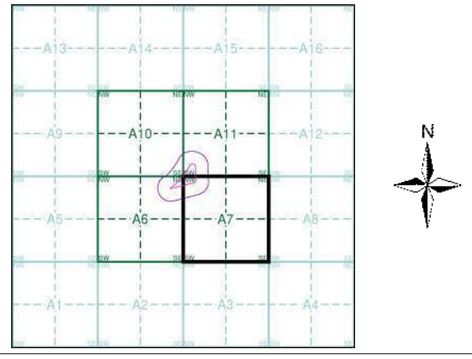
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

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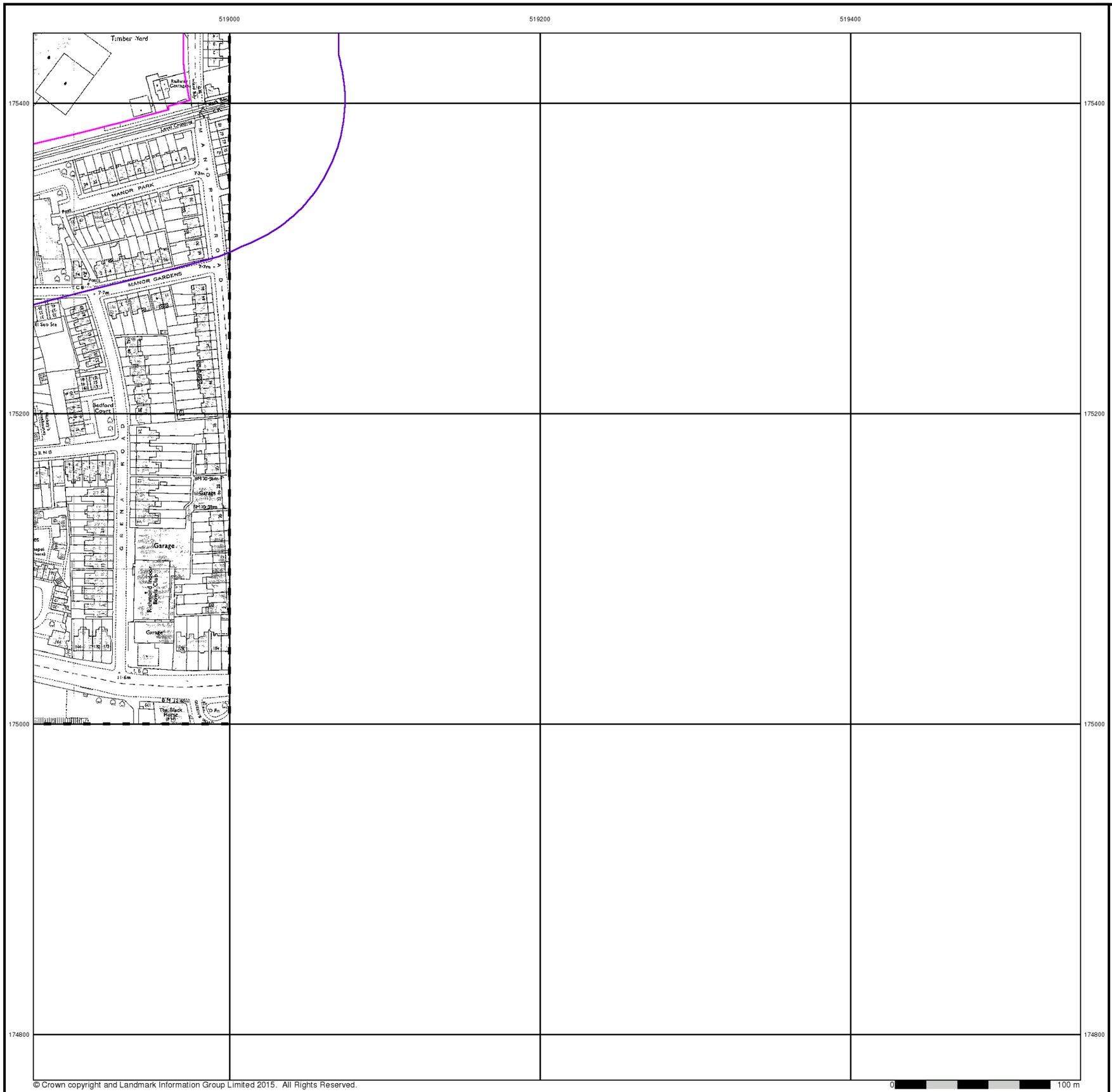


FAIRHURST

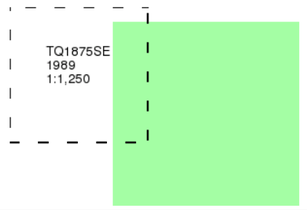
Additional SIMs

Published 1989

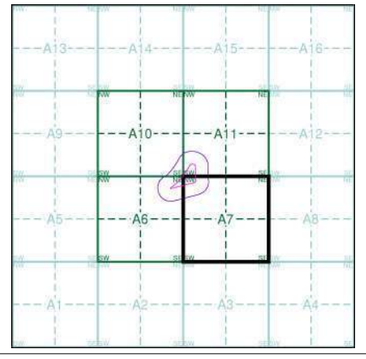
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A7



Order Details

Order Number:	142584674_1_1
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National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

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0 100 m

FAIRHURST

Large-Scale National Grid Data

Published 1991

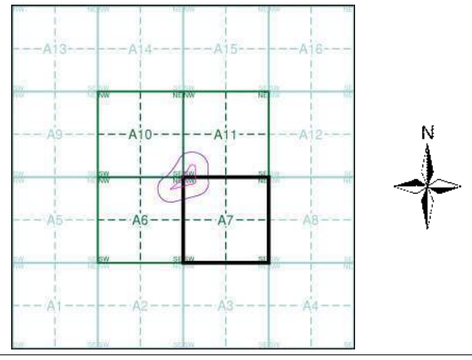
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1875SE 1991 1:1,250	TQ1975SW 1991 1:1,250	TQ1975SE 1991 1:1,250
TQ1874NE 1991 1:1,250	TQ1974NW 1991 1:1,250	TQ1974NE 1991 1:1,250

Historical Map - Segment A7



Order Details

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Search Buffer (m):	100

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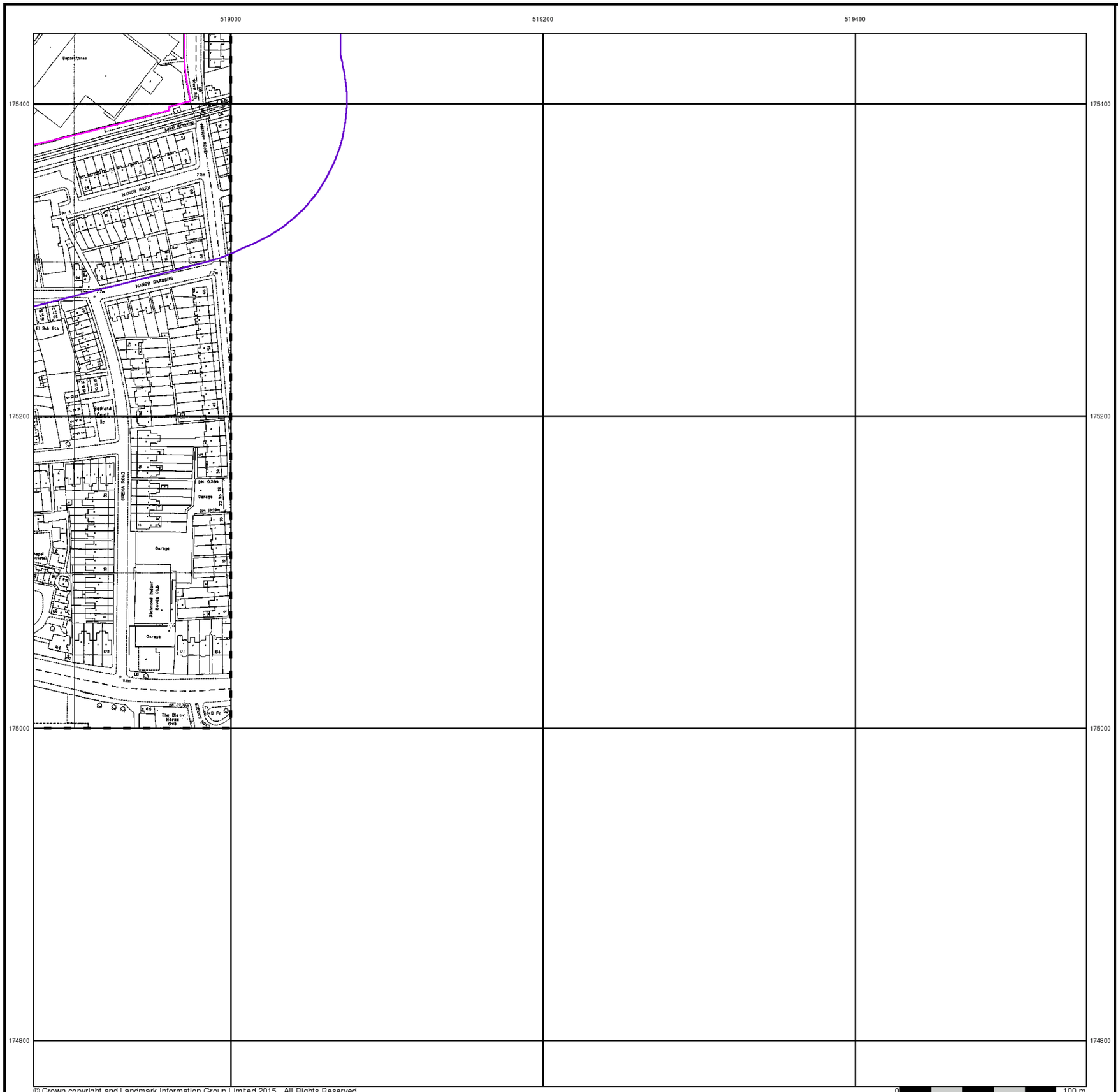


FAIRHURST

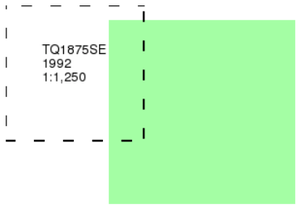
Large-Scale National Grid Data

Published 1992

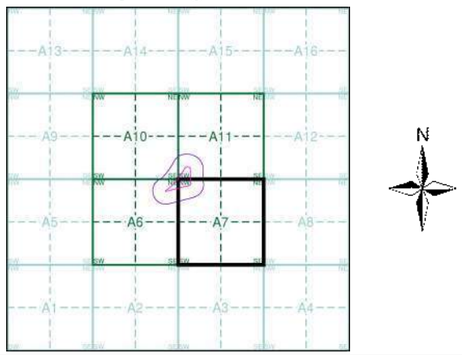
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A7



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National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

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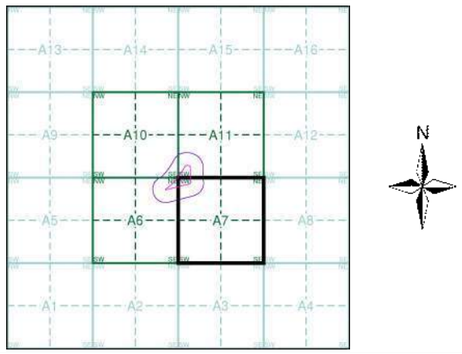
FAIRHURST

Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A7



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
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Search Buffer (m):	100

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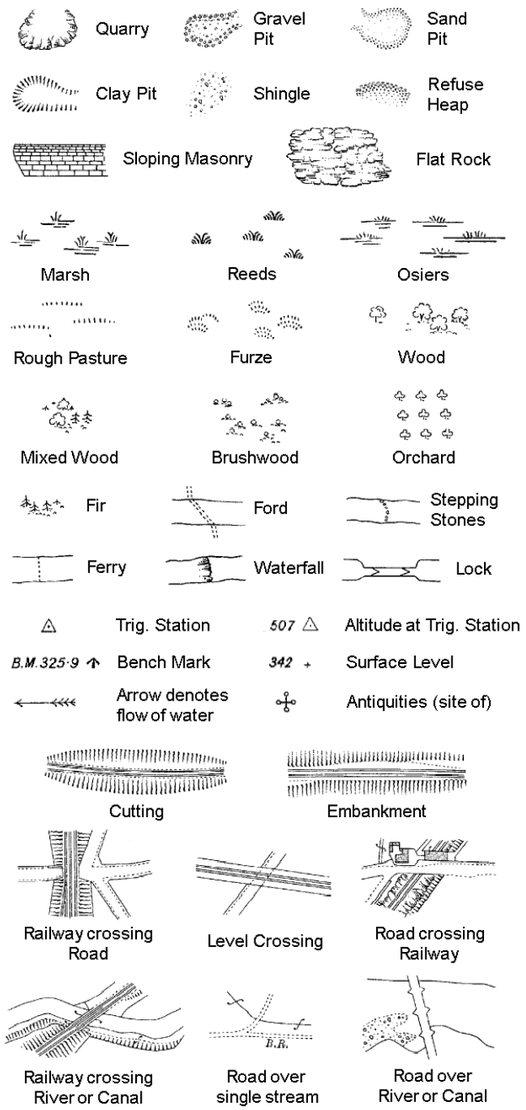
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

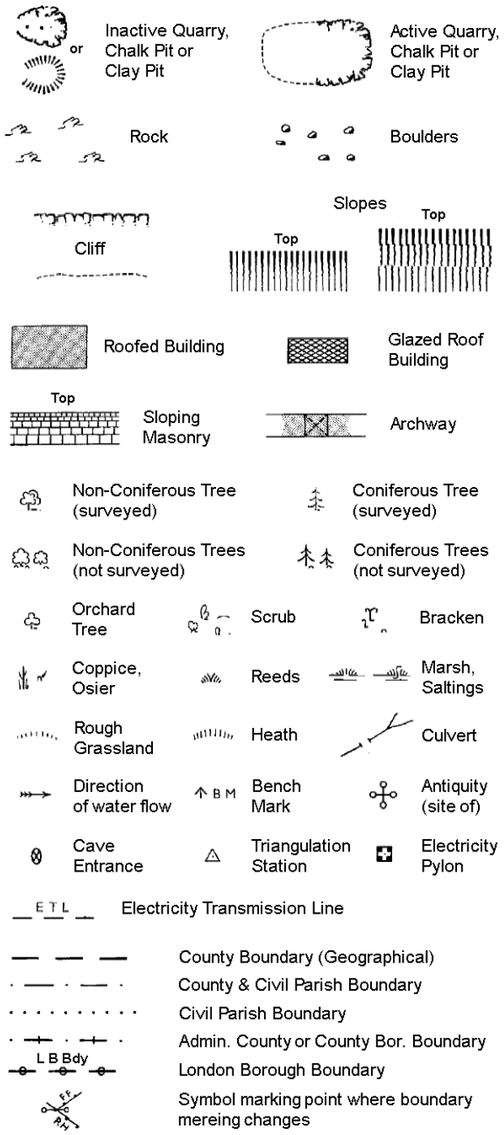
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

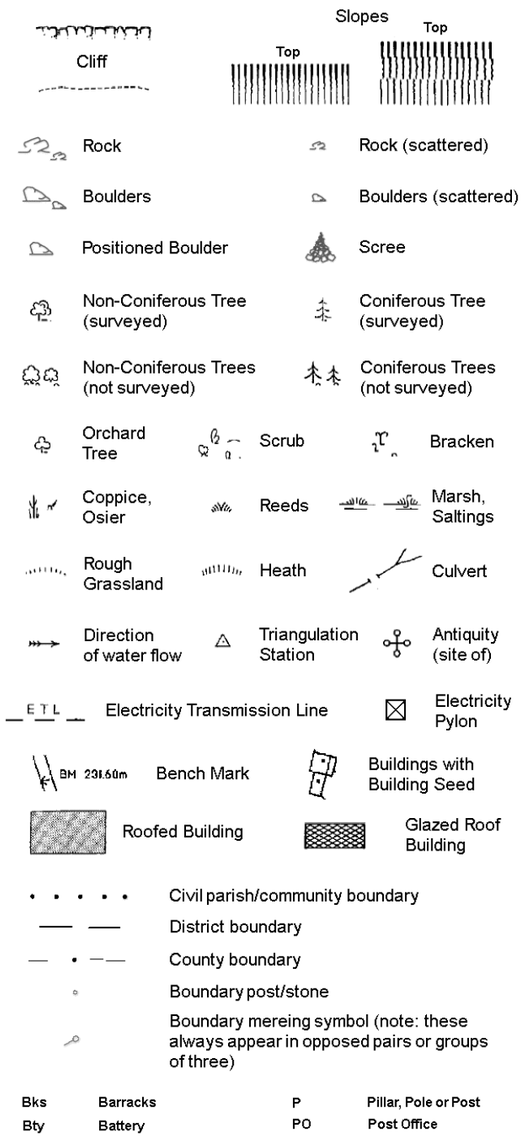
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

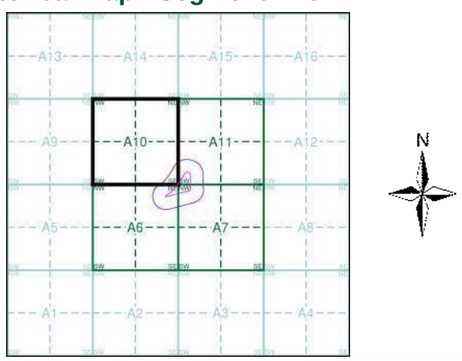
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Surrey	1:2,500	1868	2
Surrey	1:2,500	1868	3
Middlesex	1:2,500	1871	4
Surrey	1:2,500	1879 - 1894	5
London	1:2,500	1896	6
Surrey	1:2,500	1898	7
Surrey	1:2,500	1913	8
Middlesex	1:2,500	1915	9
Surrey	1:2,500	1934 - 1936	10
Middlesex	1:2,500	1935	11
Historical Aerial Photography	1:1,250	1946 - 1947	12
Ordnance Survey Plan	1:1,250	1960	13
Ordnance Survey Plan	1:2,500	1960 - 1961	14
Additional SIMs	1:2,500	1960 - 1961	15
Additional SIMs	1:1,250	1960 - 1974	16
Ordnance Survey Plan	1:1,250	1968 - 1983	17
Supply of Unpublished Survey Information	1:1,250	1974	18
Additional SIMs	1:1,250	1974 - 1983	19
Additional SIMs	1:1,250	1983 - 1989	20
Additional SIMs	1:1,250	1989	21
Large-Scale National Grid Data	1:1,250	1991	22
Large-Scale National Grid Data	1:1,250	1992	23
Large-Scale National Grid Data	1:1,250	1995	24
Large-Scale National Grid Data	1:1,250	1996	25
Historical Aerial Photography	1:2,500	1999	26

Historical Map - Segment A10



Order Details

Order Number: 142584674_1_1
Customer Ref: Homebase, Richmond
National Grid Reference: 518890, 175430
Slice: A
Site Area (Ha): 1.58
Search Buffer (m): 100

Site Details

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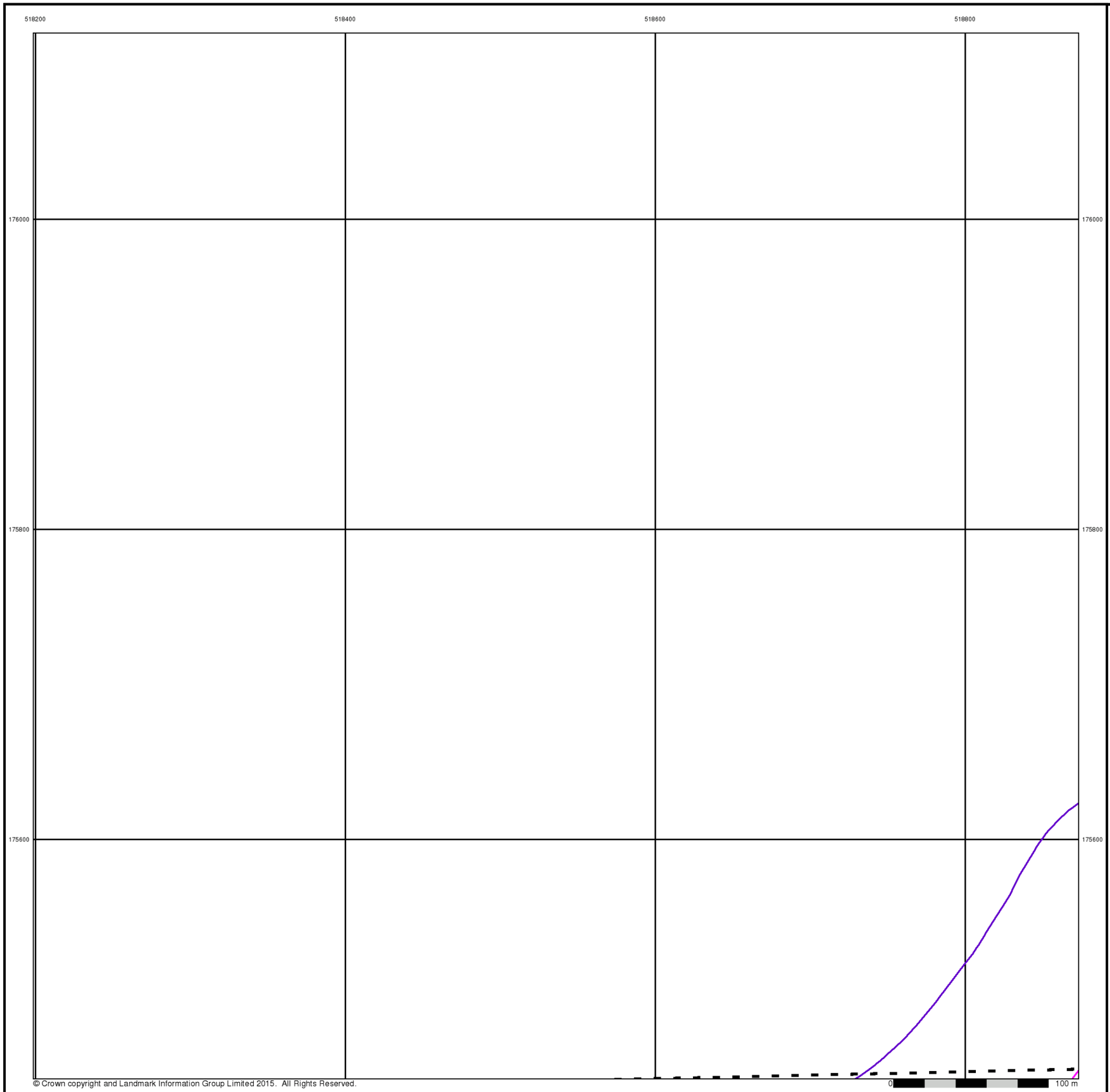

FAIRHURST

Surrey

Published 1868

Source map scale - 1:2,500

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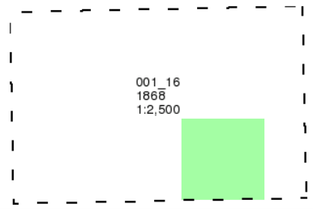
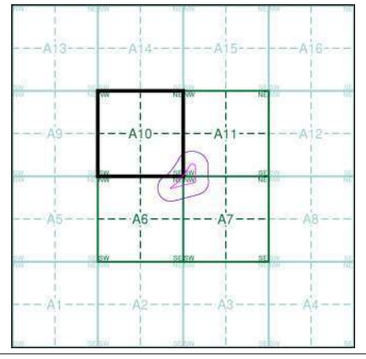


Historical Map - Segment A10



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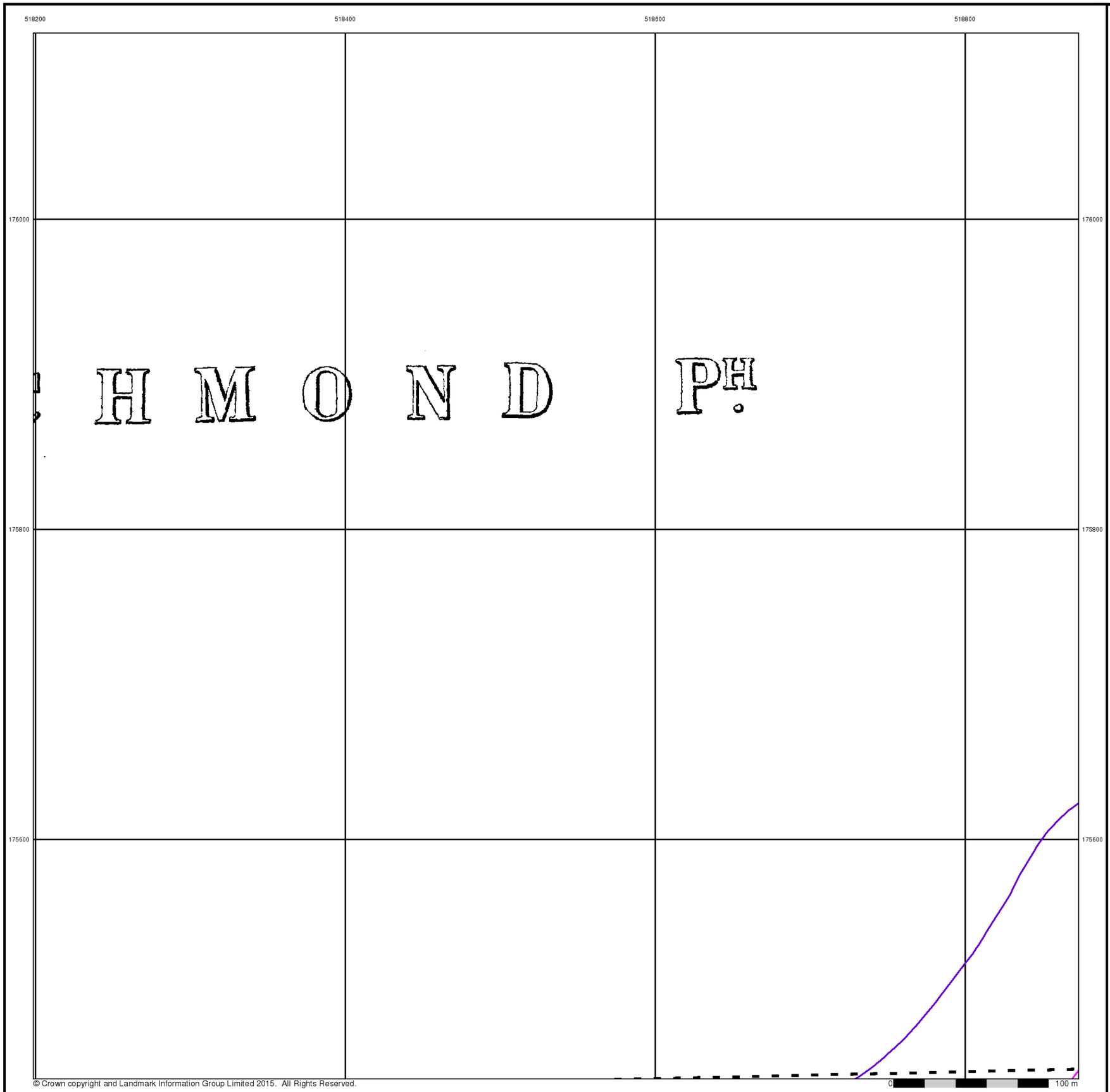

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FAIRHURST

Surrey

Published 1868

Source map scale - 1:2,500

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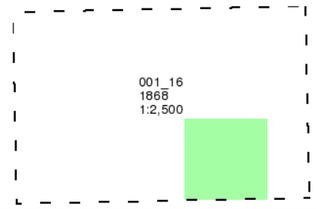
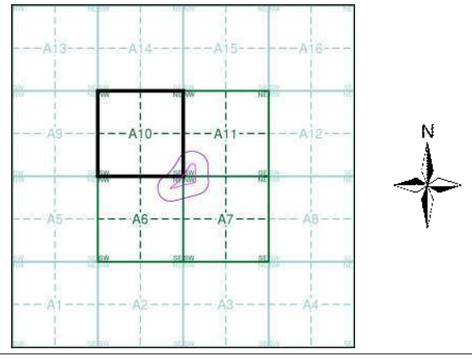


Historical Map - Segment A10



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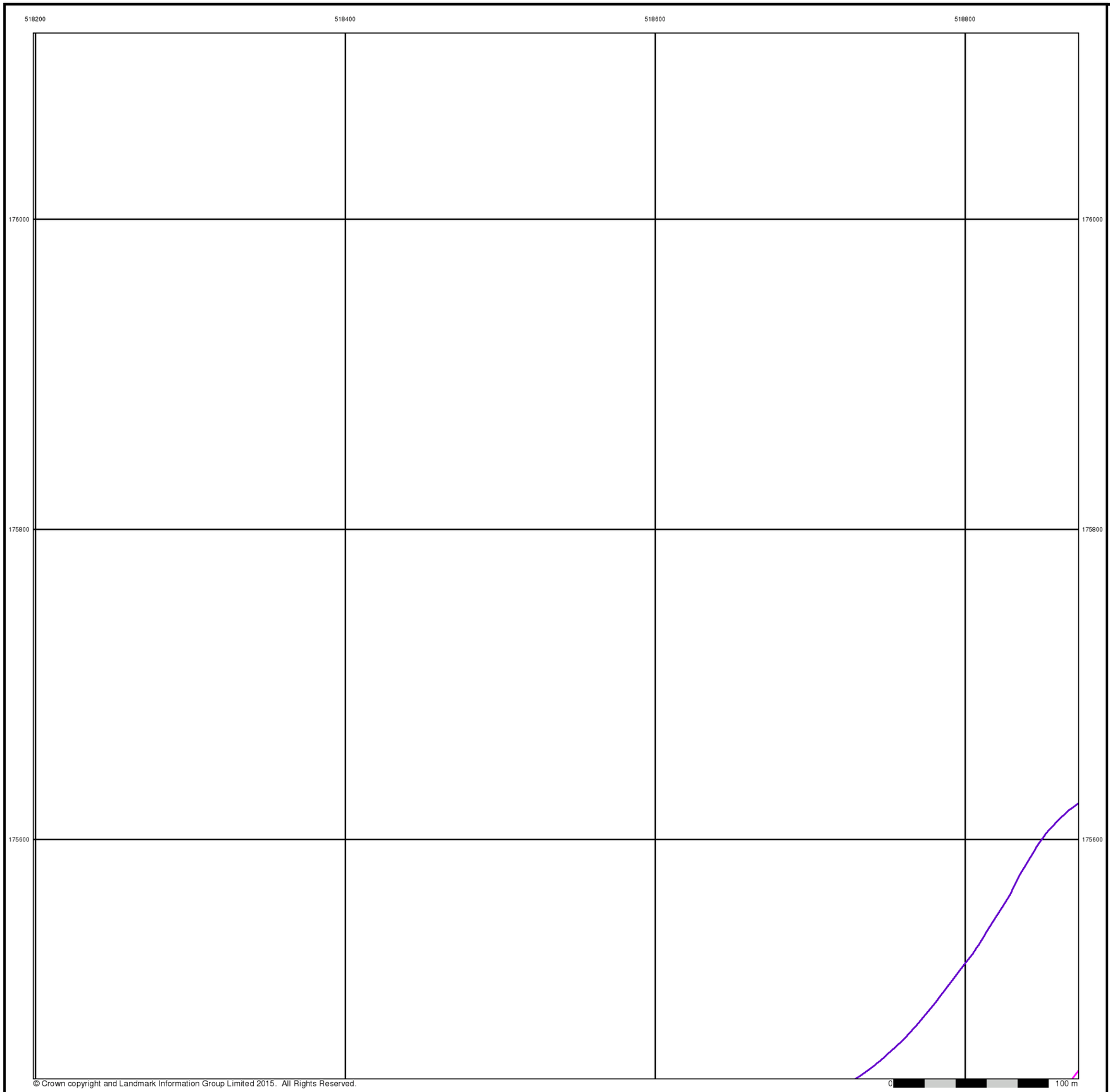

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FAIRHURST

Middlesex

Published 1871

Source map scale - 1:2,500

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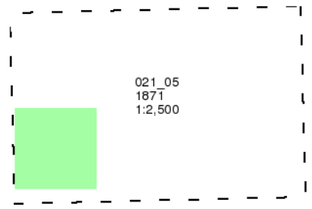
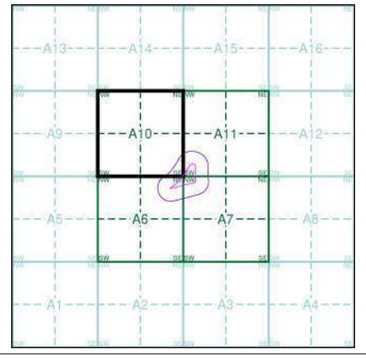


Historical Map - Segment A10



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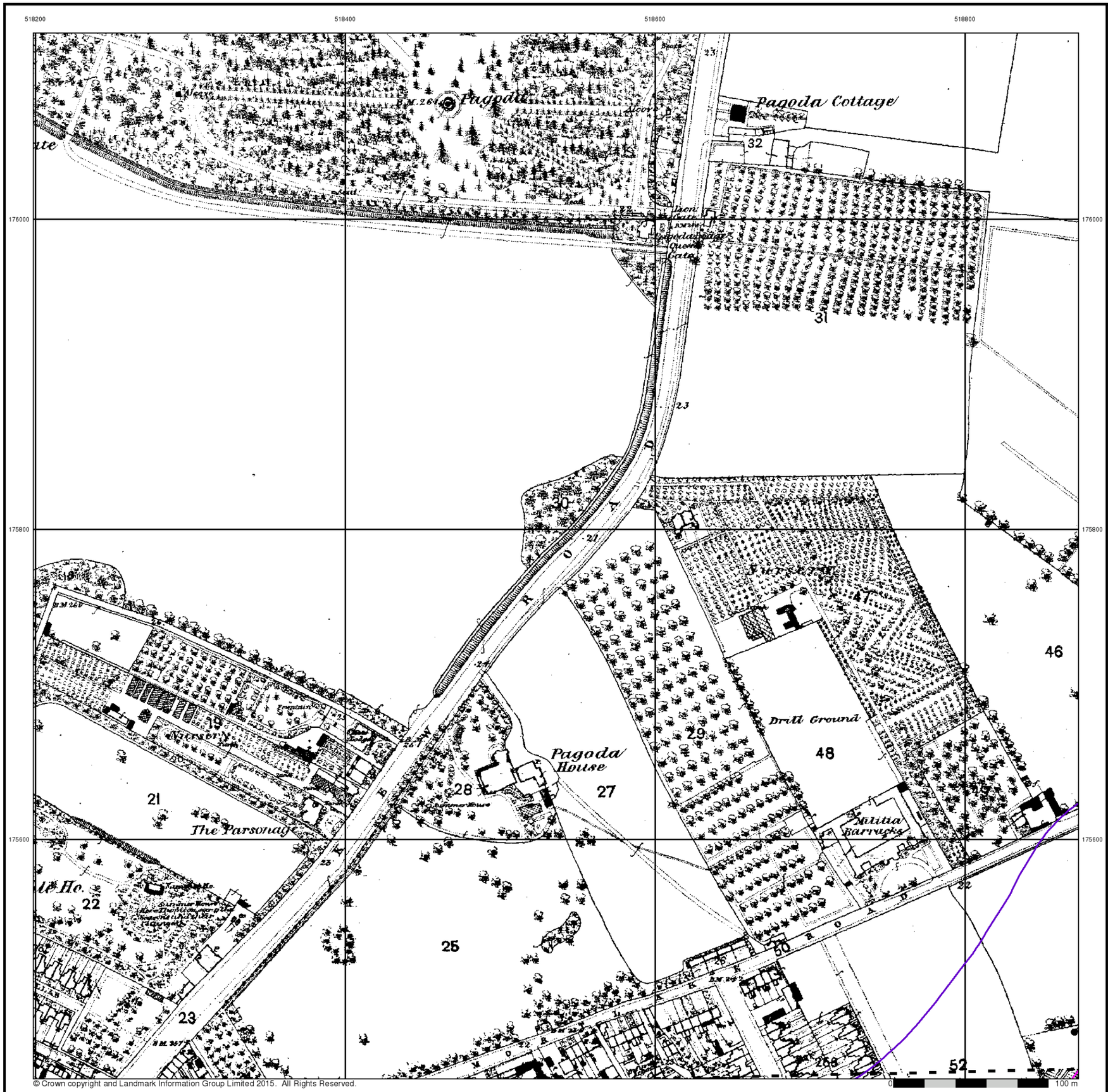

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FAIRHURST

Surrey

Published 1879 - 1894

Source map scale - 1:2,500

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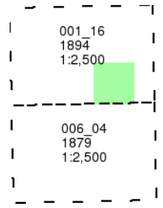
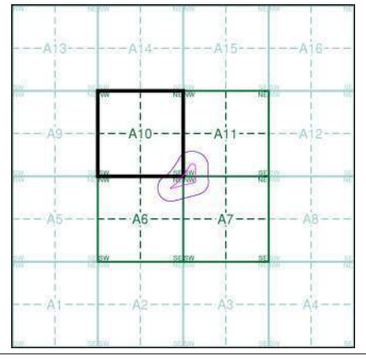


Historical Map - Segment A10



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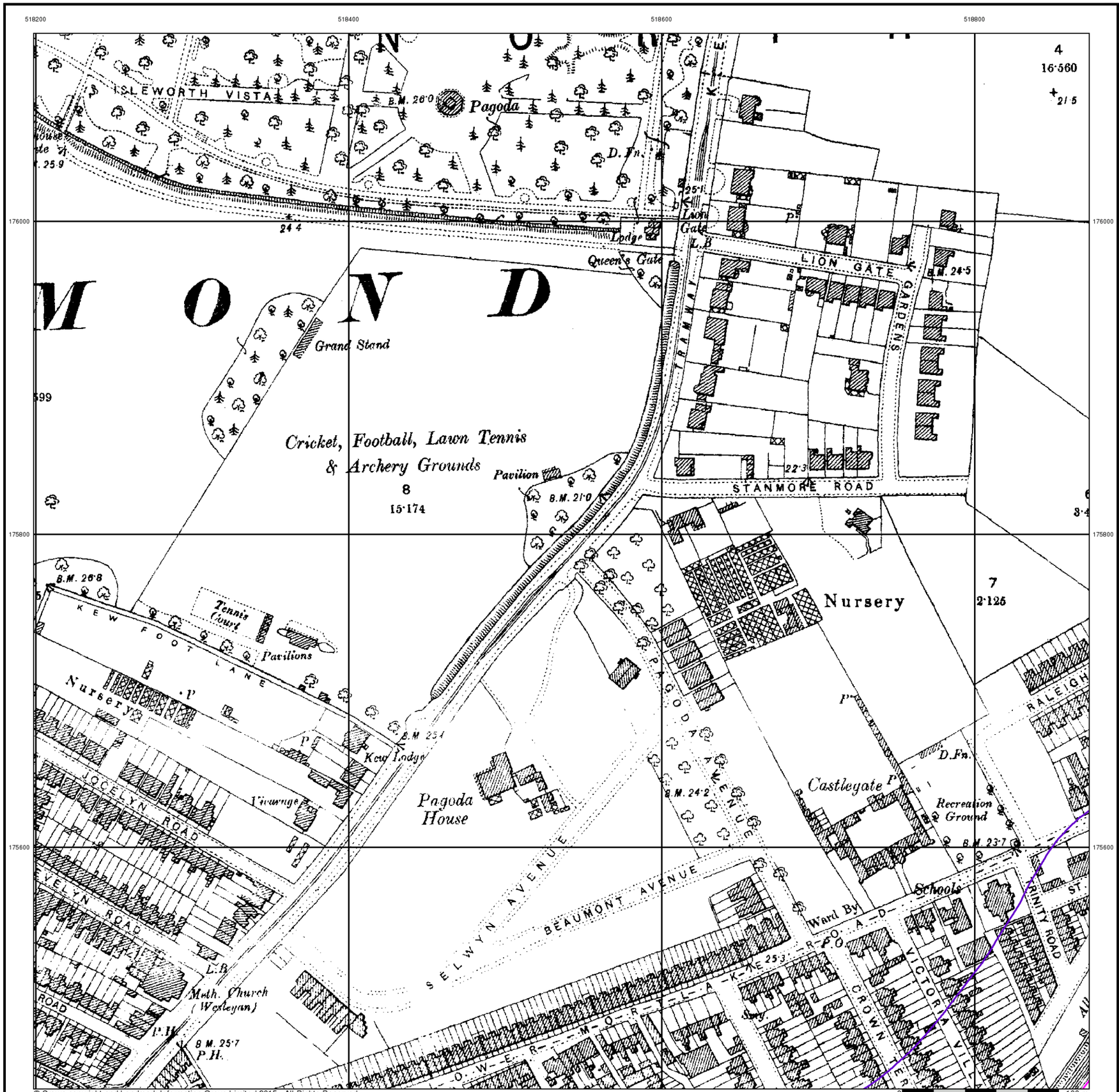

FAIRHURST

London

Published 1896

Source map scale - 1:2,500

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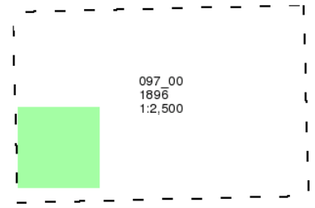
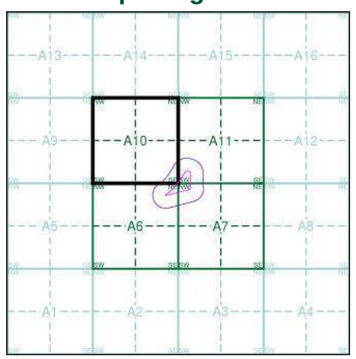


Historical Map - Segment A10



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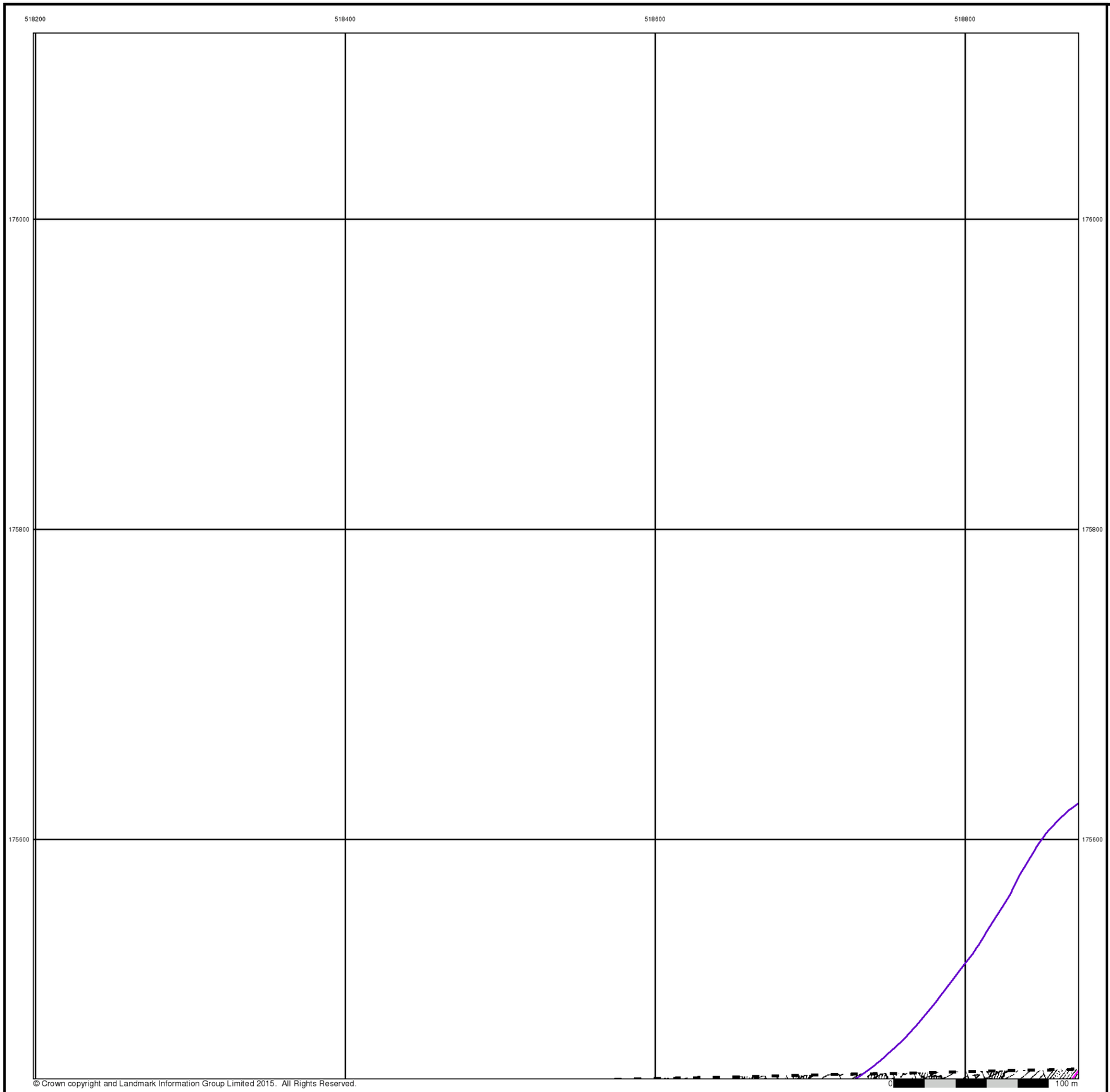

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FAIRHURST

Surrey

Published 1898

Source map scale - 1:2,500

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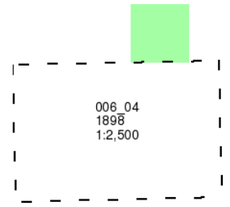
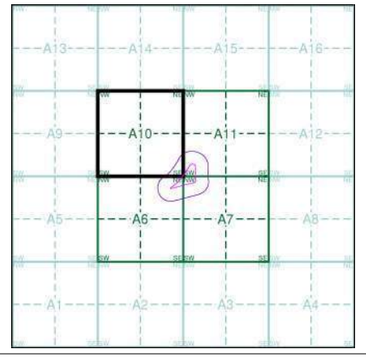


Historical Map - Segment A10



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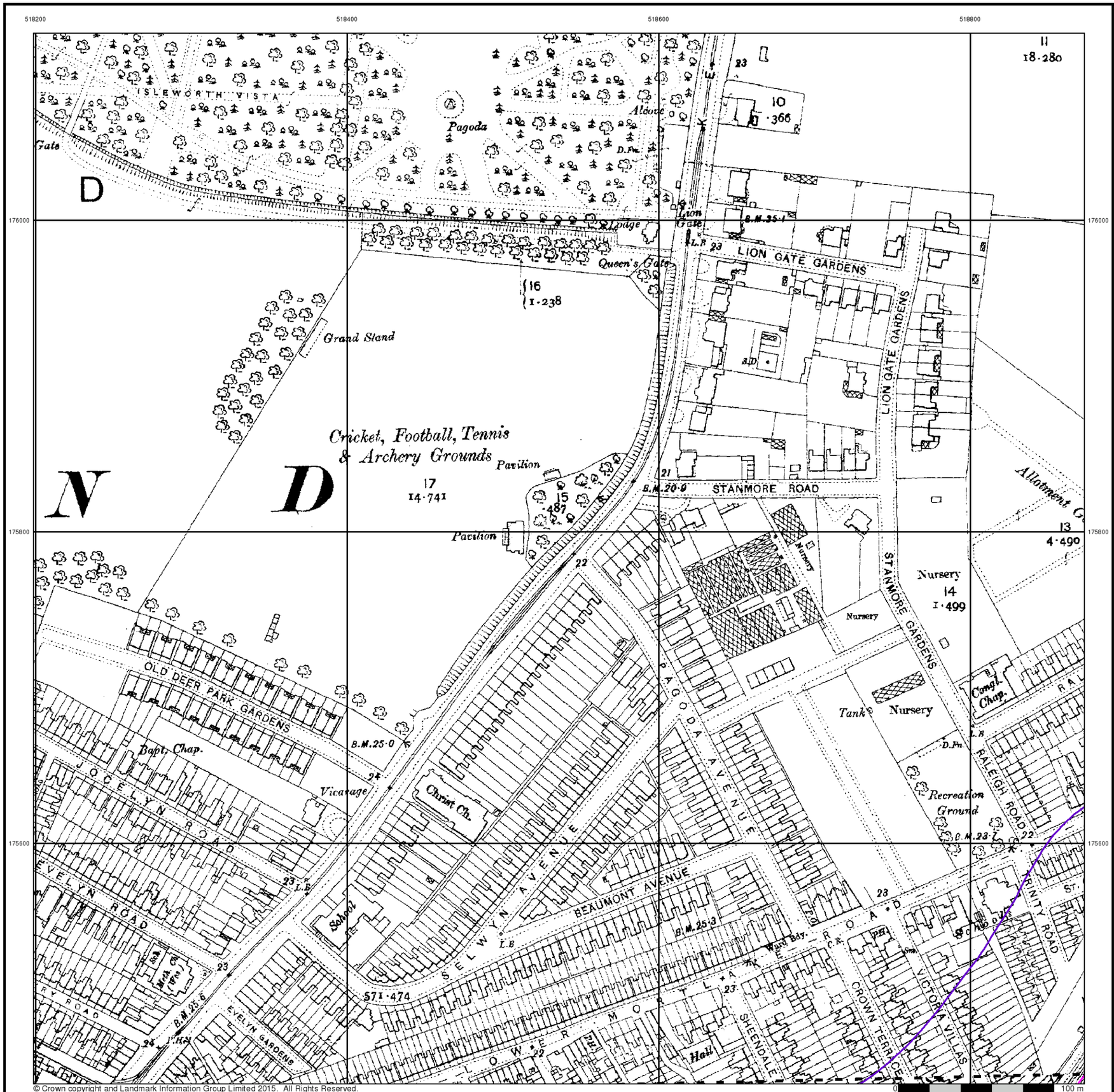

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FAIRHURST

Surrey

Published 1913

Source map scale - 1:2,500

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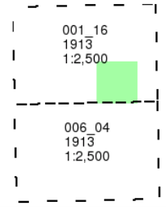
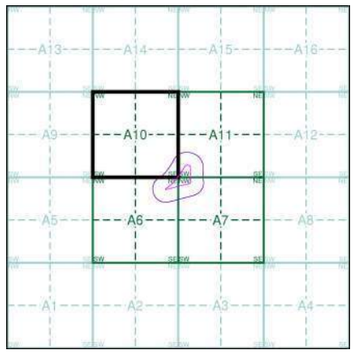


Historical Map - Segment A10



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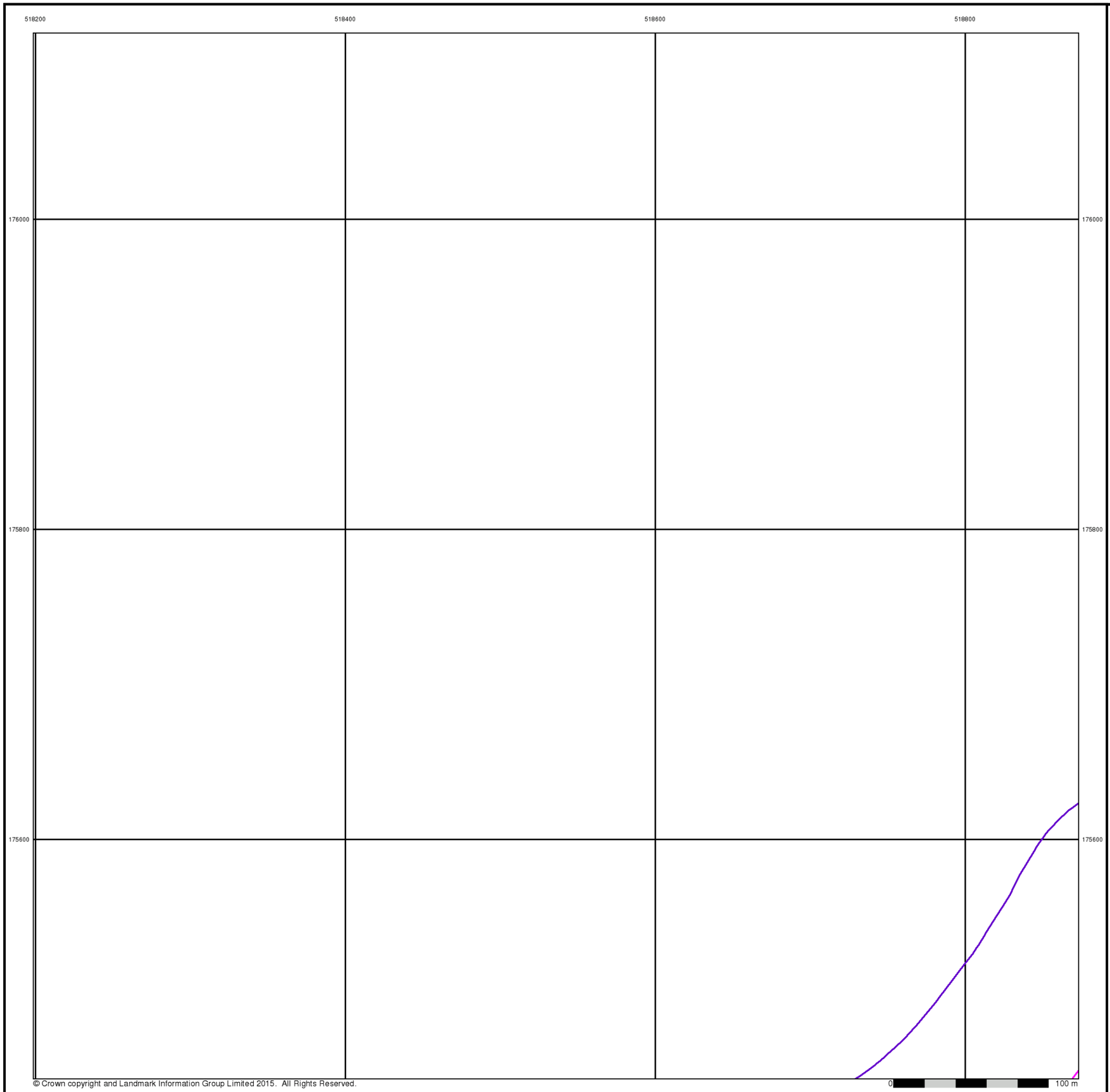

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FAIRHURST

Middlesex

Published 1915

Source map scale - 1:2,500

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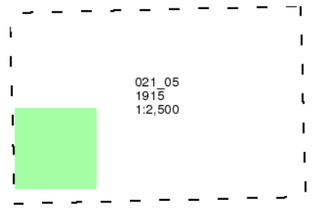
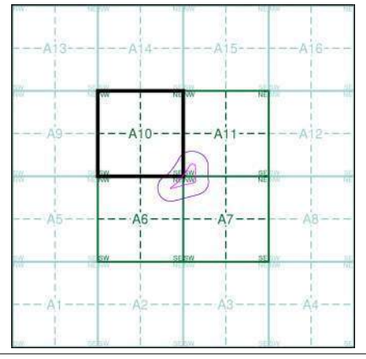


Historical Map - Segment A10



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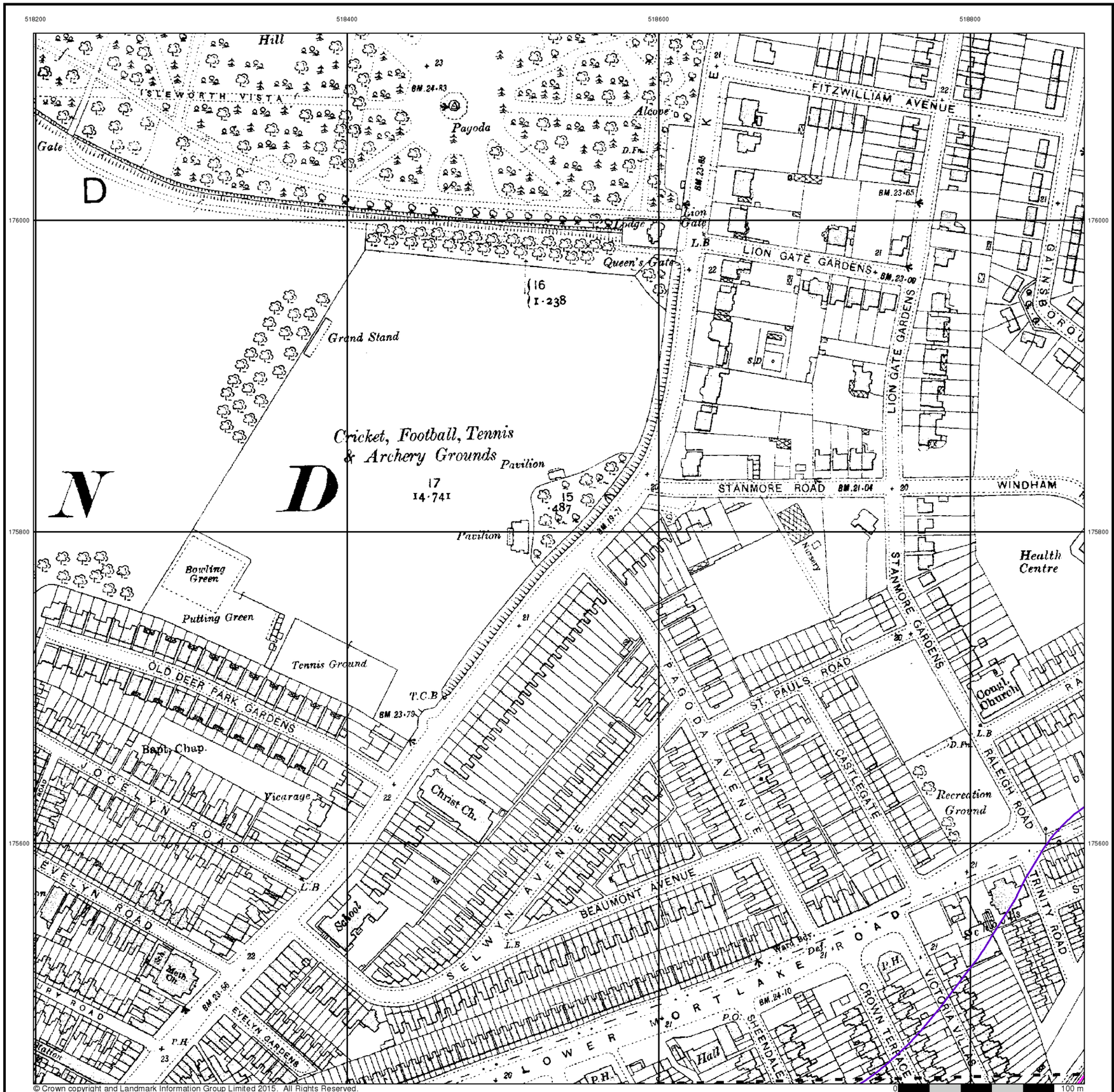

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FAIRHURST

Surrey

Published 1934 - 1936

Source map scale - 1:2,500

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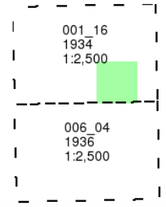
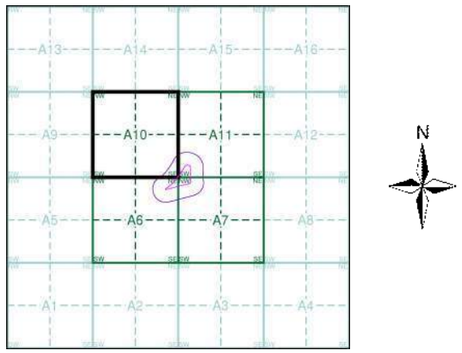


Historical Map - Segment A10



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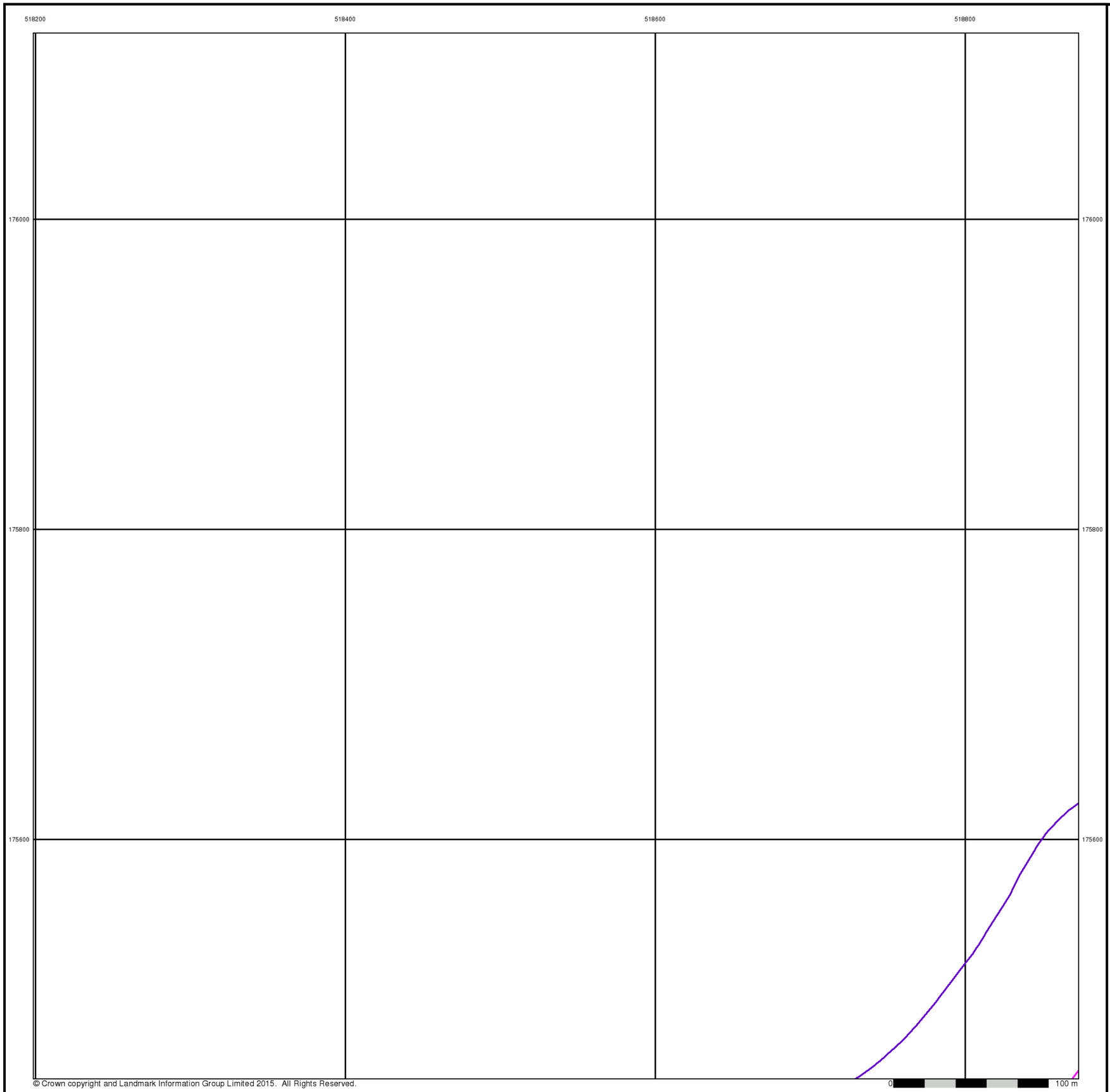

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FAIRHURST

Middlesex

Published 1935

Source map scale - 1:2,500

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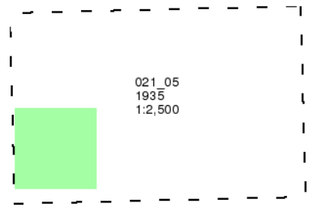
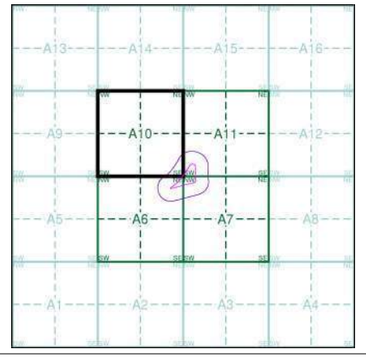


Historical Map - Segment A10



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FAIRHURST

Historical Aerial Photography

Published 1946 - 1947

Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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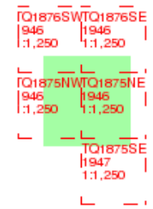
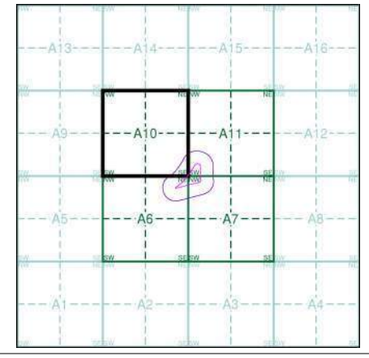
Map Name(s) and Date(s)



Historical Aerial Photography - Segment A10



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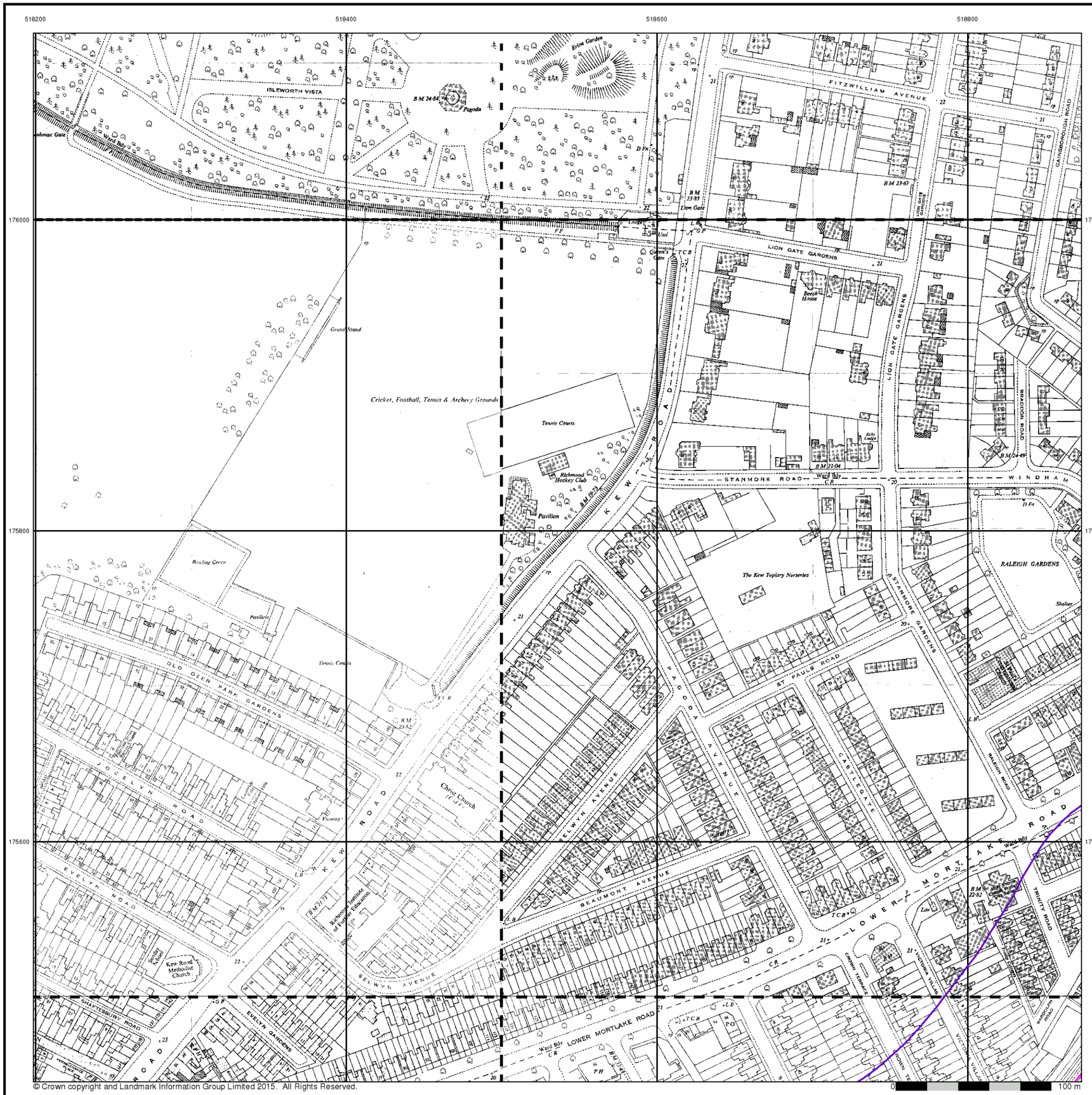

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FAIRHURST

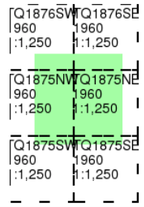
Ordnance Survey Plan

Published 1960

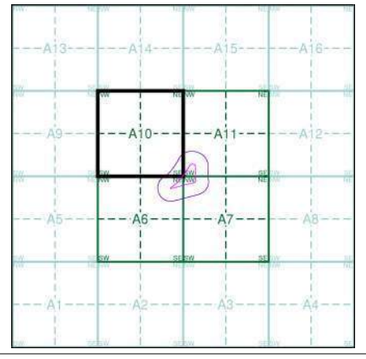
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

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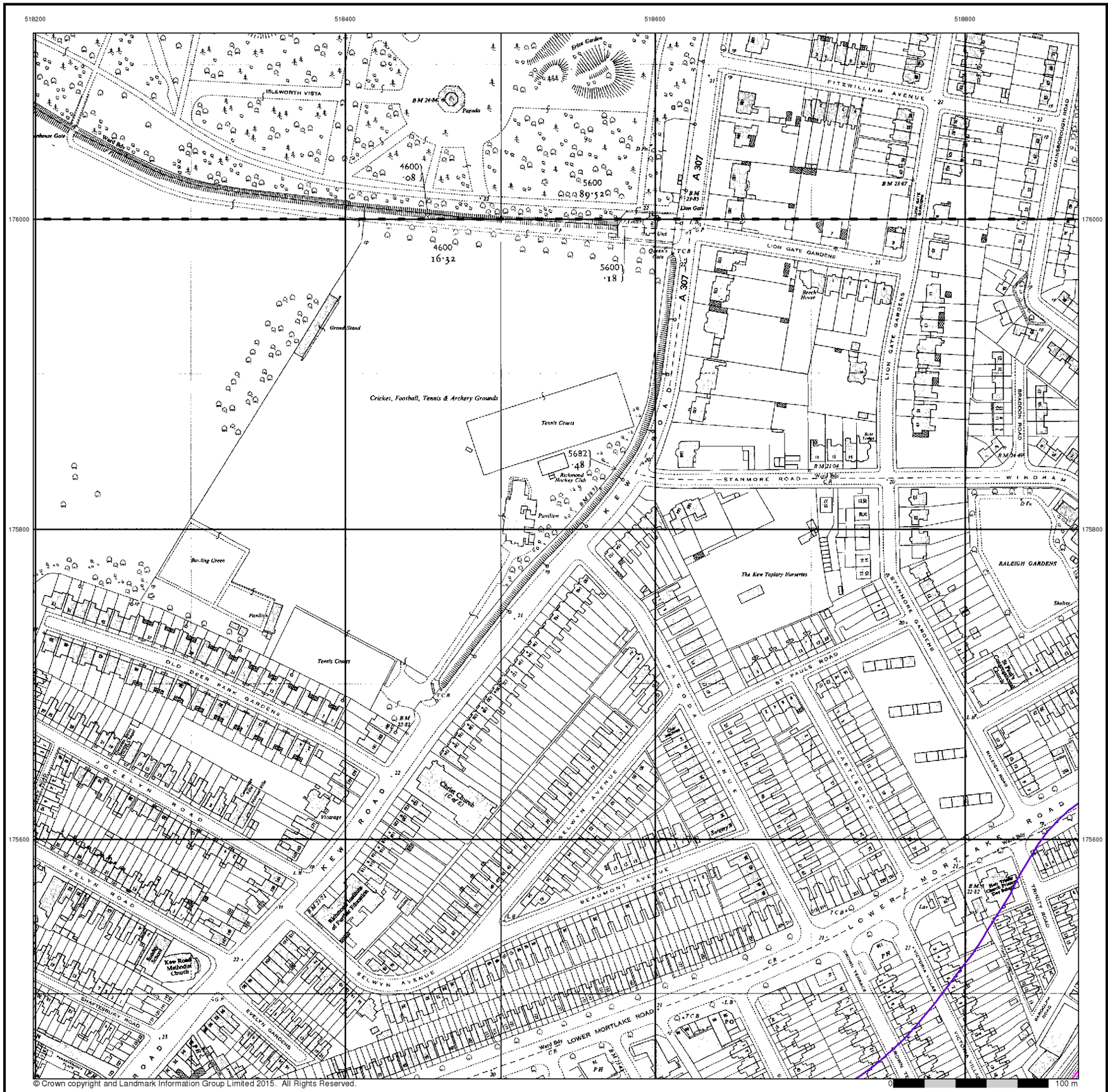

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FAIRHURST

Ordnance Survey Plan

Published 1960 - 1961

Source map scale - 1:2,500

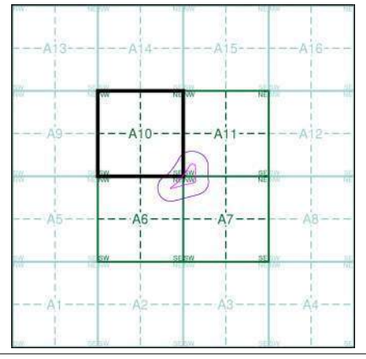
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TQ1876
1961
1:2,500

TQ1875
1960
1:2,500

Historical Map - Segment A10



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Slice:	A
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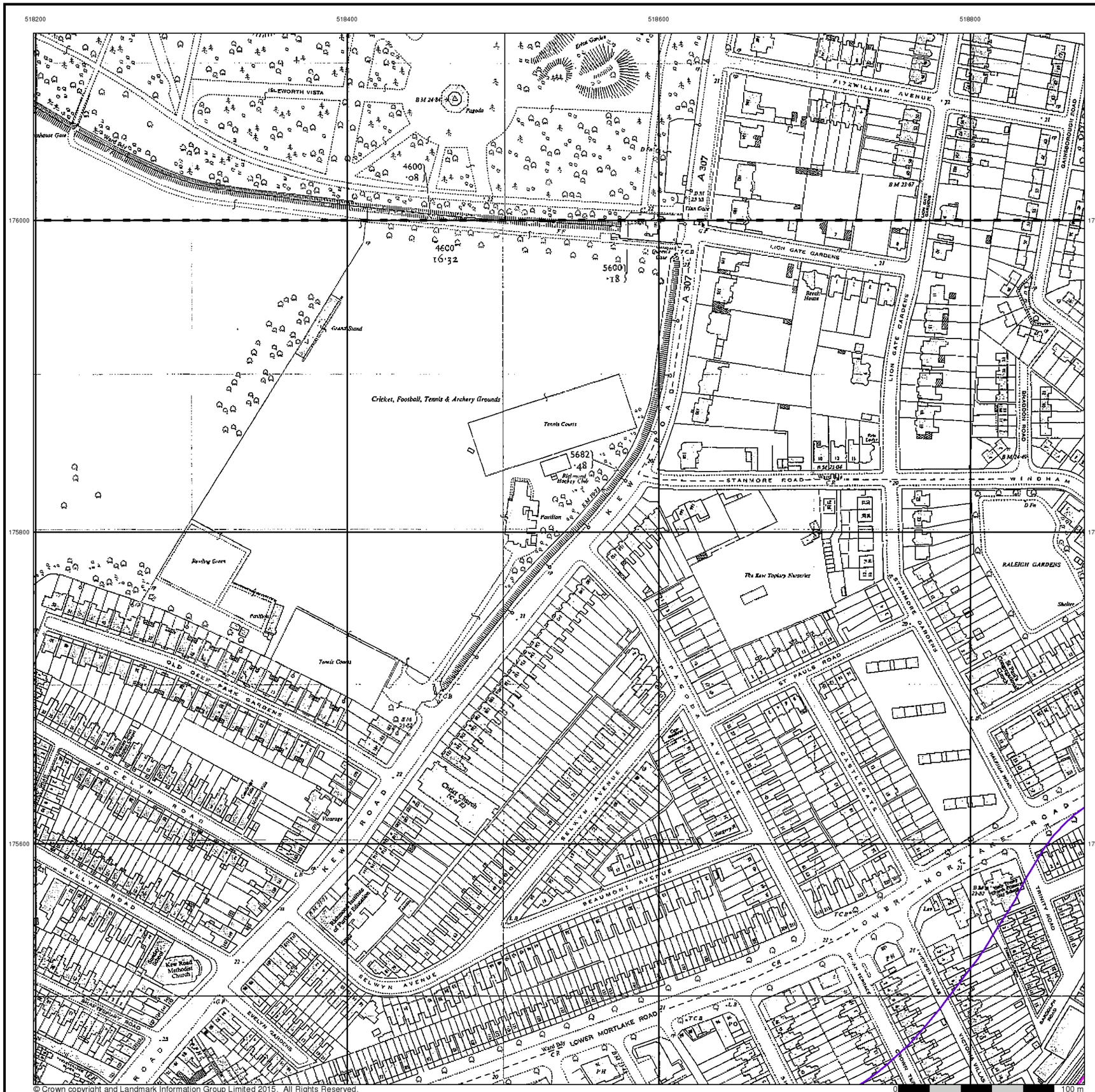

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FAIRHURST

Additional SIMs

Published 1960 - 1961

Source map scale - 1:2,500

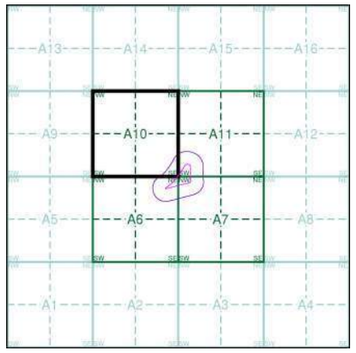
The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1876
1961
1:2,500

TQ1875
1960
1:2,500

Historical Map - Segment A10



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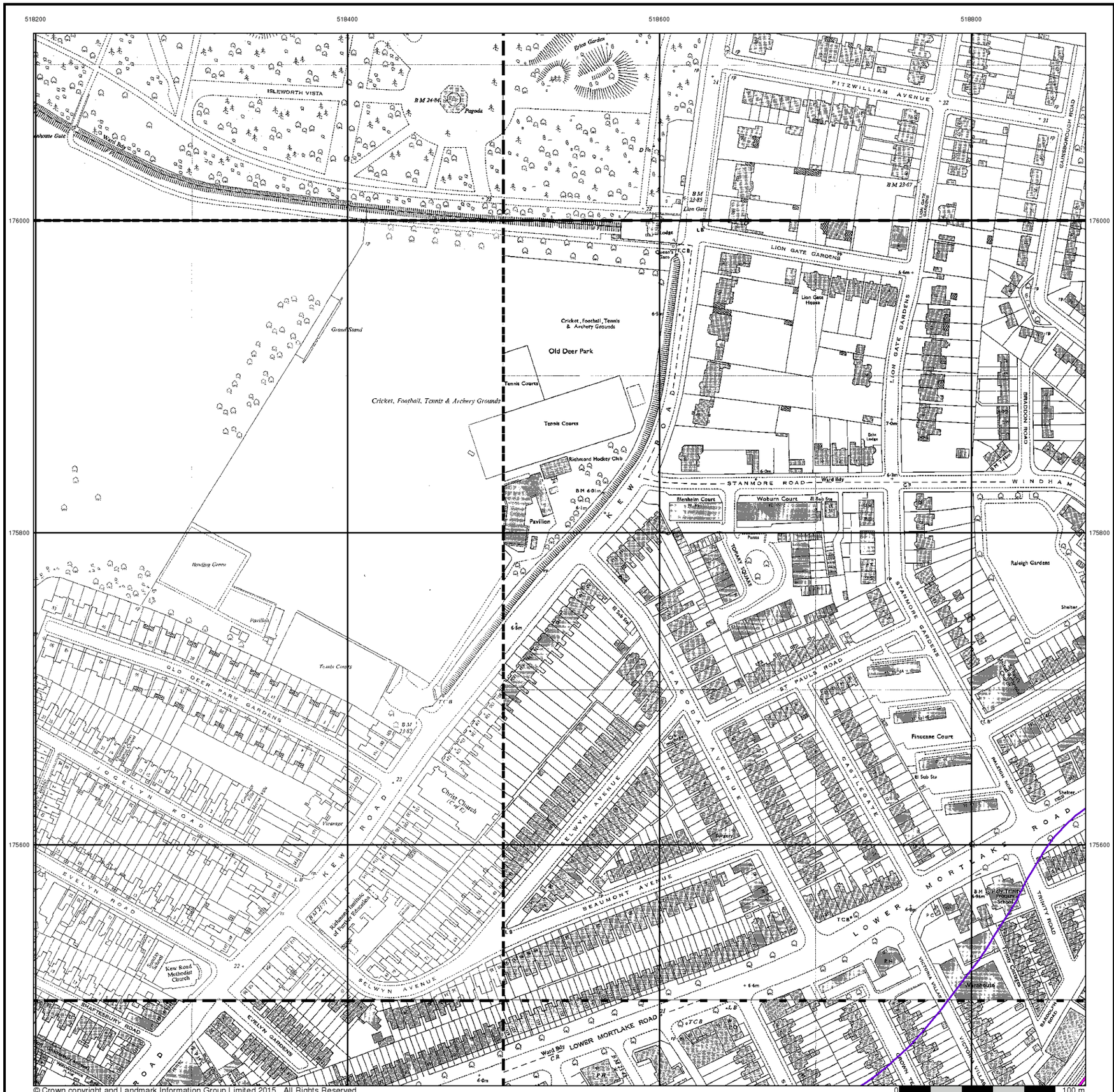

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FAIRHURST

Additional SIMs

Published 1960 - 1974

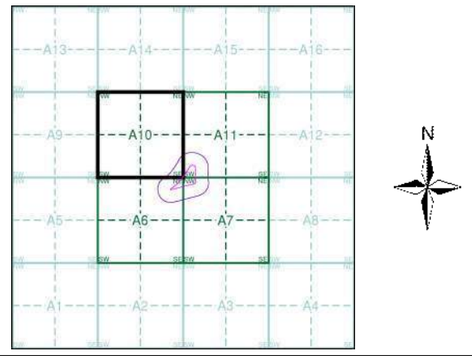
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1876SW 1960 1:1,250	TQ1876SE 1968 1:1,250
TQ1875NW 1960 1:1,250	TQ1875NE 1974 1:1,250
TQ1875SW 1972 1:1,250	TQ1875SE 1960 1:1,250

Historical Map - Segment A10



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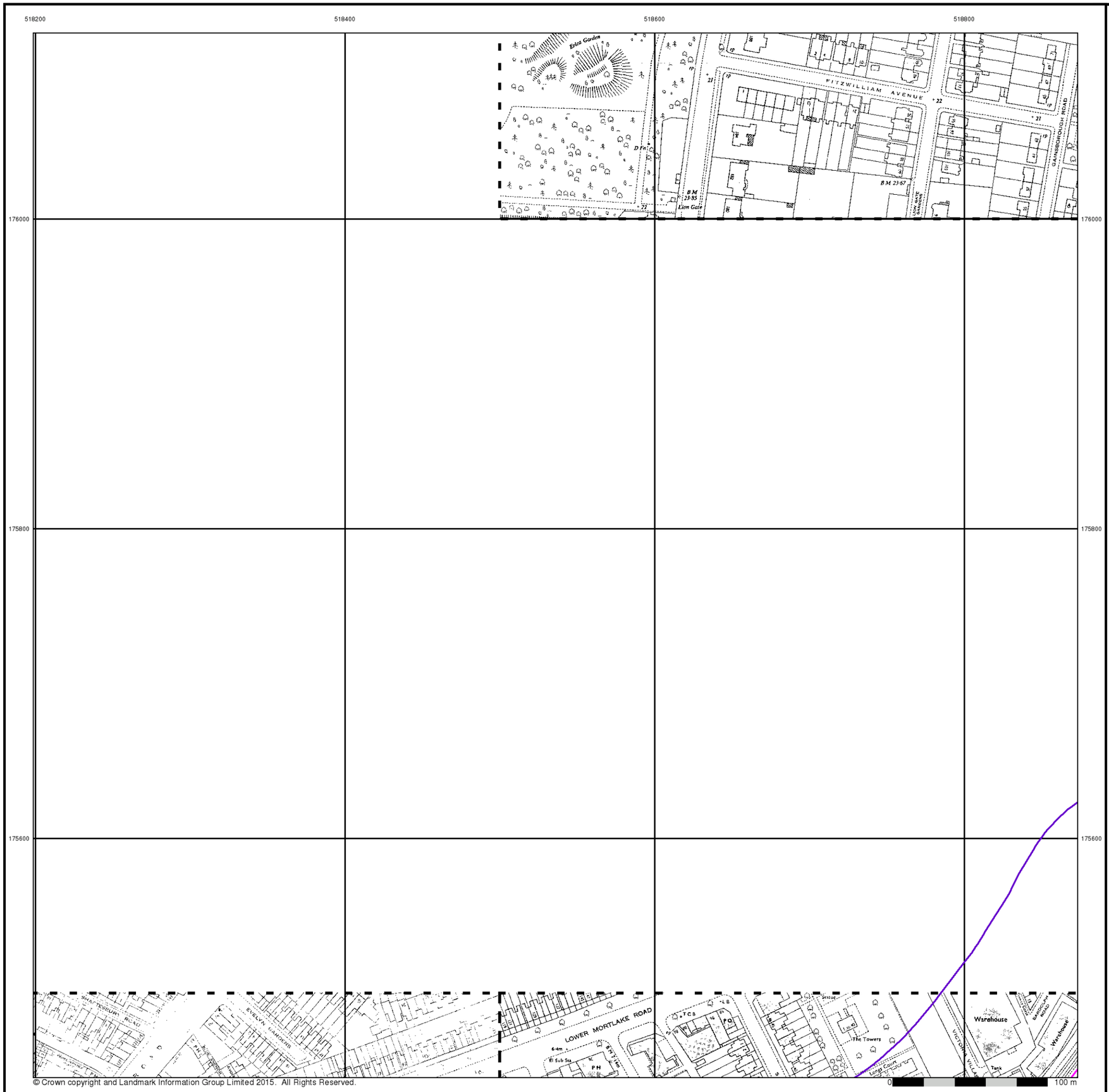

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FAIRHURST

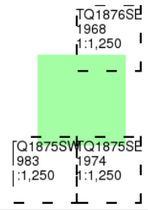
Ordnance Survey Plan

Published 1968 - 1983

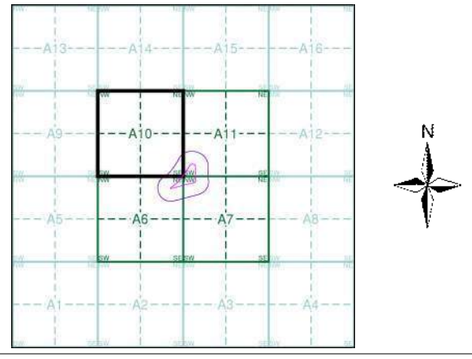
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A10



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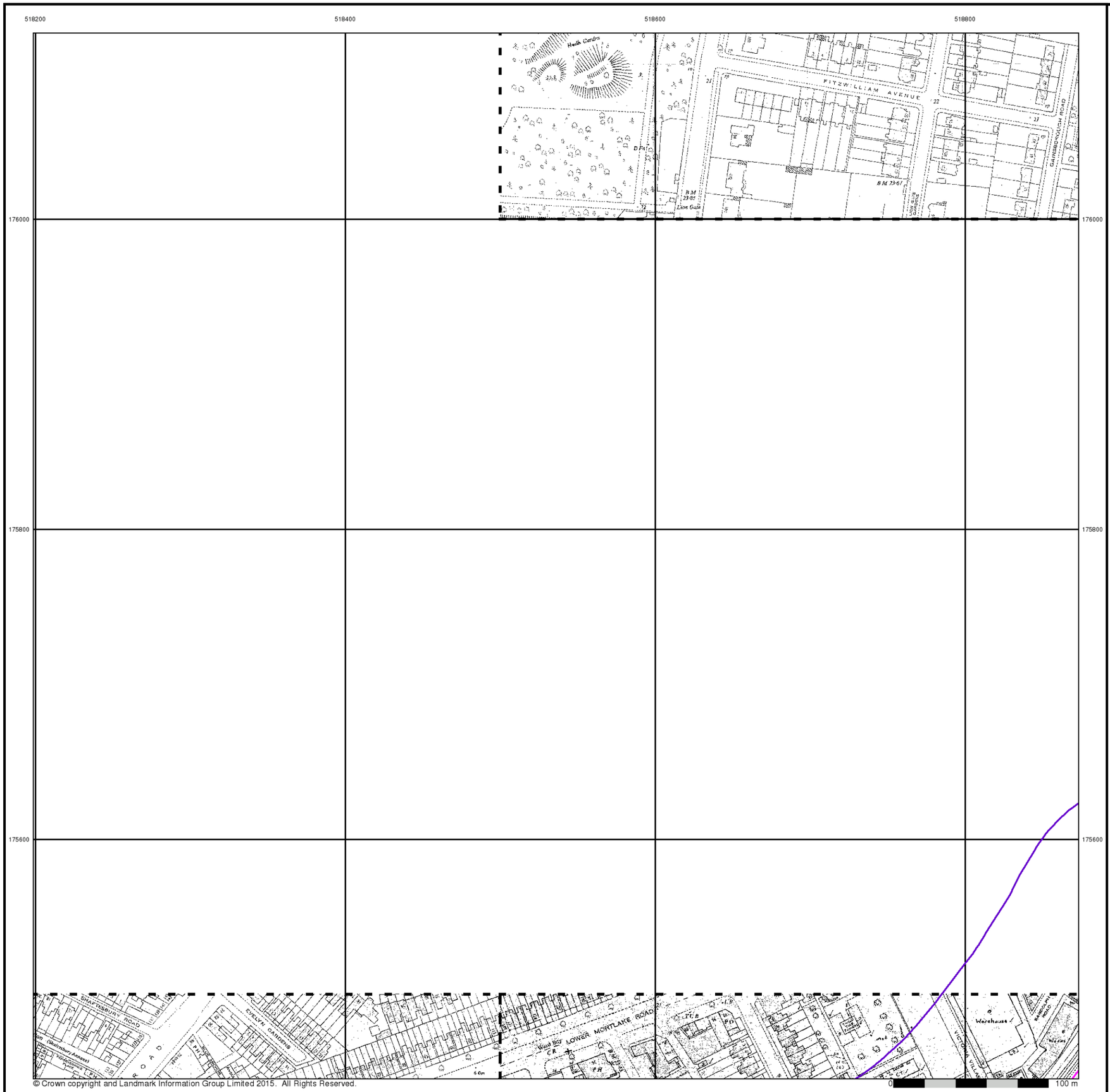

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FAIRHURST

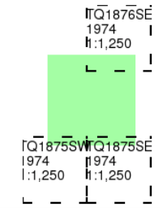
Supply of Unpublished Survey Information

Published 1974

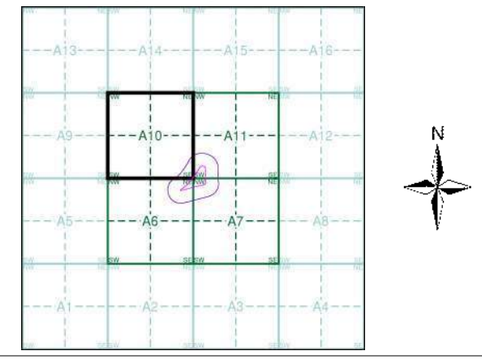
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

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FAIRHURST

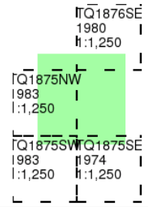
Additional SIMs

Published 1974 - 1983

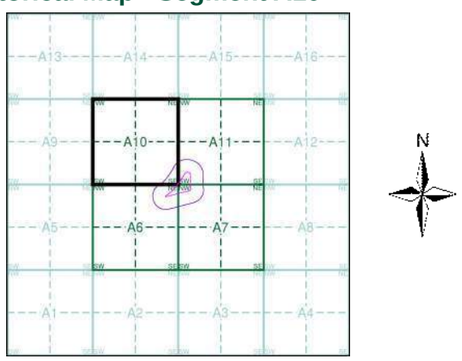
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



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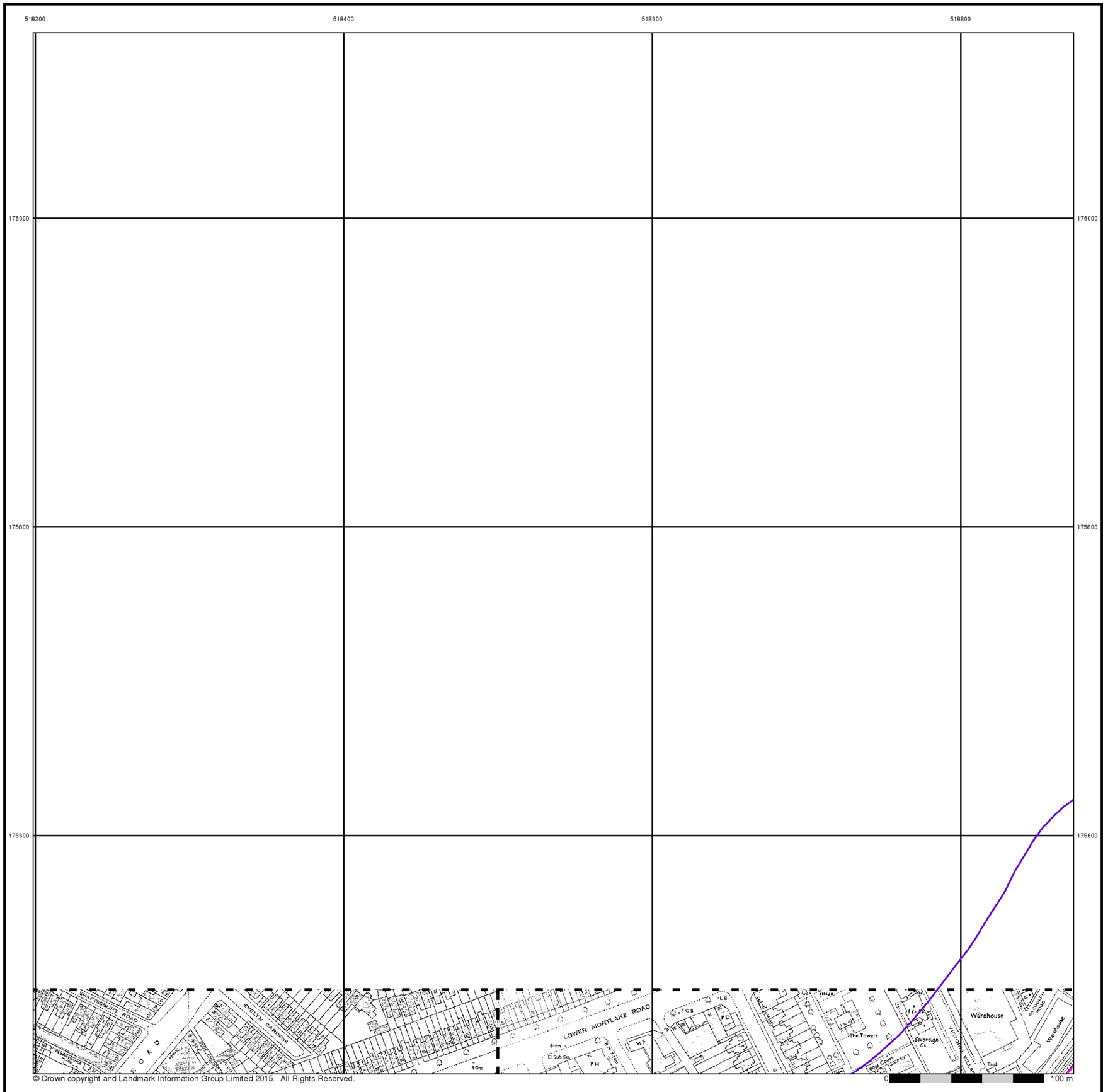

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0 100 m

FAIRHURST

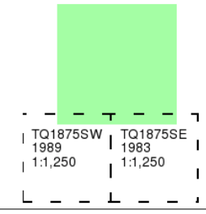
Additional SIMs

Published 1983 - 1989

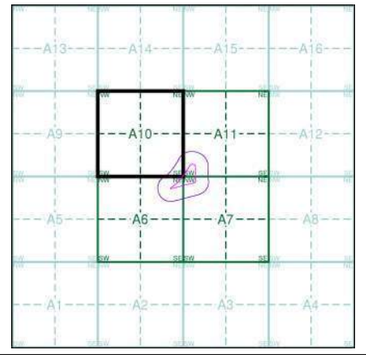
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	142584674_1_1
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National Grid Reference:	518890, 175430
Slice:	A
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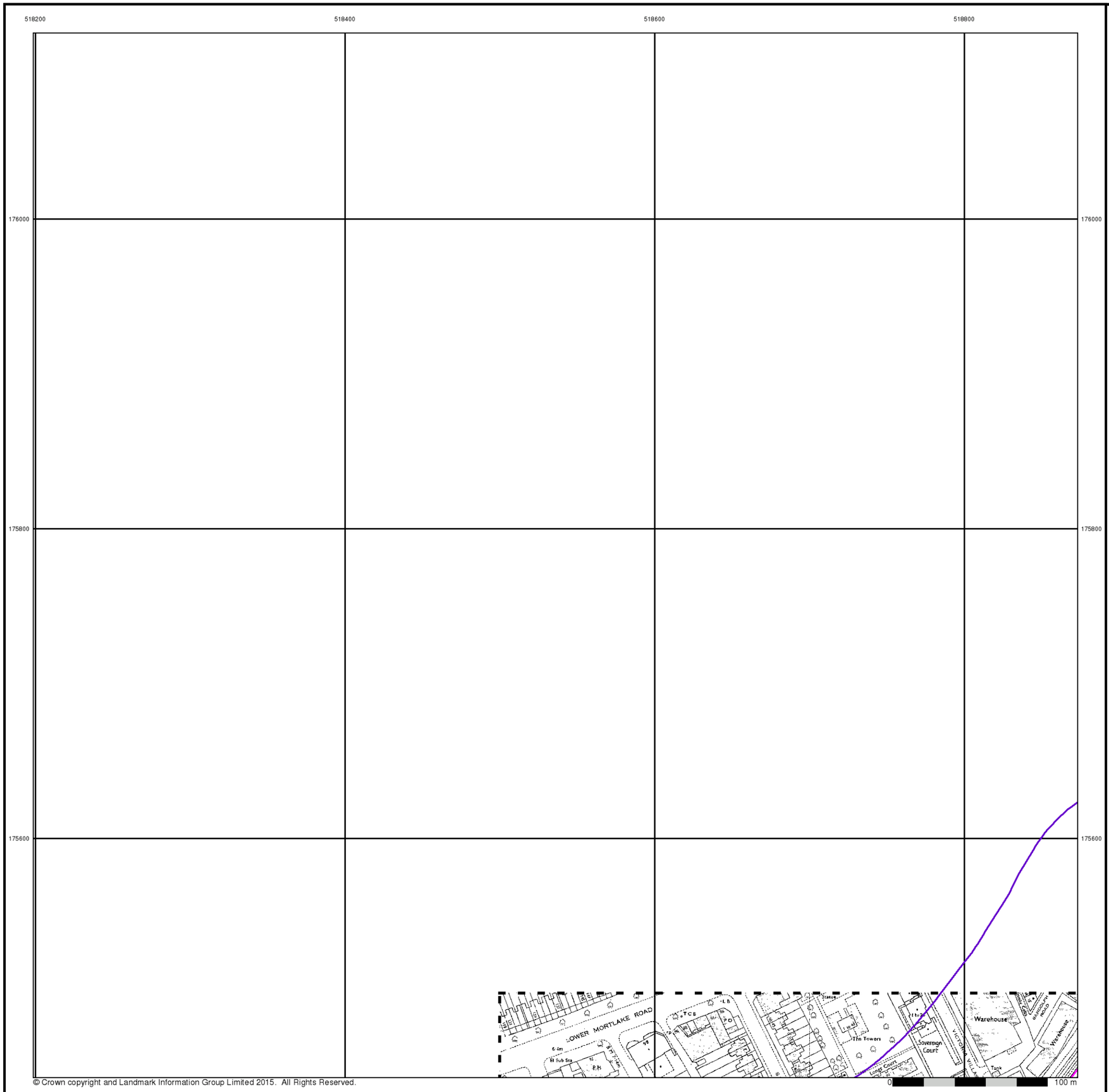

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FAIRHURST

Additional SIMs

Published 1989

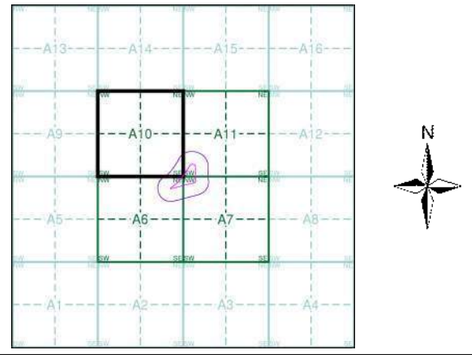
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1875SE
1989
1:1,250

Historical Map - Segment A10



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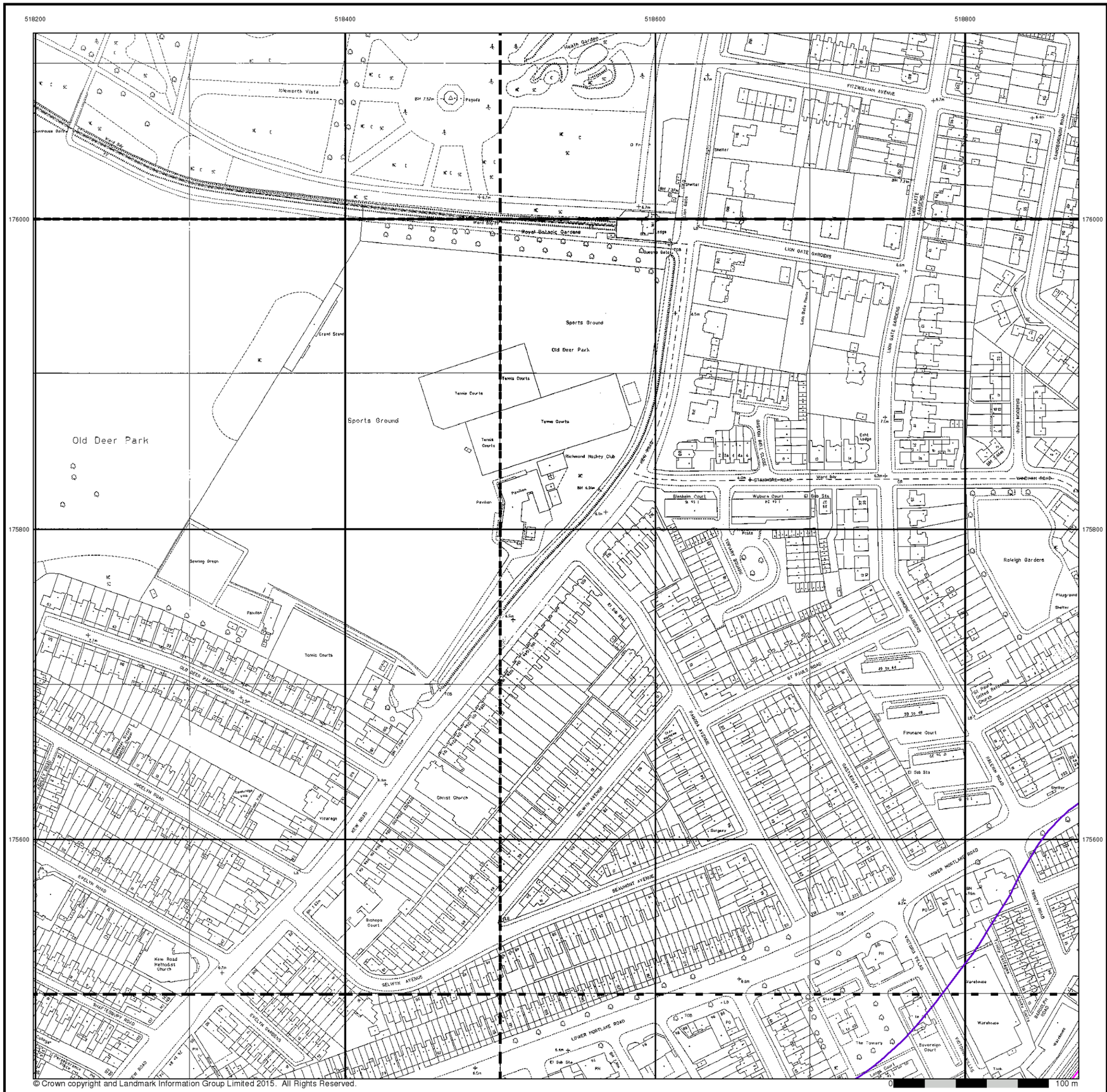

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FAIRHURST

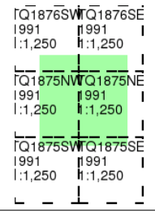
Large-Scale National Grid Data

Published 1991

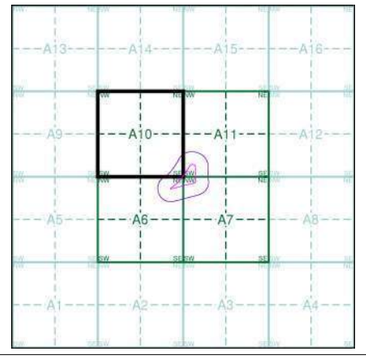
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



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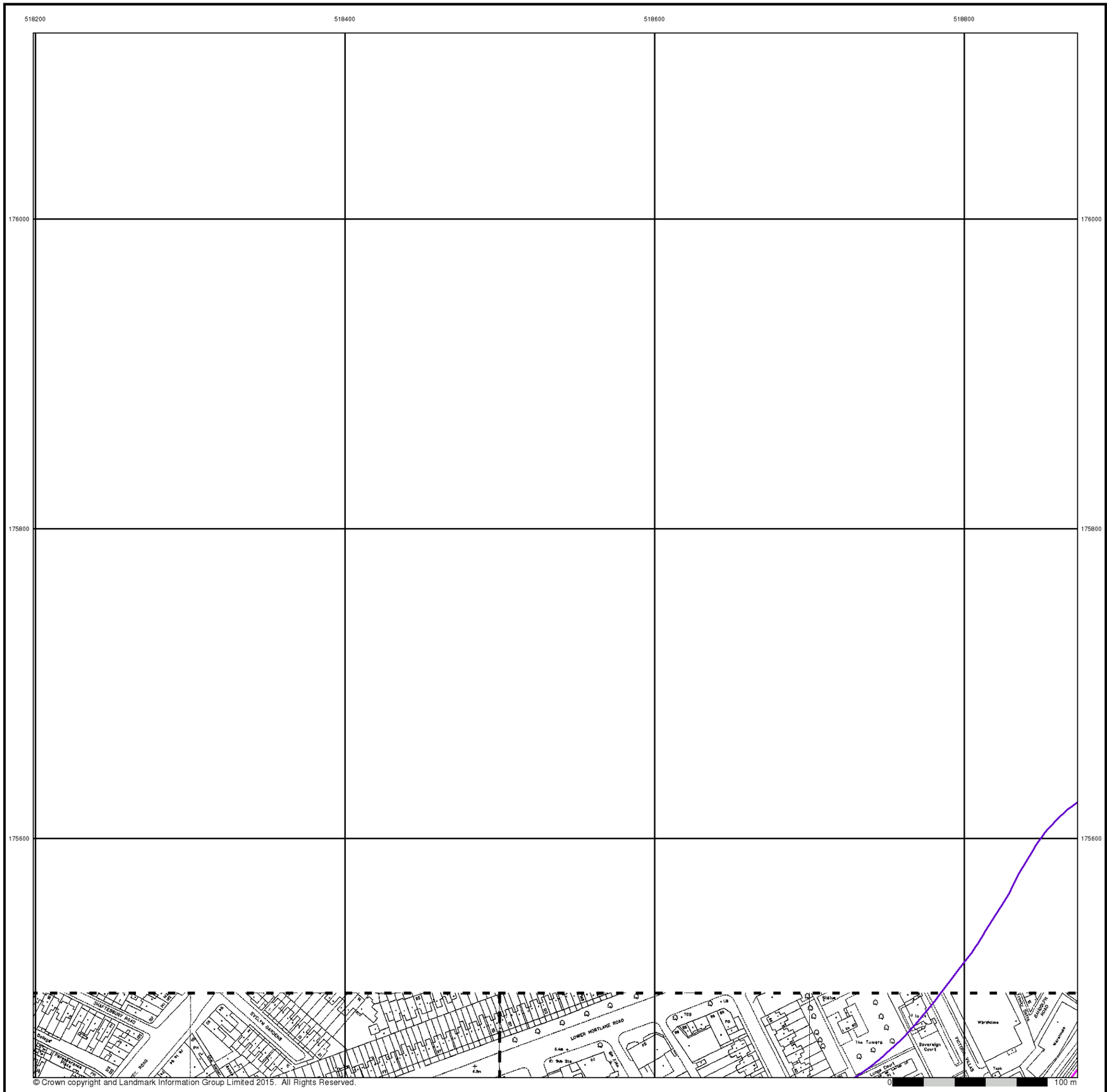

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FAIRHURST

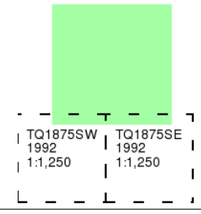
Large-Scale National Grid Data

Published 1992

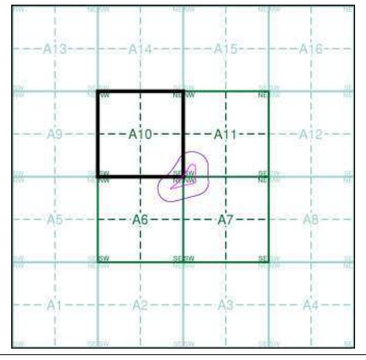
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



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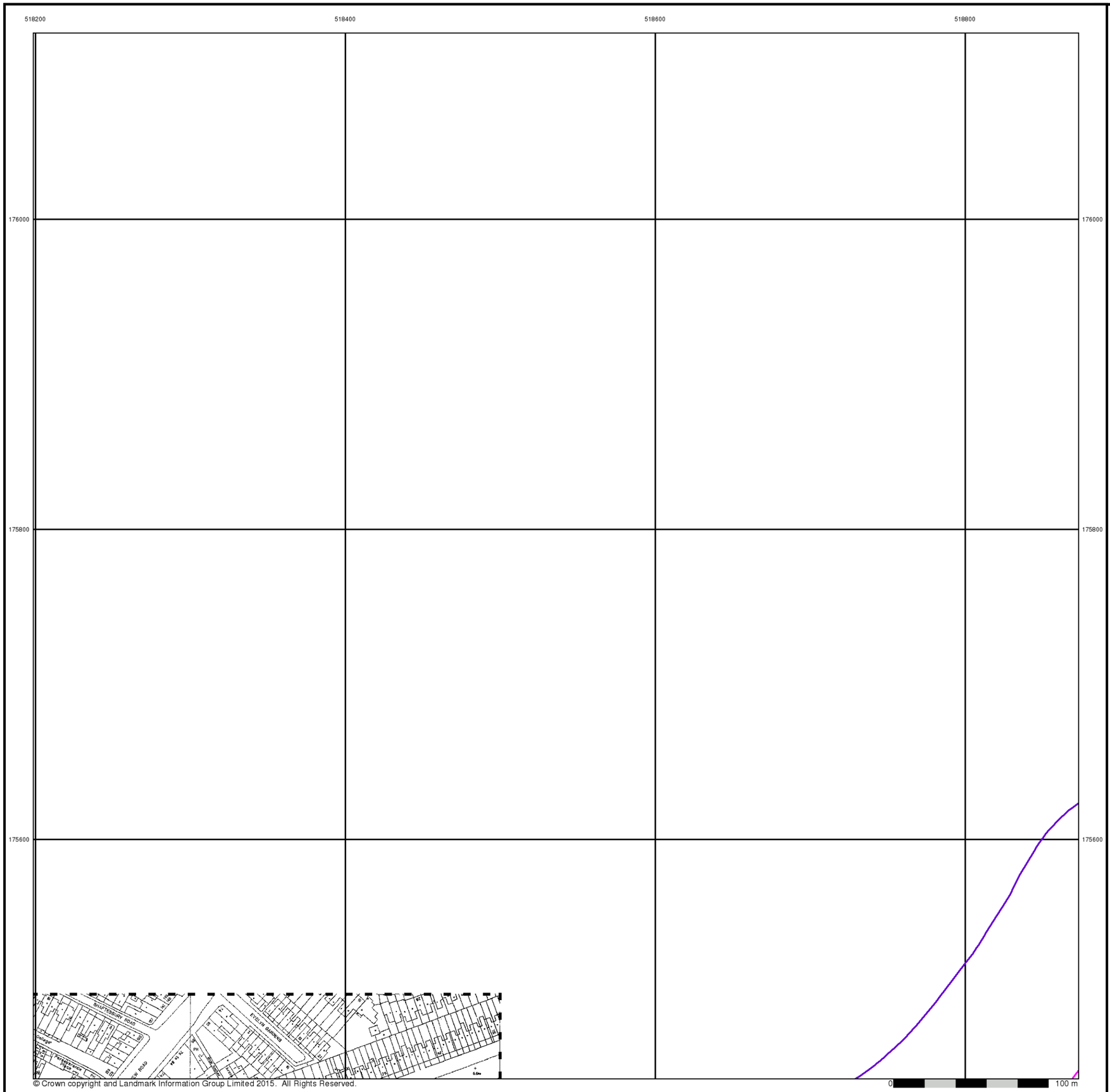

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FAIRHURST

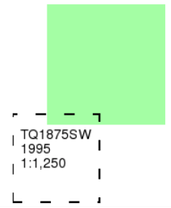
Large-Scale National Grid Data

Published 1995

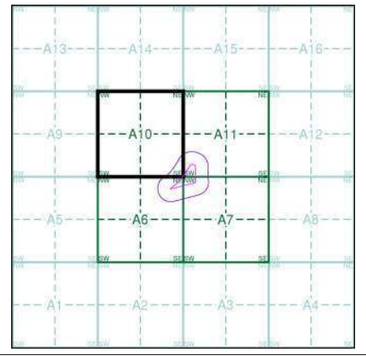
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



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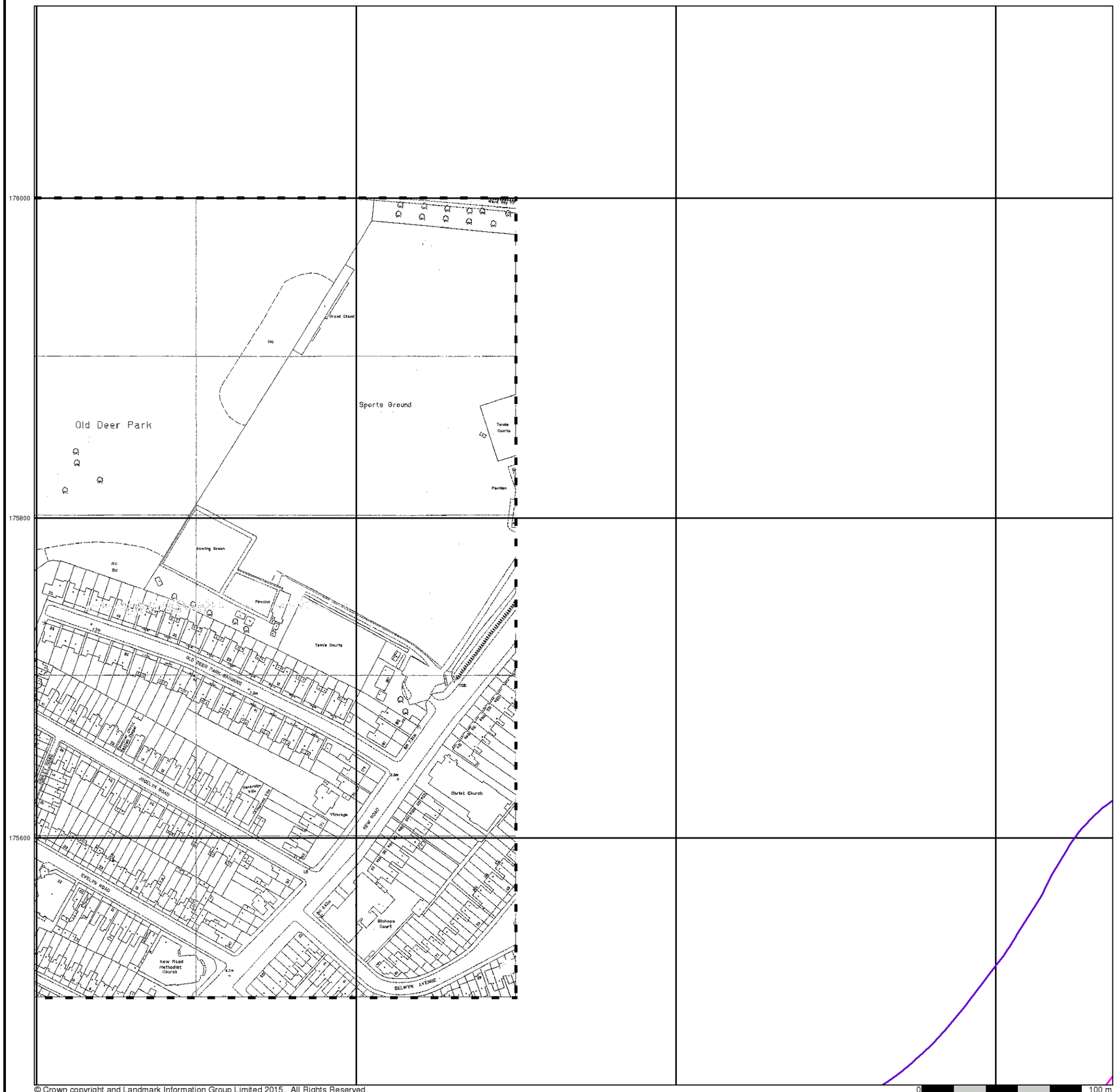

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FAIRHURST

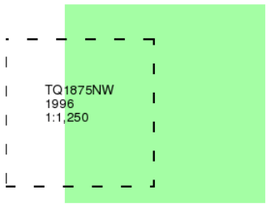
Large-Scale National Grid Data

Published 1996

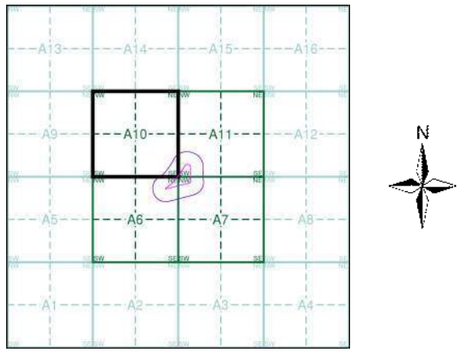
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

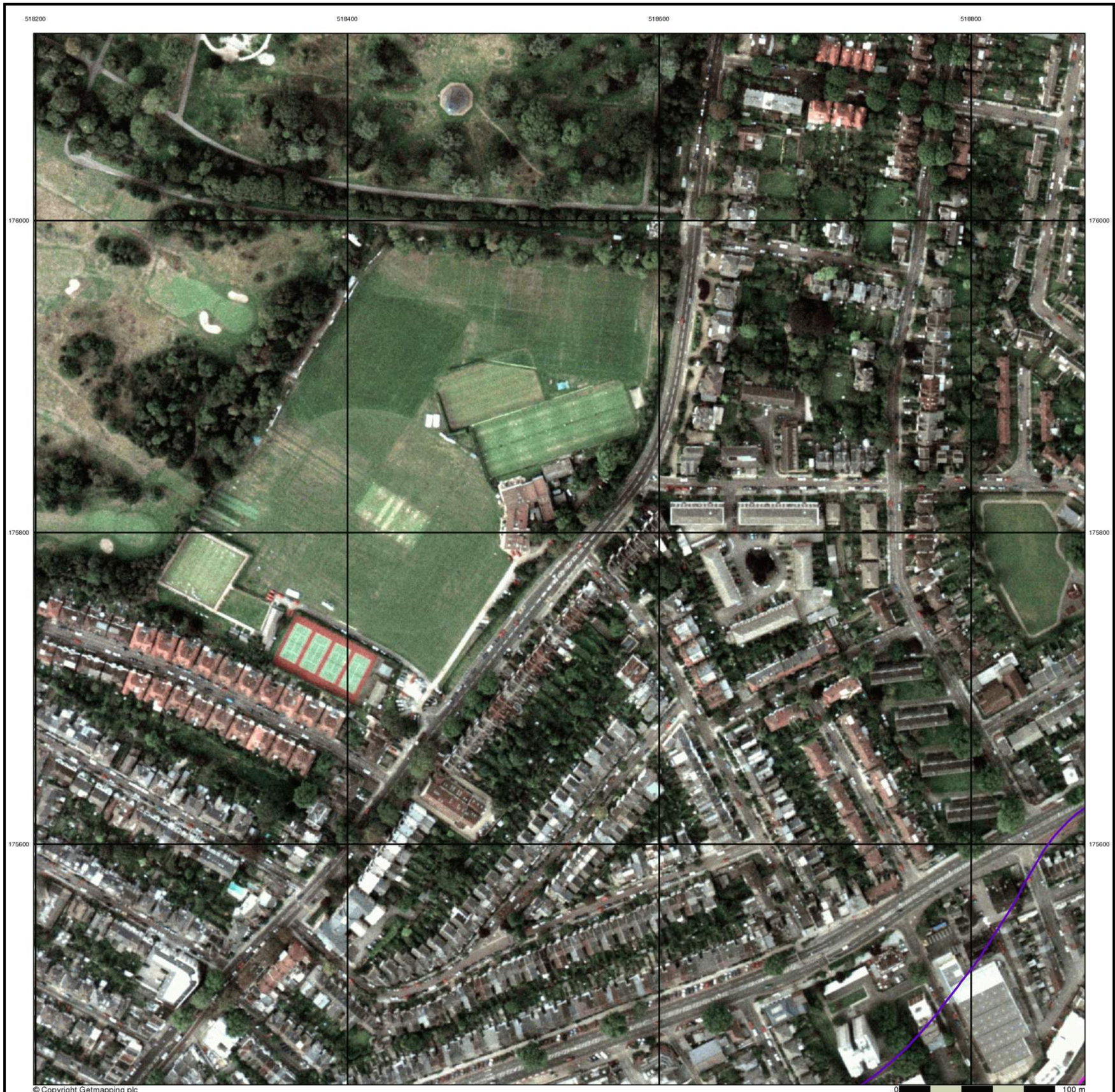
Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



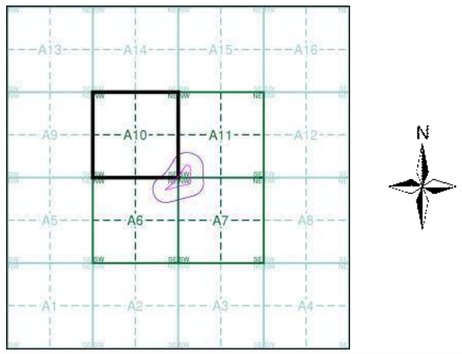
FAIRHURST

Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A10



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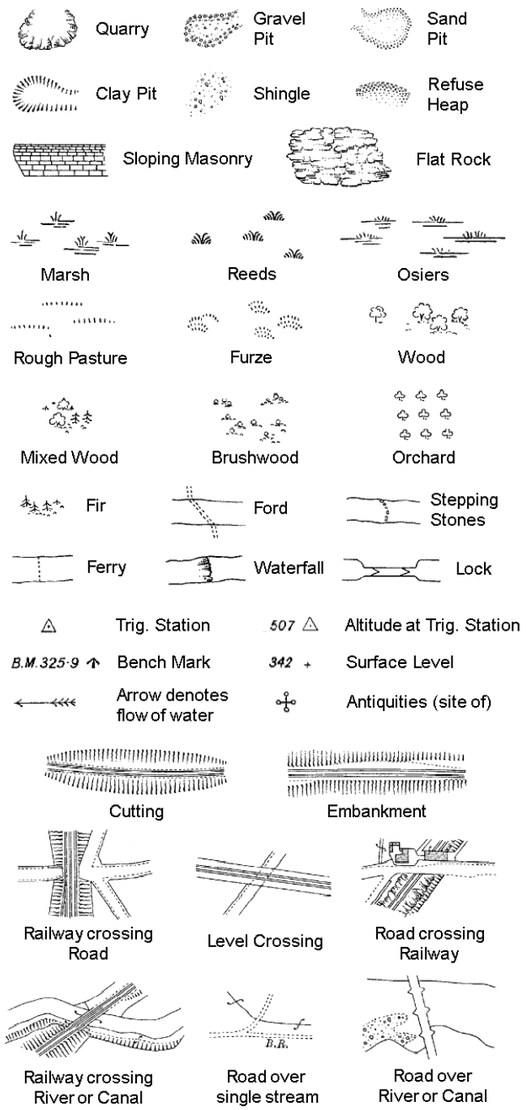
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

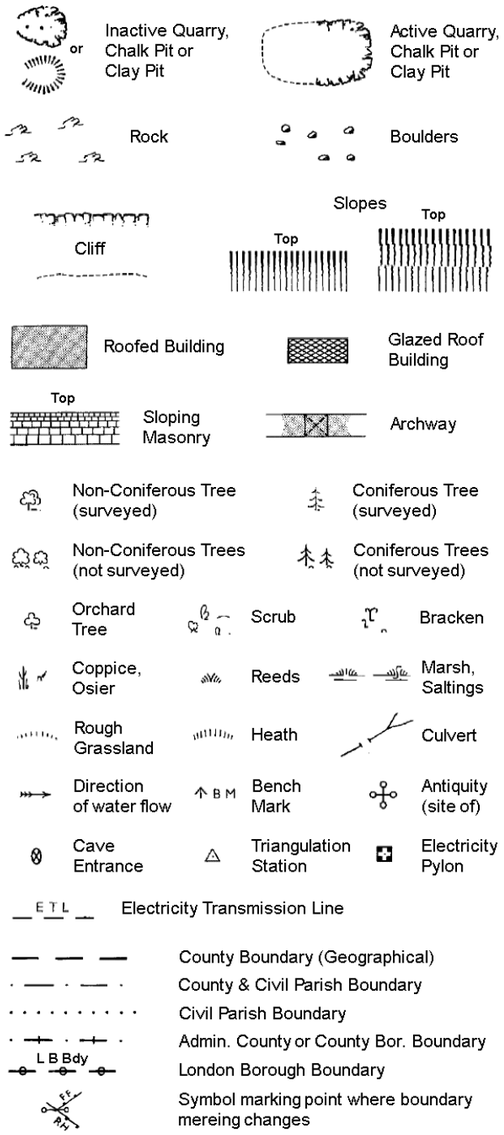
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

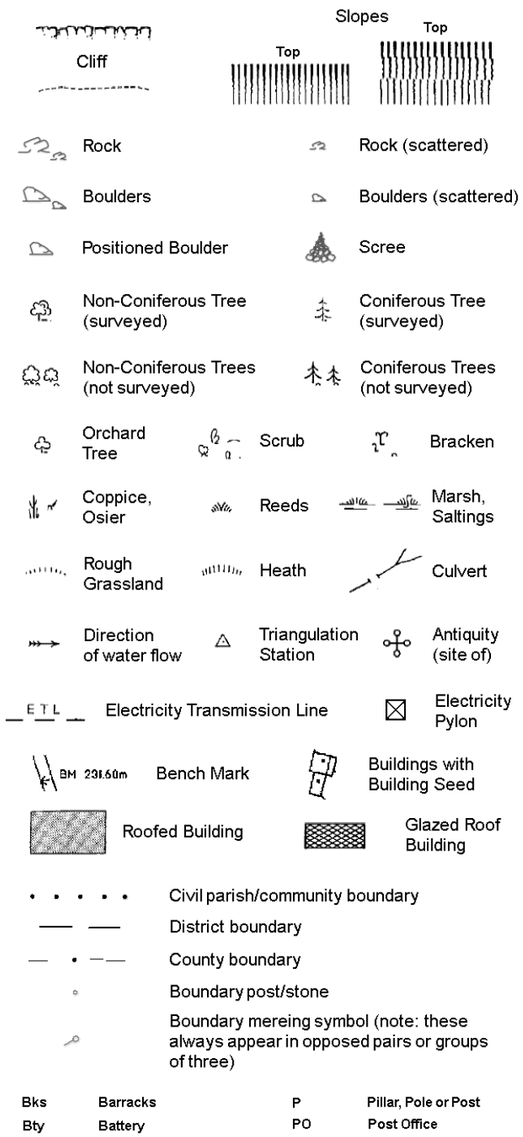
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

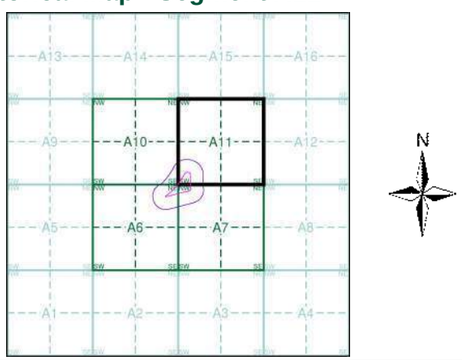
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

FAIRHURST

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Surrey	1:2,500	1868 - 1894	2
Surrey	1:2,500	1868	3
Surrey	1:2,500	1868	4
Middlesex	1:2,500	1871	5
London	1:2,500	1896	6
Surrey	1:2,500	1898	7
Surrey	1:2,500	1913	8
Middlesex	1:2,500	1915	9
Surrey	1:2,500	1934 - 1936	10
Middlesex	1:2,500	1935	11
Historical Aerial Photography	1:1,250	1946 - 1947	12
Ordnance Survey Plan	1:2,500	1960 - 1961	13
Ordnance Survey Plan	1:1,250	1960	14
Additional SIMs	1:2,500	1960 - 1961	15
Additional SIMs	1:1,250	1960 - 1980	16
Ordnance Survey Plan	1:1,250	1968 - 1974	17
Additional SIMs	1:1,250	1973 - 1988	18
Supply of Unpublished Survey Information	1:1,250	1974	19
Additional SIMs	1:1,250	1983	20
Additional SIMs	1:1,250	1989	21
Large-Scale National Grid Data	1:1,250	1991	22
Large-Scale National Grid Data	1:1,250	1992 - 1994	23
Historical Aerial Photography	1:2,500	1999	24

Historical Map - Segment A11



Order Details

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Site Area (Ha): 1.58
Search Buffer (m): 100

Site Details

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FAIRHURST

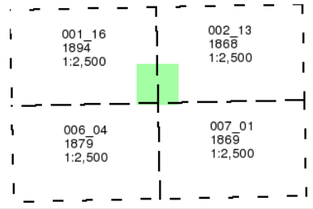
Surrey

Published 1868 - 1894

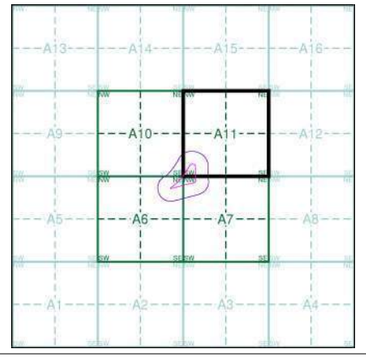
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A11



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519000
519200
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FAIRHURST

Surrey

Published 1868

Source map scale - 1:2,500

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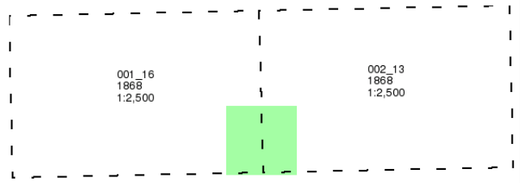
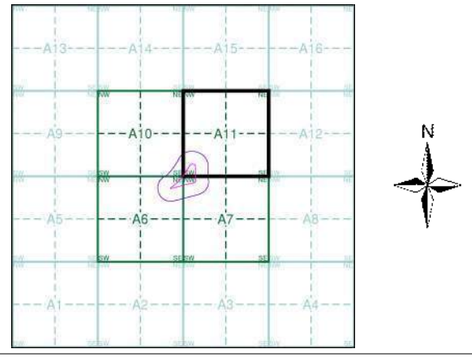


Historical Map - Segment A11



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Richmond Gas Works

B.M. 23·0

Nurs 3

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FAIRHURST

Surrey

Published 1868

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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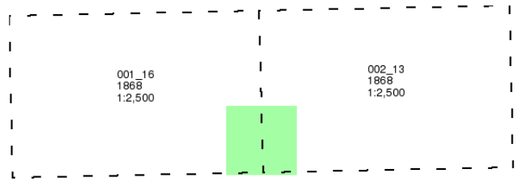
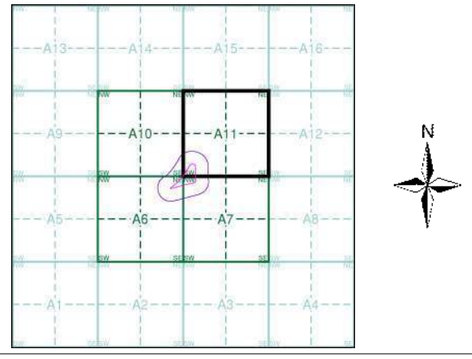


Historical Map - Segment A11



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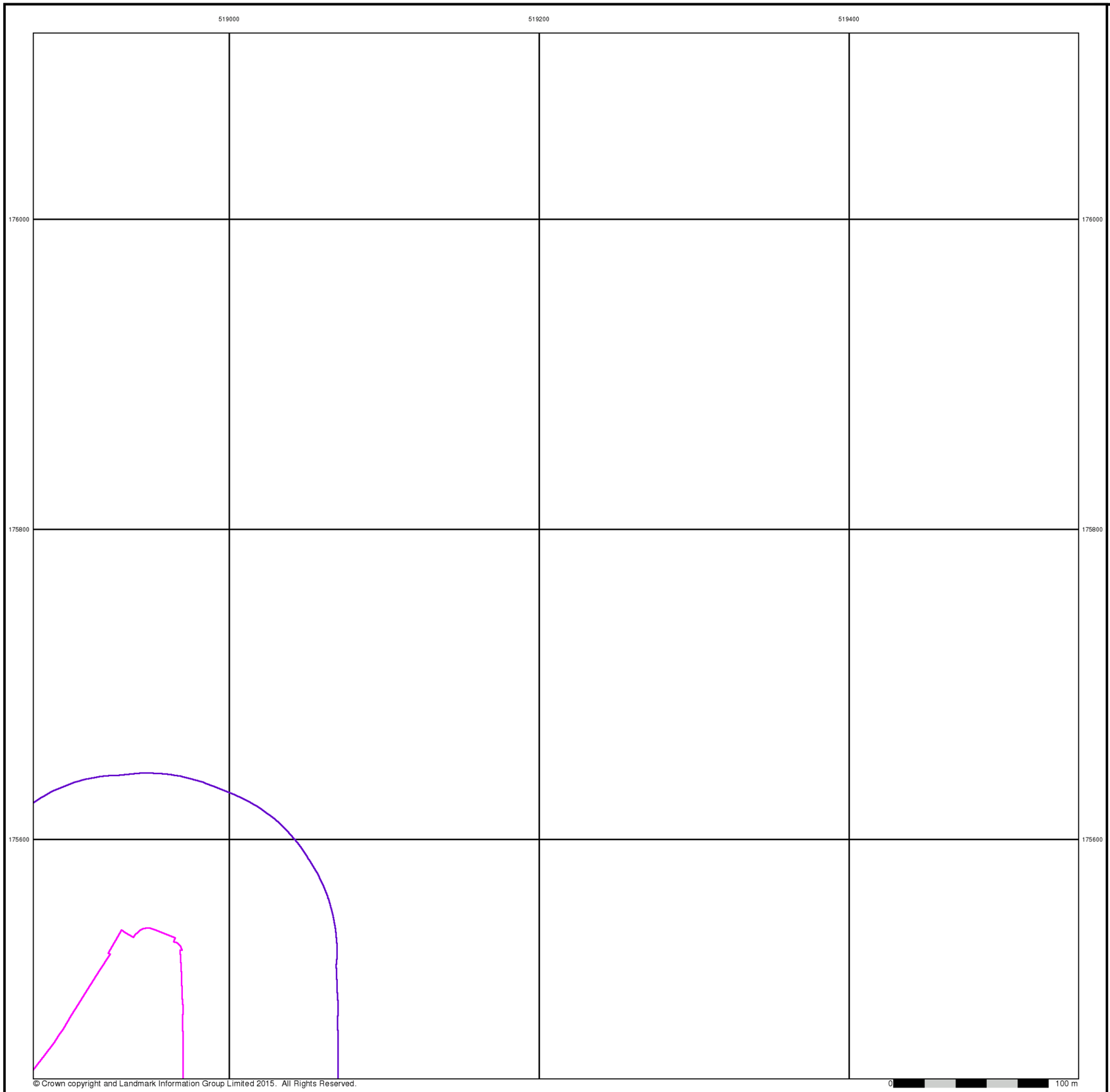


FAIRHURST

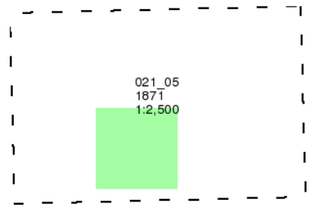
Middlesex

Published 1871

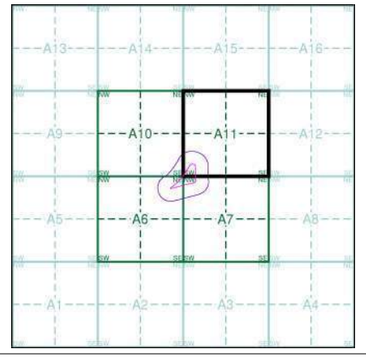
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A11



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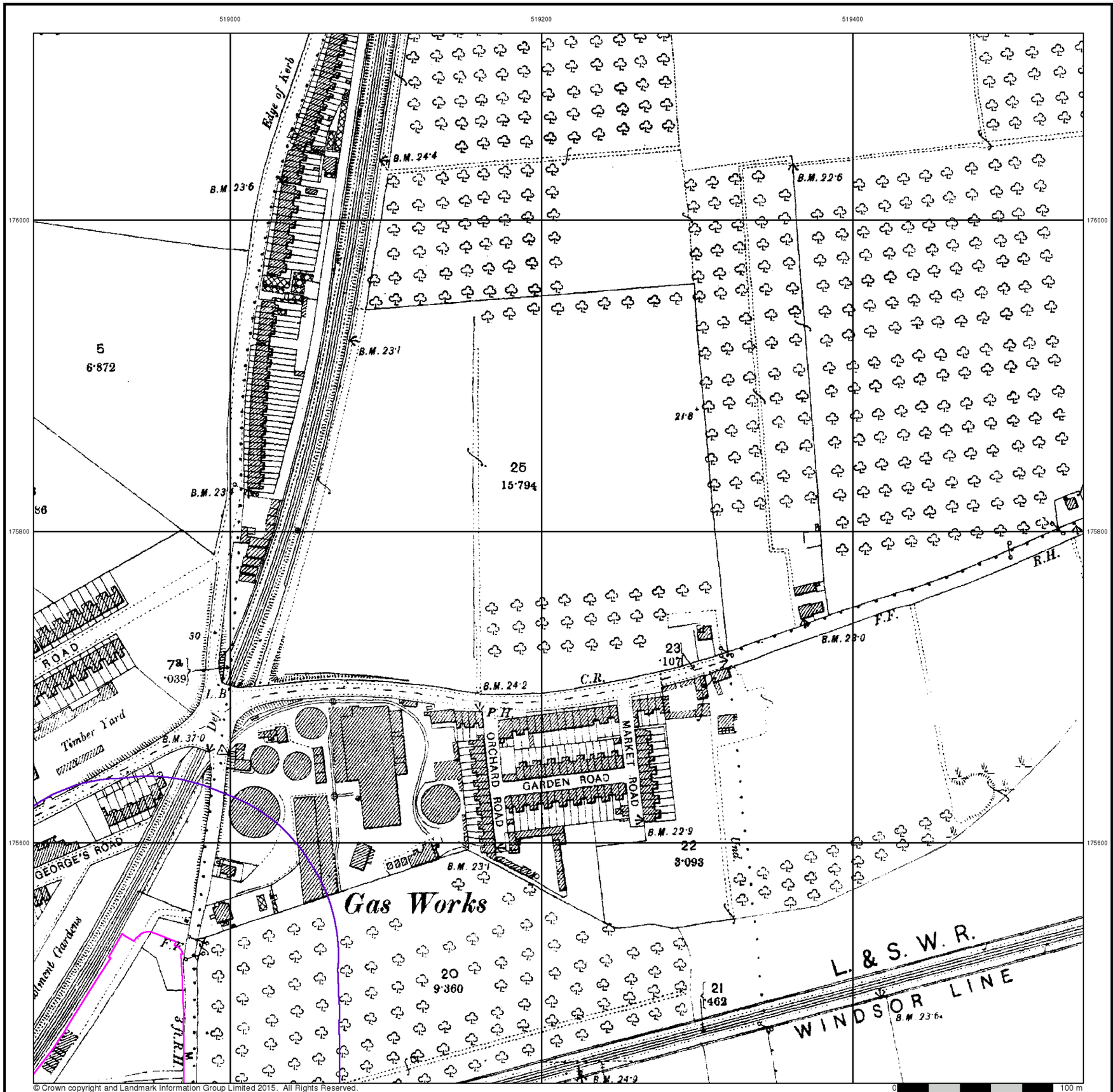

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FAIRHURST

London

Published 1896

Source map scale - 1:2,500

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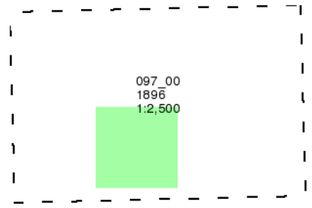
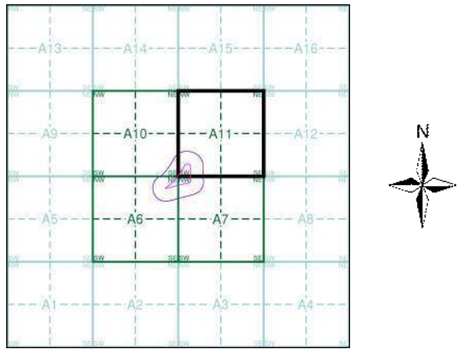
Map Name(s) and Date(s)



Historical Map - Segment A11



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519000 519200 519400

176000 176000

175800 175800

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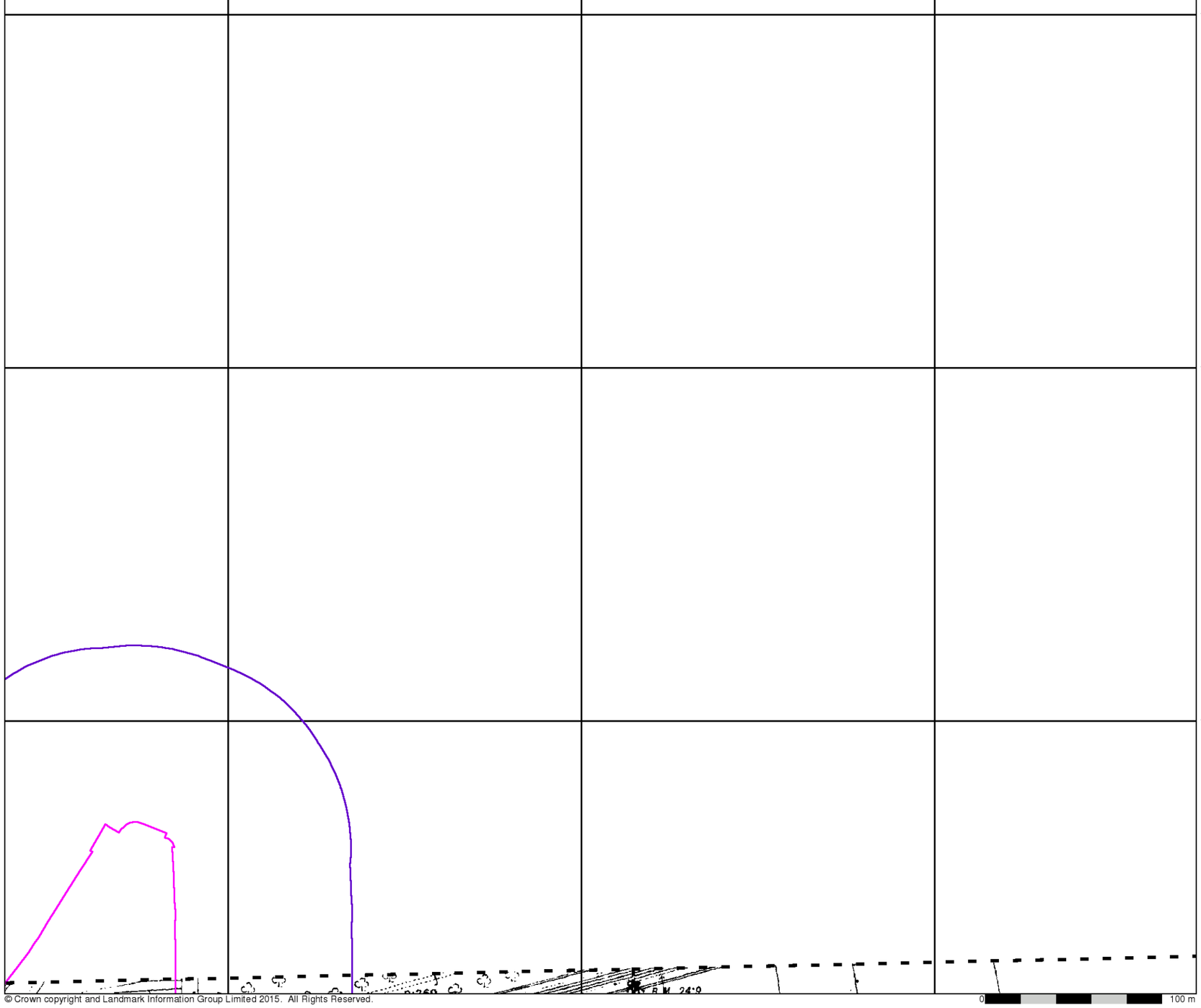

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0 100 m

FAIRHURST

Surrey

Published 1898

Source map scale - 1:2,500

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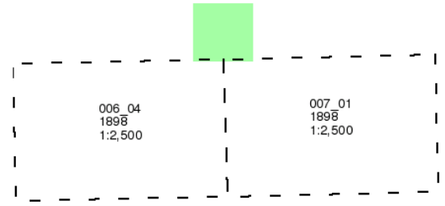
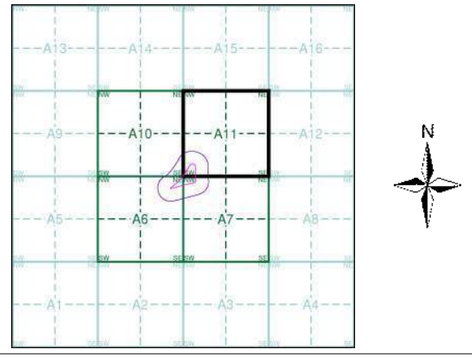


Historical Map - Segment A11



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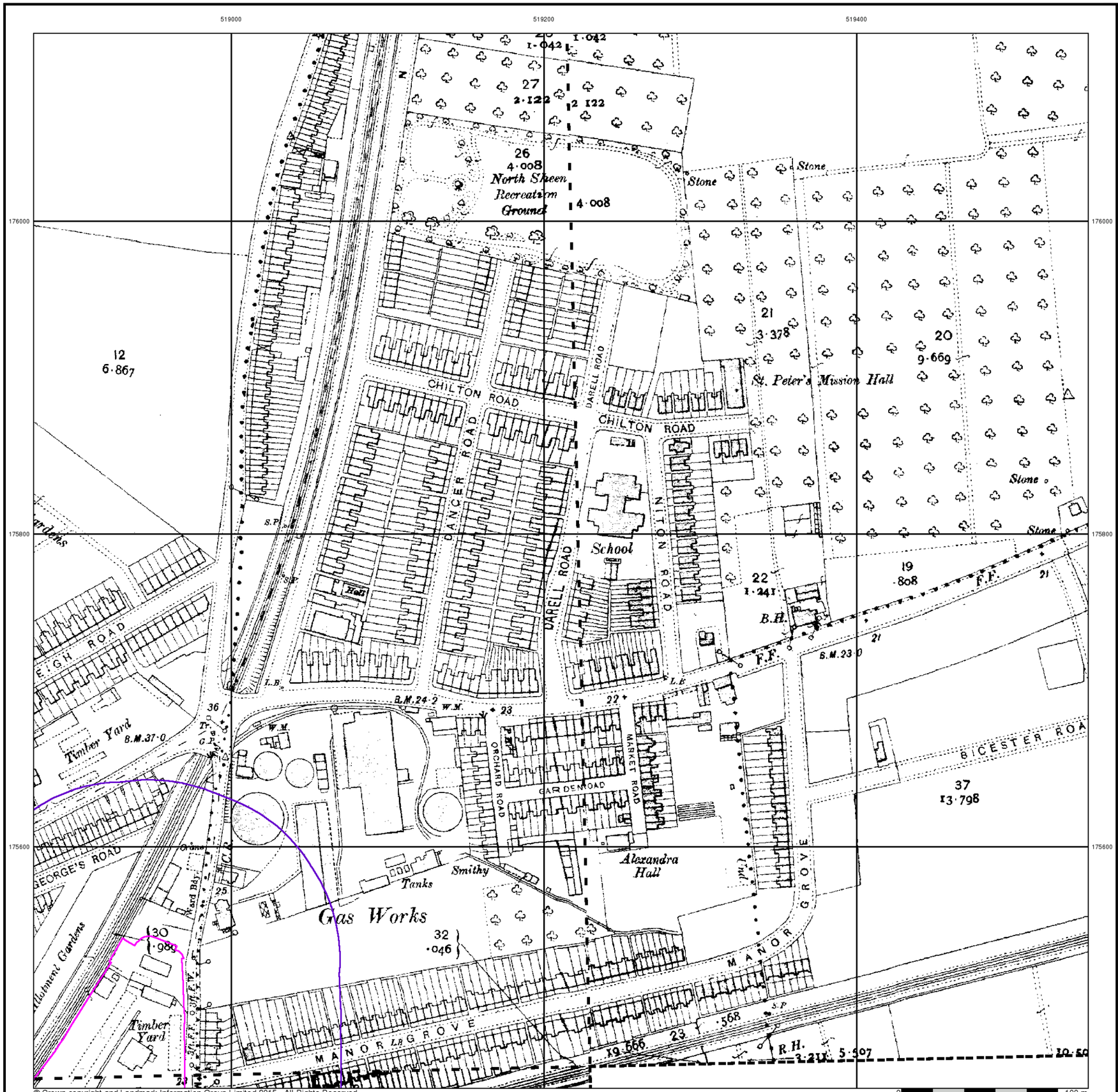


FAIRHURST

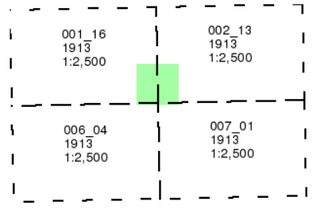
Surrey

Published 1913

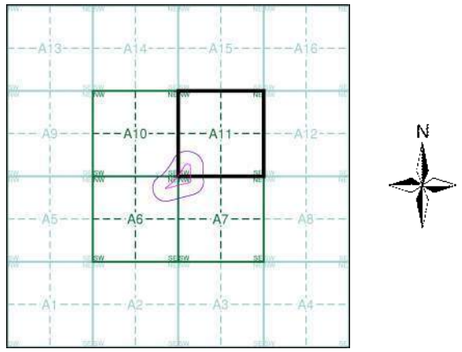
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A11



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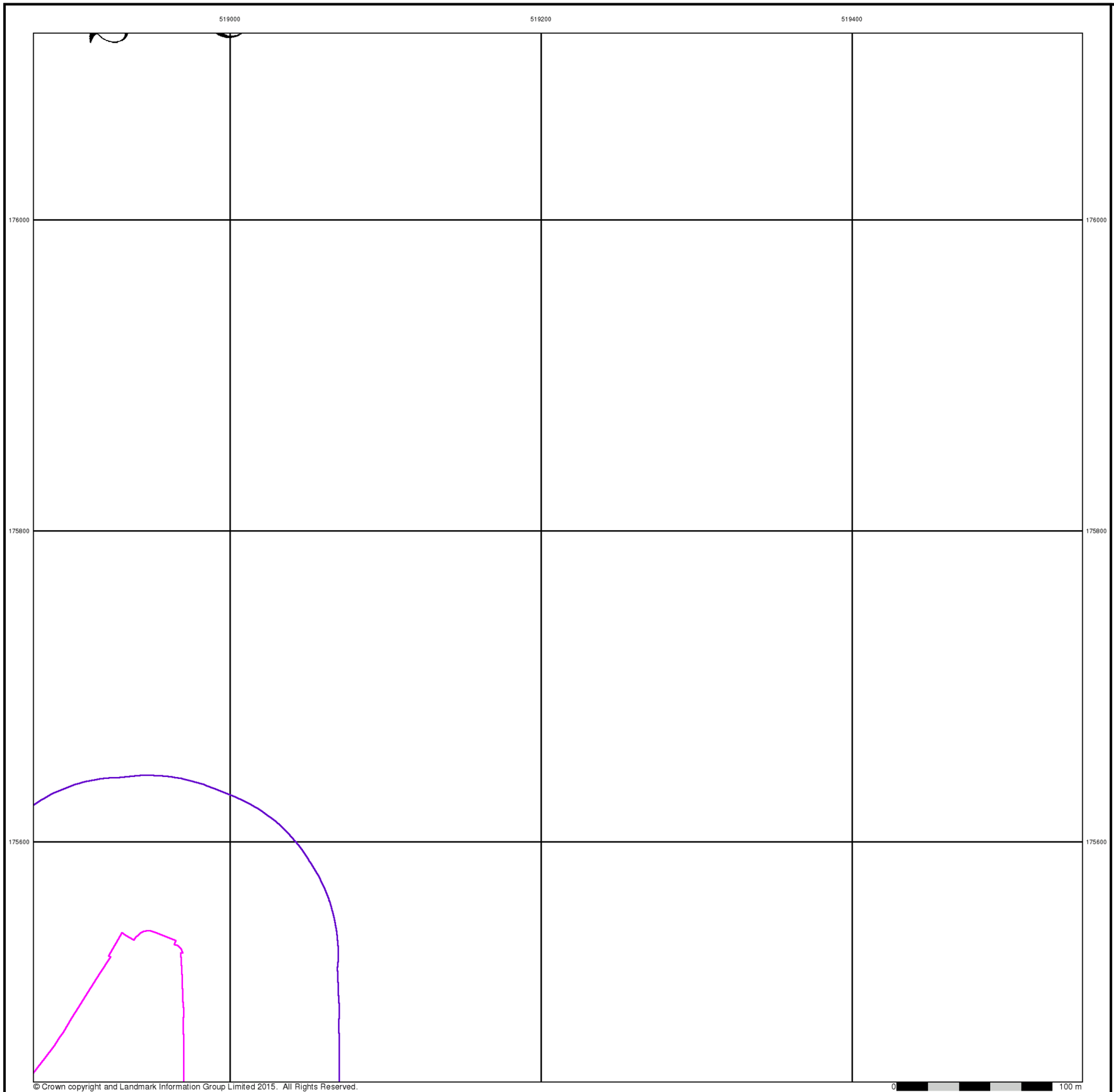

FAIRHURST

Middlesex

Published 1915

Source map scale - 1:2,500

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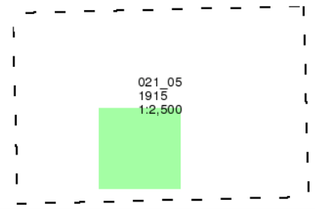
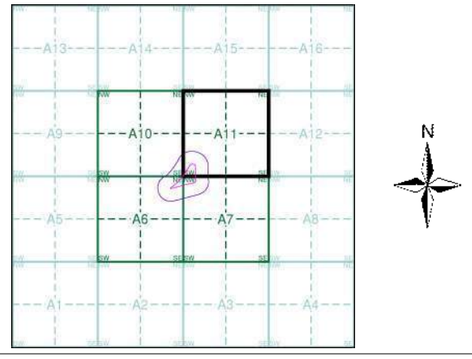
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

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26 4·256
GARRICK ROAD
CHAUCER AVENUE
THOMSON AVENUE
MARKSBURY AVENUE
Hall
CHILTON ROAD
DARELL ROAD
Bowling Green
School
NIXON ROAD
GH ROAD
LEIGH ROAD
P.C.B
T.C.B
ORCHARD ROAD
MARKET ROAD
GARDE ROAD
BICESTER ROAD
Alexandra Hall
GEORGE'S ROAD
Allotment Gardens
Timber Yard
MANOR GROVE
30·989
32·046
R.H. 249
M.P

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0 100 m

FAIRHURST

Surrey

Published 1934 - 1936

Source map scale - 1:2,500

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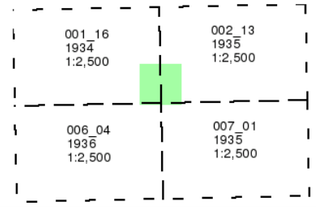
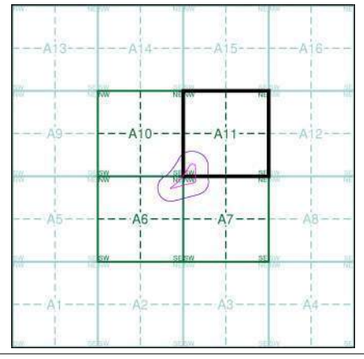
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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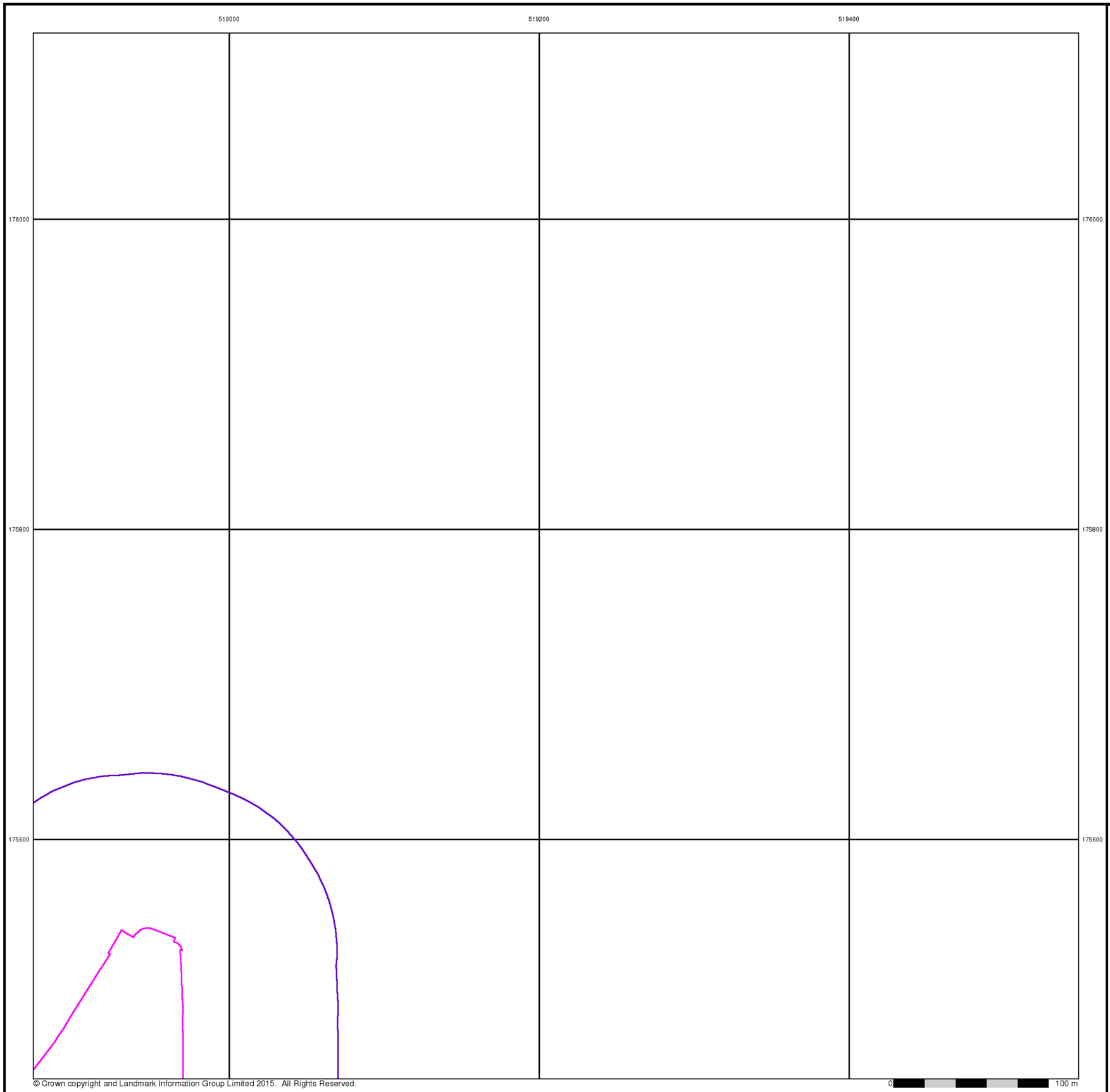

FAIRHURST

Middlesex

Published 1935

Source map scale - 1:2,500

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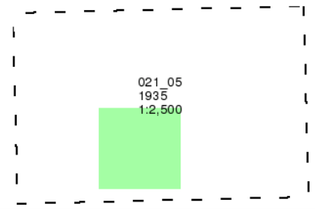
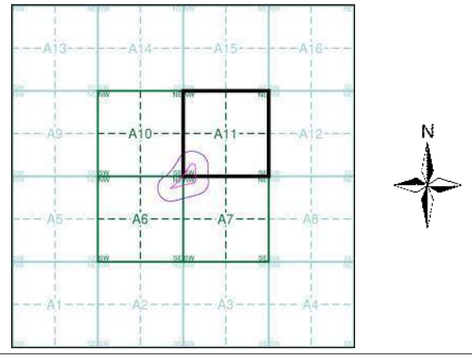
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	142584674_1_1
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Site Area (Ha):	1.58
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FAIRHURST

Historical Aerial Photography

Published 1946 - 1947

Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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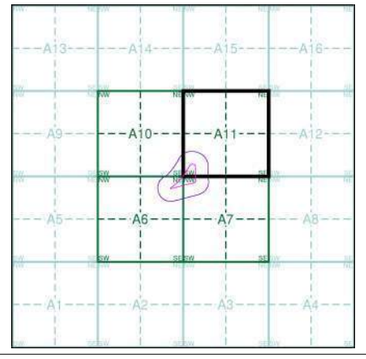
Map Name(s) and Date(s)

Historical Aerial Photography - Segment A11



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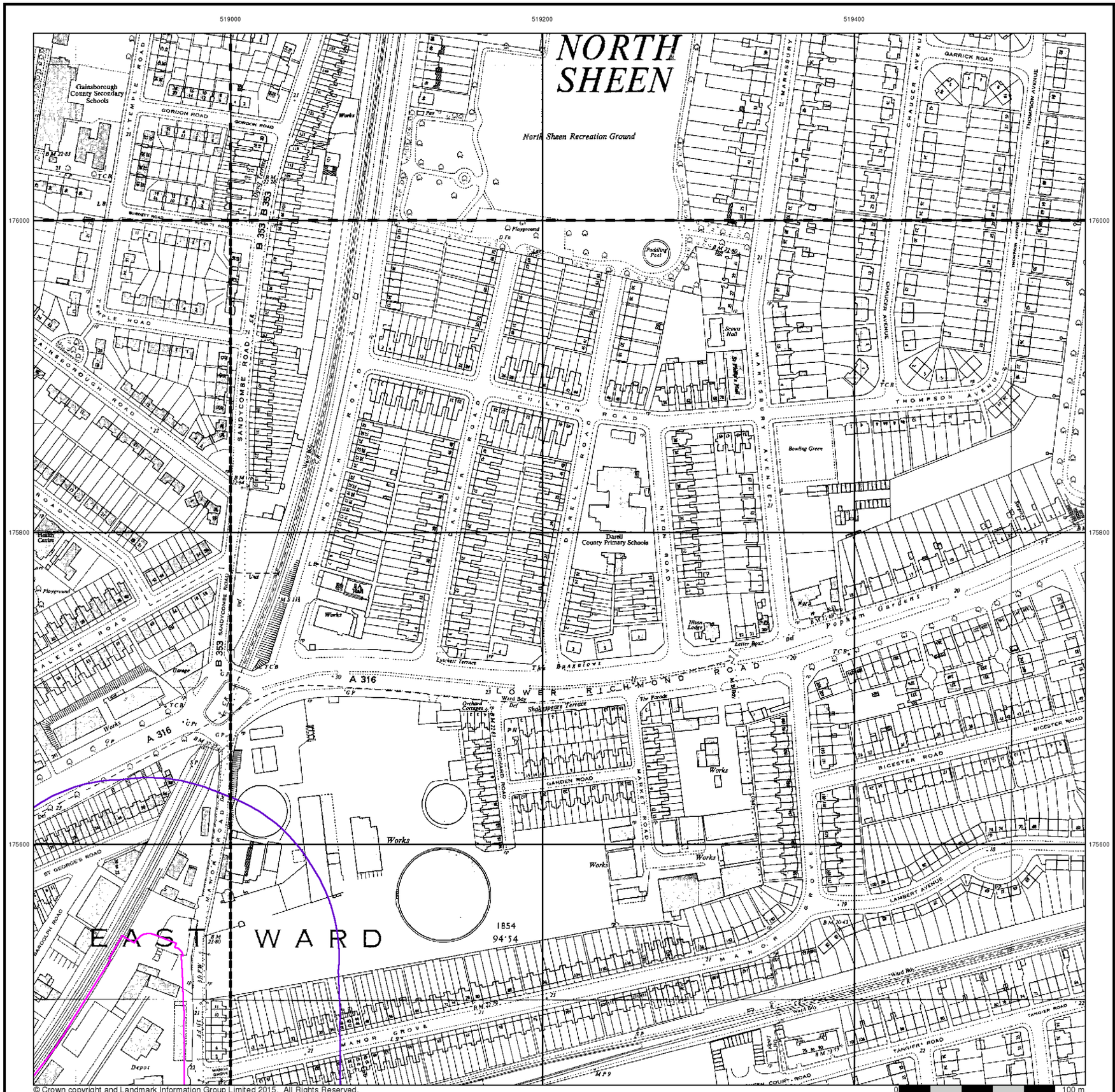

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FAIRHURST

Ordnance Survey Plan

Published 1960 - 1961

Source map scale - 1:2,500

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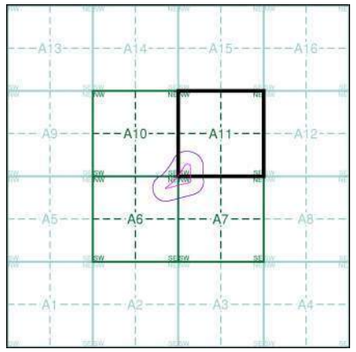
Map Name(s) and Date(s)

TQ1876 1961 1:2,500	TQ1976 1961 1:2,500
TQ1875 1960 1:2,500	TQ1975 1960 1:2,500

Historical Map - Segment A11



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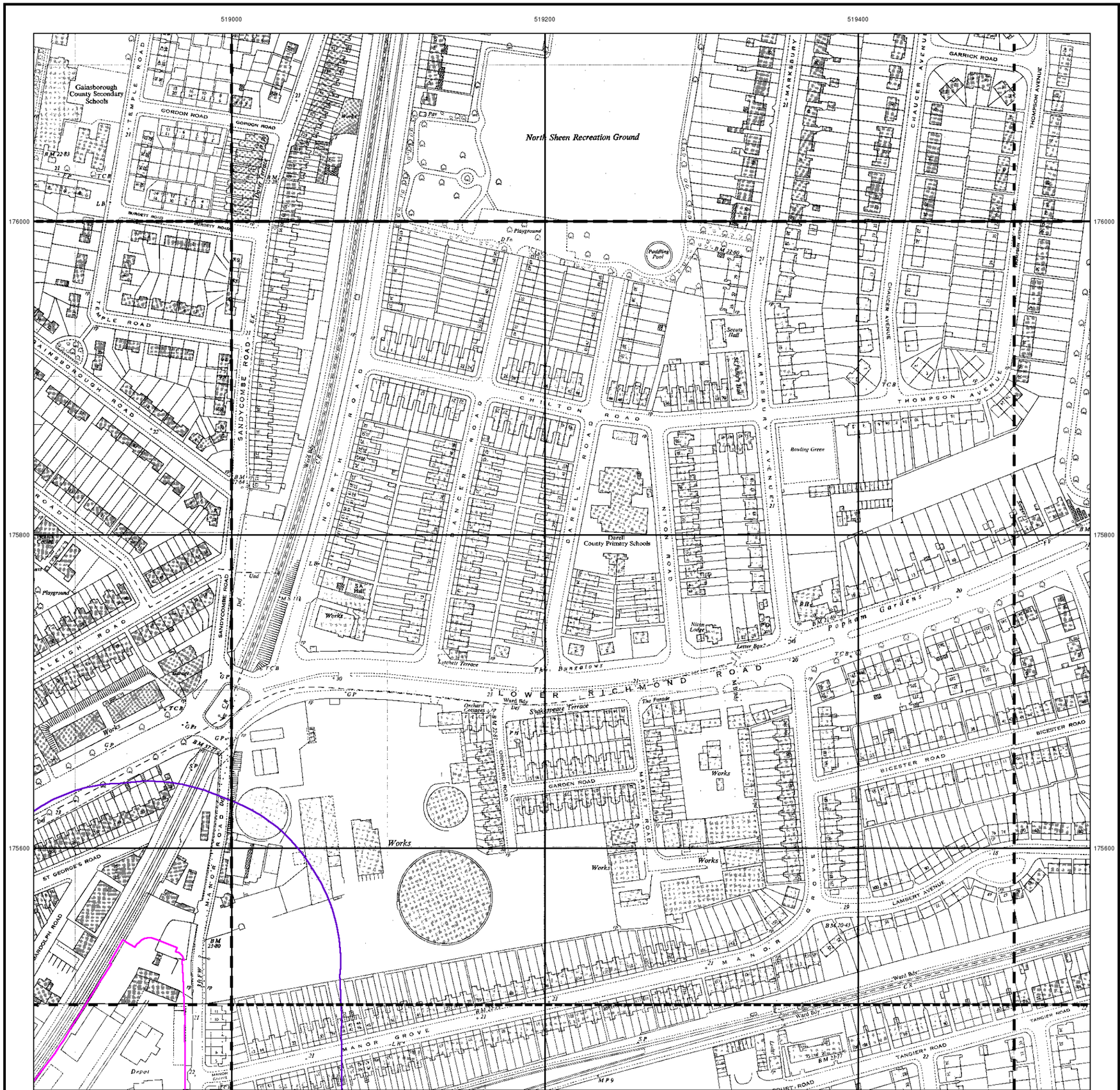

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FAIRHURST

Ordnance Survey Plan

Published 1960

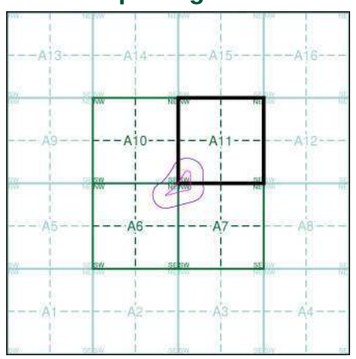
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TQ1876SE 1960 1:1,250	TQ1976SW 1960 1:1,250	TQ1976SE 1960 1:1,250
TQ1875NE 1960 1:1,250	TQ1975NW 1960 1:1,250	TQ1975NE 1960 1:1,250
TQ1875SE 1960 1:1,250	TQ1975SW 1960 1:1,250	TQ1975SE 1960 1:1,250

Historical Map - Segment A11



Order Details

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FAIRHURST

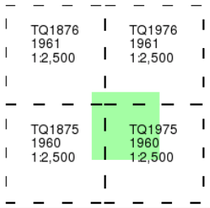
Additional SIMs

Published 1960 - 1961

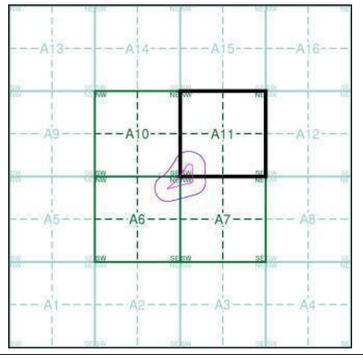
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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GORDON ROAD
TEMPLE ROAD
BURBETT ROAD
GARRICK ROAD
MARKSBURY
CHAUCER AVENUE
TRAPLE ROAD
AINSBOROUGH ROAD
RALEIGH ROAD
SANDYCOMBE ROAD
ST GEORGE'S ROAD
RANDOLPH ROAD
MANOR ROAD
MANOR GROVE
TANGIER ROAD
KINGSTON COURT ROAD
KIRKSTER ROAD
Health Centre
Playground
Garage
Works
Depot
Coal Hoppers
Fuel Depot
Builders Yard
Nord Bay
BM 7.25m
BM 7.32m
TCB
LP
MP 9

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0 100 m

FAIRHURST

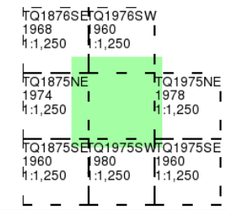
Additional SIMs

Published 1960 - 1980

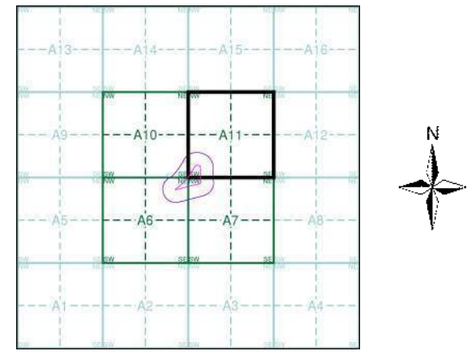
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	142584674_1_1
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National Grid Reference:	518890, 175430
Slice:	A
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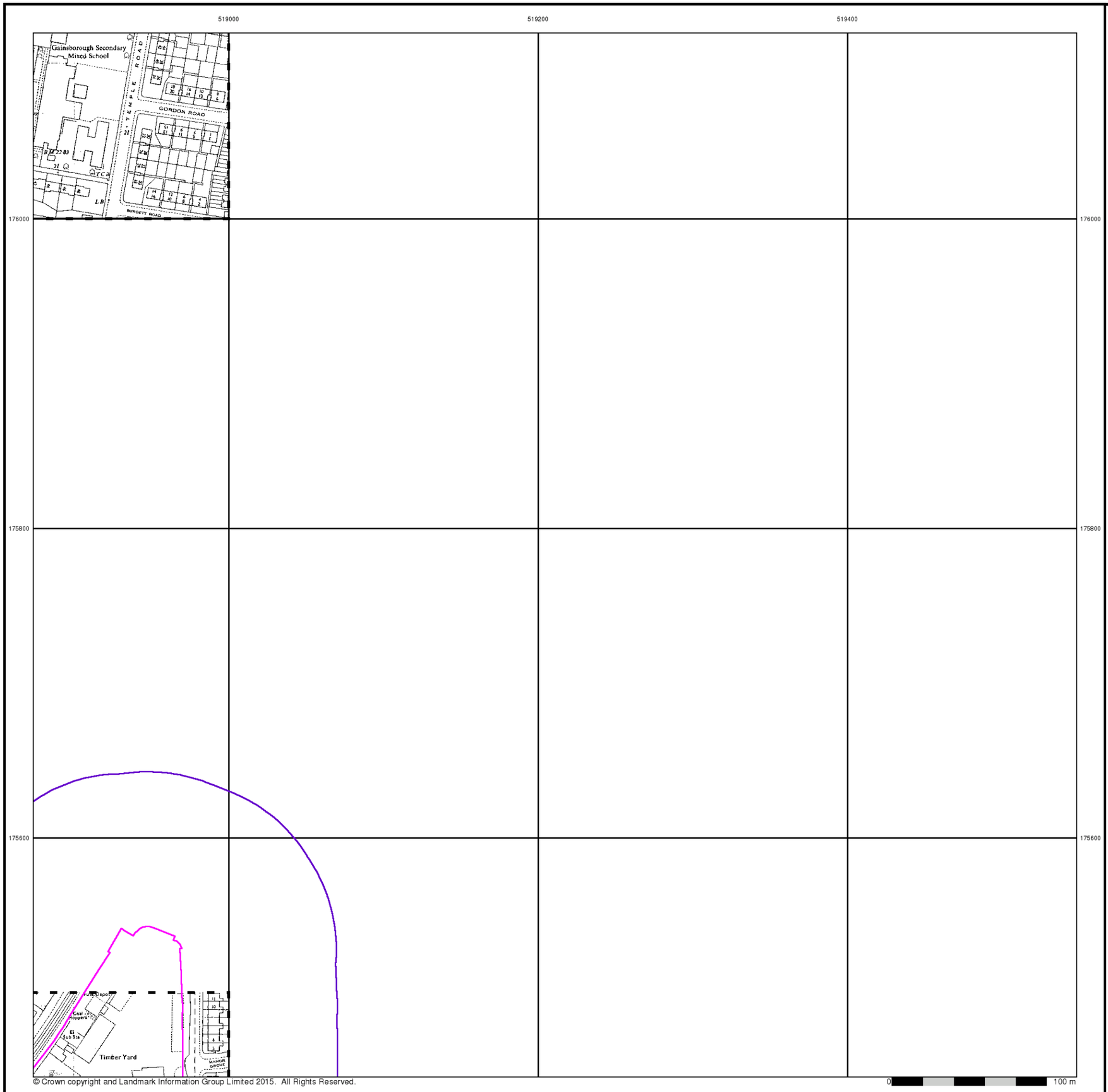

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FAIRHURST

Ordnance Survey Plan

Published 1968 - 1974

Source map scale - 1:1,250

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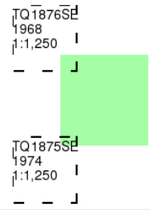
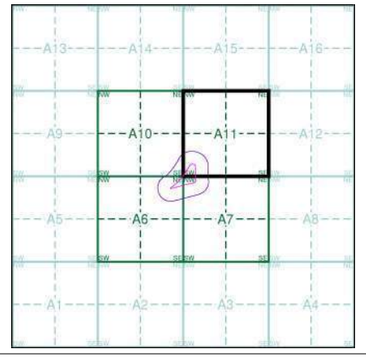
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	142584674_1_1
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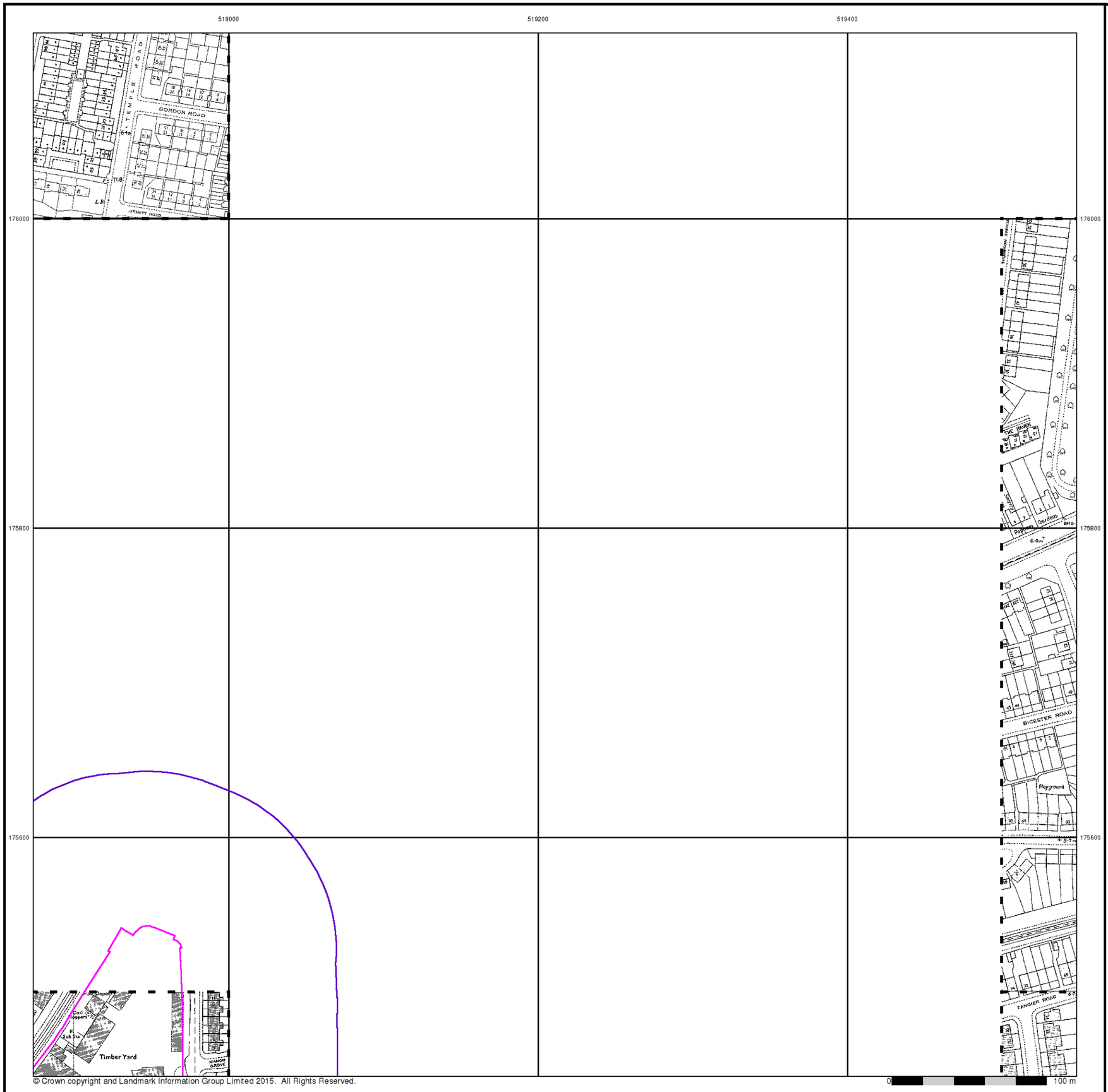

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FAIRHURST

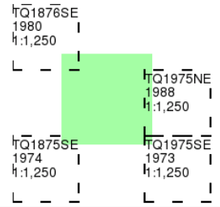
Additional SIMs

Published 1973 - 1988

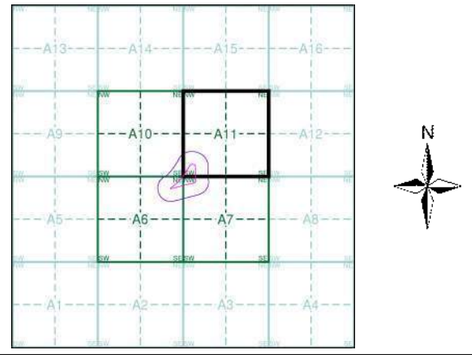
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



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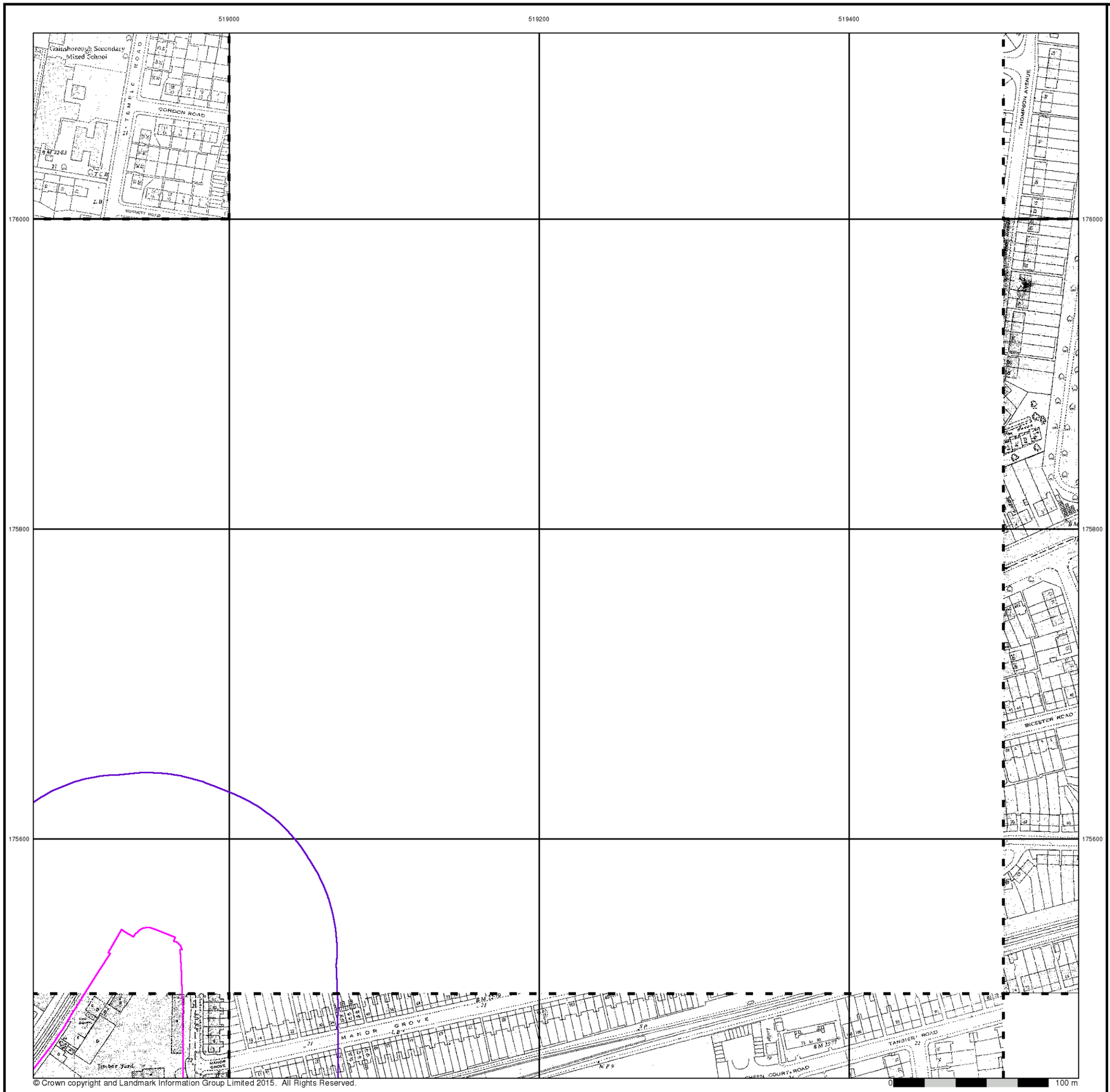

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FAIRHURST

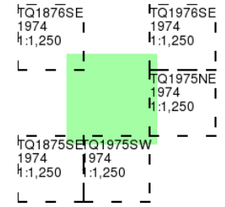
Supply of Unpublished Survey Information

Published 1974

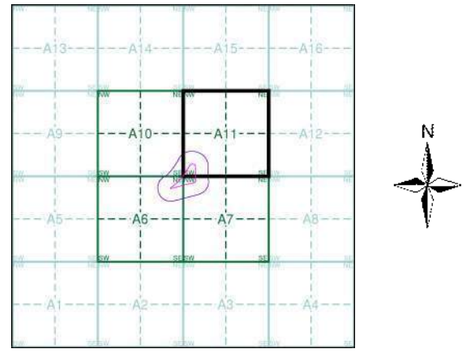
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



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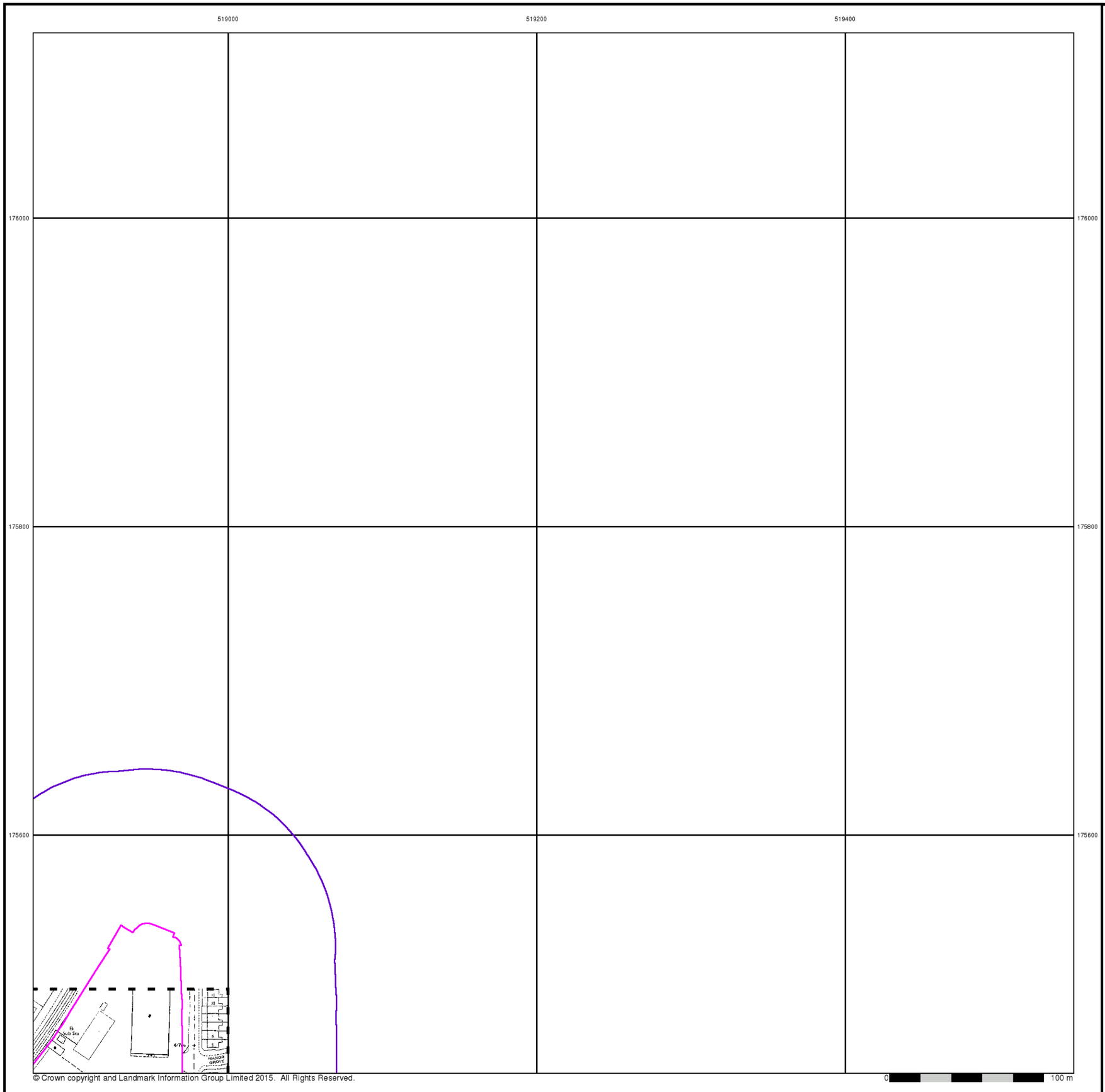

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FAIRHURST

Additional SIMs

Published 1983

Source map scale - 1:1,250

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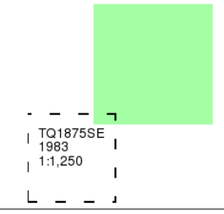
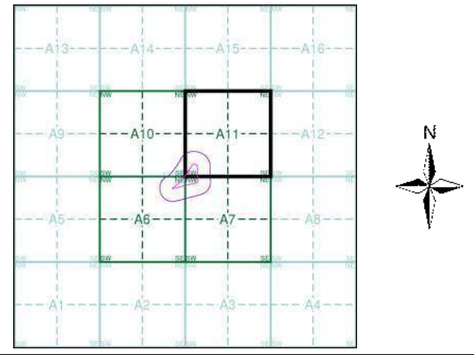
Map Name(s) and Date(s)



Historical Map - Segment A11



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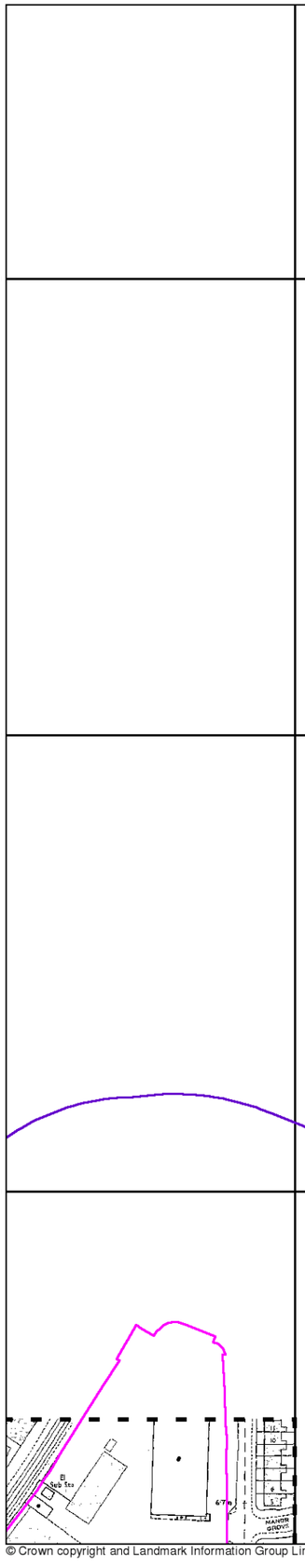
519000 519200 519400

176000 175800 175600



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0 100 m

FAIRHURST

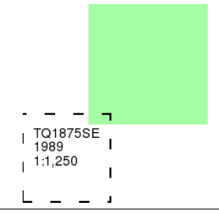
Additional SIMs

Published 1989

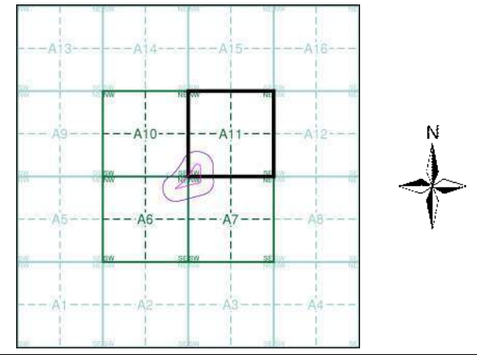
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP

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Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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FAIRHURST

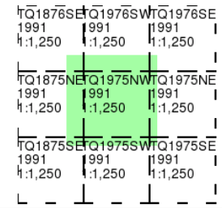
Large-Scale National Grid Data

Published 1991

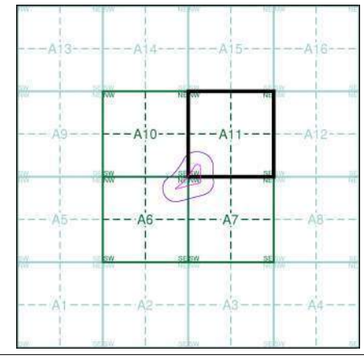
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



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519000 519200 519400

176000 175800 175600

North Sheen Recreation Ground
Playground
Paddling Pool
Bowls Hall
ELSWORTHY ROAD
ELLERTON ROAD
DARELL ROAD
DANCER ROAD
NORTH ROAD
ARLEN TERRACE
CHARLTON ROAD
MARLBOROUGH AVENUE
CHAUCER AVENUE
THOMPSON AVENUE
THE HAVEN
Darell Primary School and Nursery
Bowling Green
Garage
Shakespeare Terrace
PH
Fire Station
Tank
Garage
LOWER RICHMOND ROAD
MARSH ROAD
ORCHARD AVENUE
GARDEN ROAD
Gas Holder Station and Depot
Works
Factory
Lester Heins
Depot
BIDDESTER ROAD
LAMBERT AVENUE
MANOR GROVE
Ward Sta
Ward Bdy
Graveleigh Court
Dapham Gardens
The Parade
Terrace

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0 100 m

FAIRHURST

Large-Scale National Grid Data

Published 1992 - 1994

Source map scale - 1:1,250

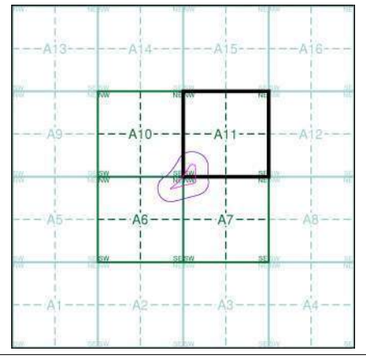
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ1975NW
1994
1:1,250

TQ1875SE
1992
1:1,250

Historical Map - Segment A11



Order Details

Order Number:	142584674_1_1
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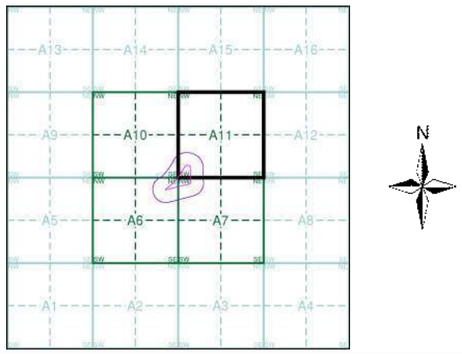
FAIRHURST

Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A11



Order Details

Order Number:	142584674_1_1
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Slice:	A
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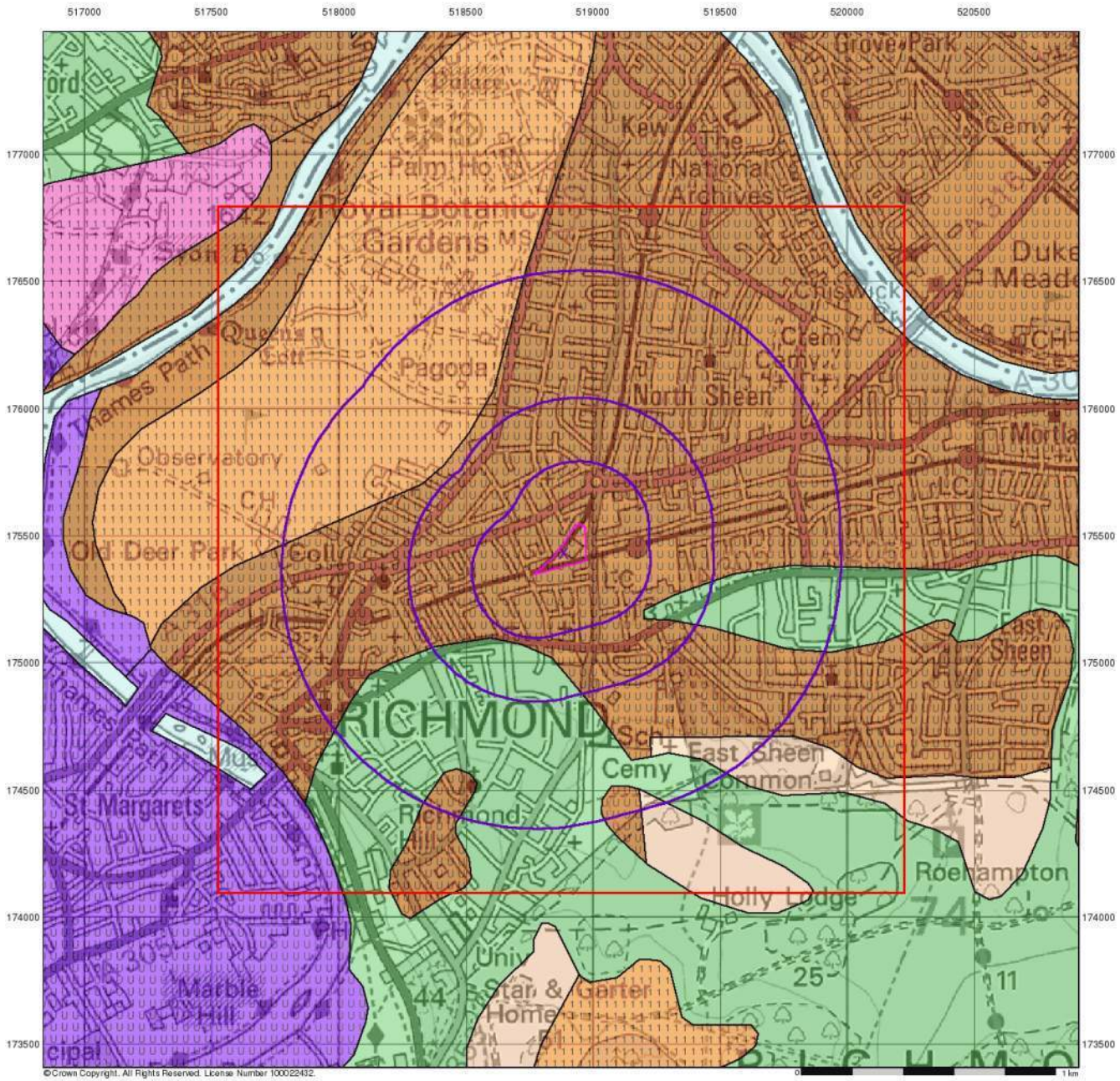


FAIRHURST

Groundwater Vulnerability

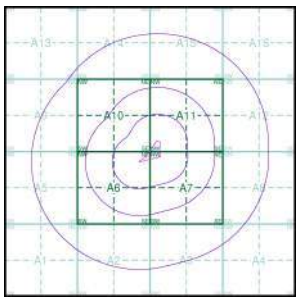
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



Order Details

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Slice:	A
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Site Details

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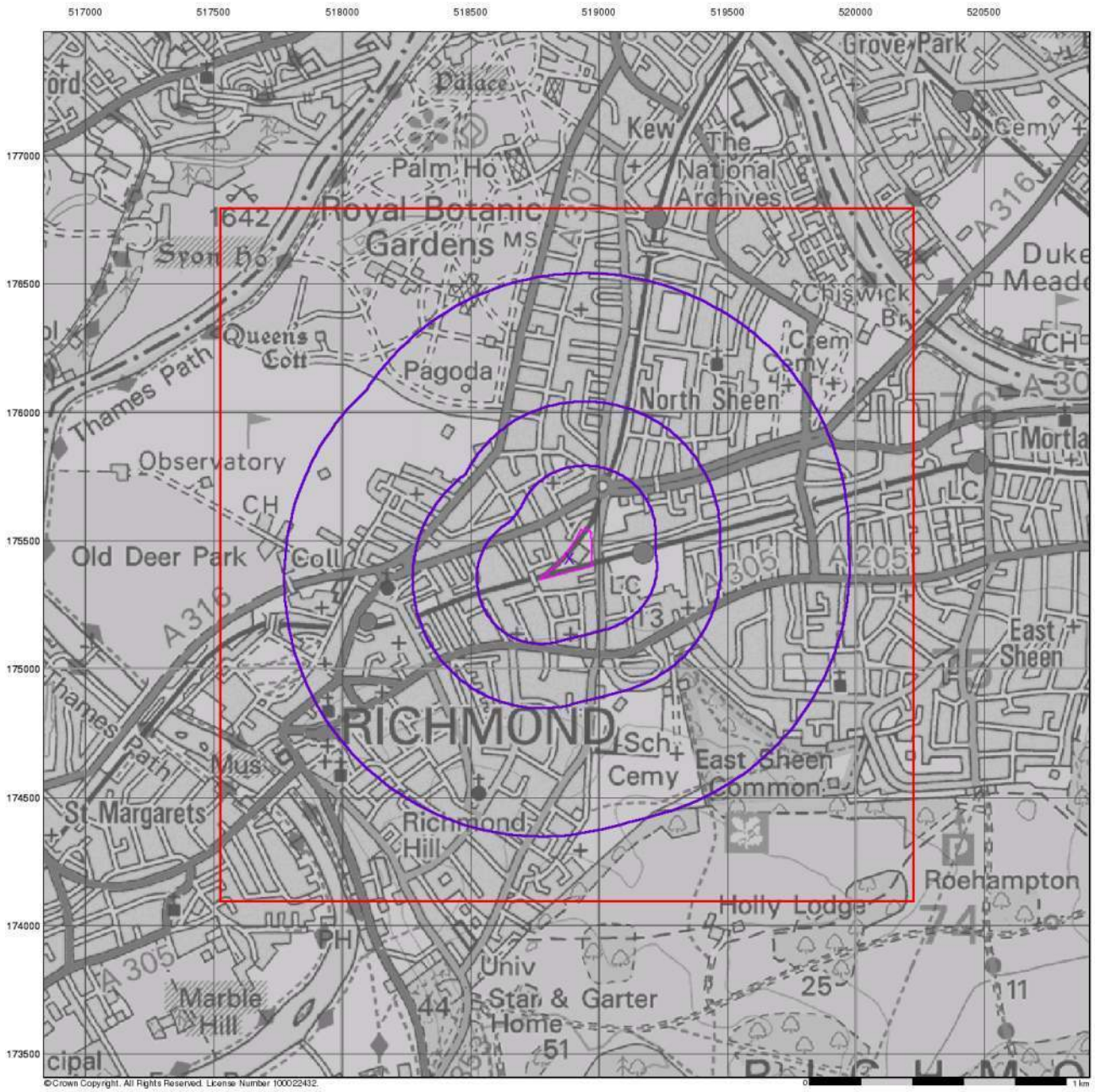


FAIRHURST

Bedrock Aquifer Designation

General

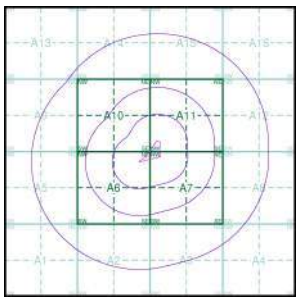
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

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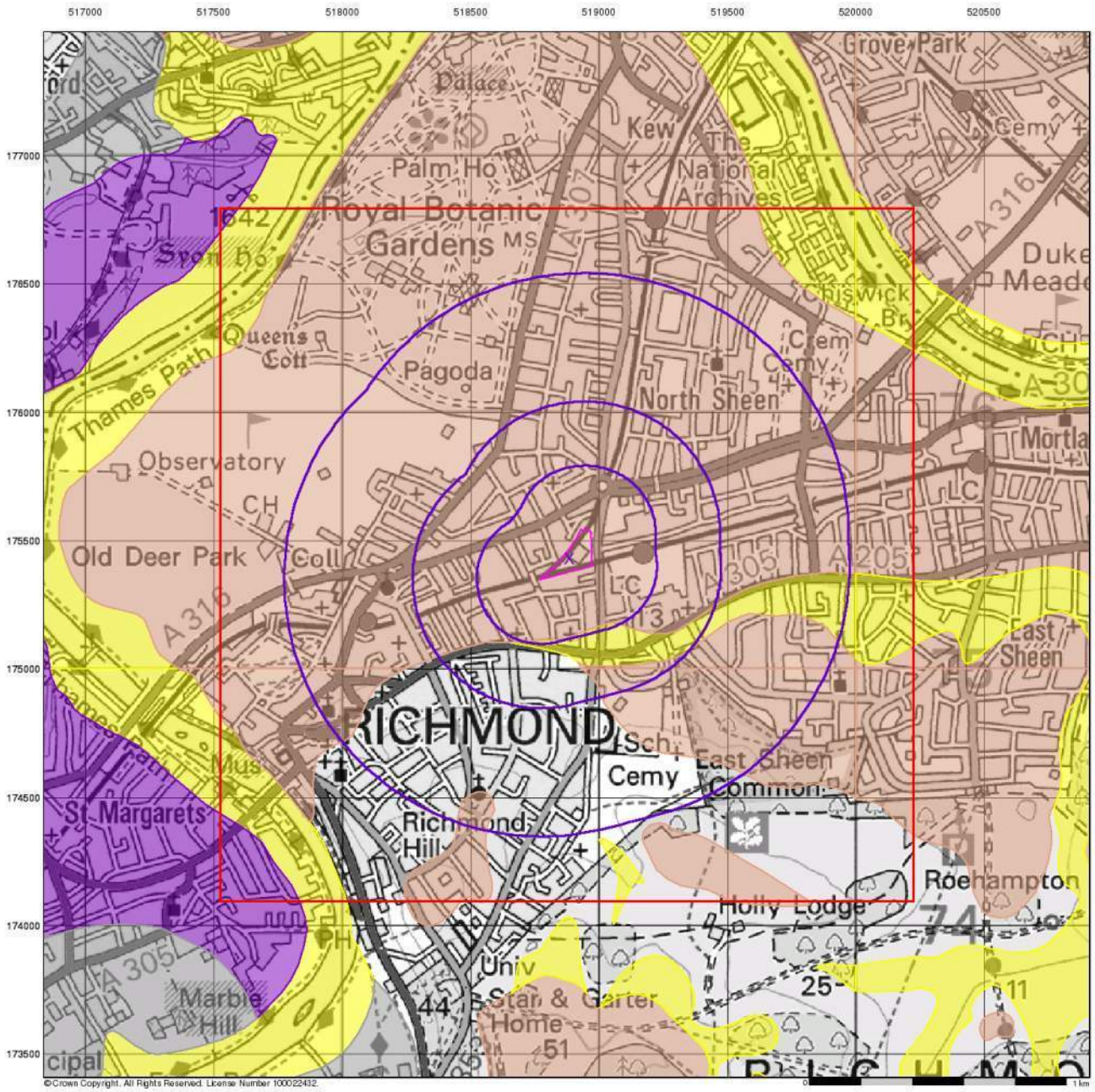


FAIRHURST

Superficial Aquifer Designation

General

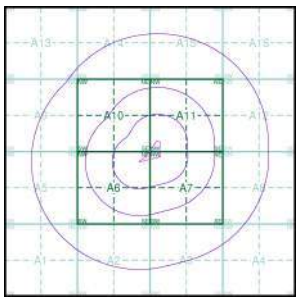
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

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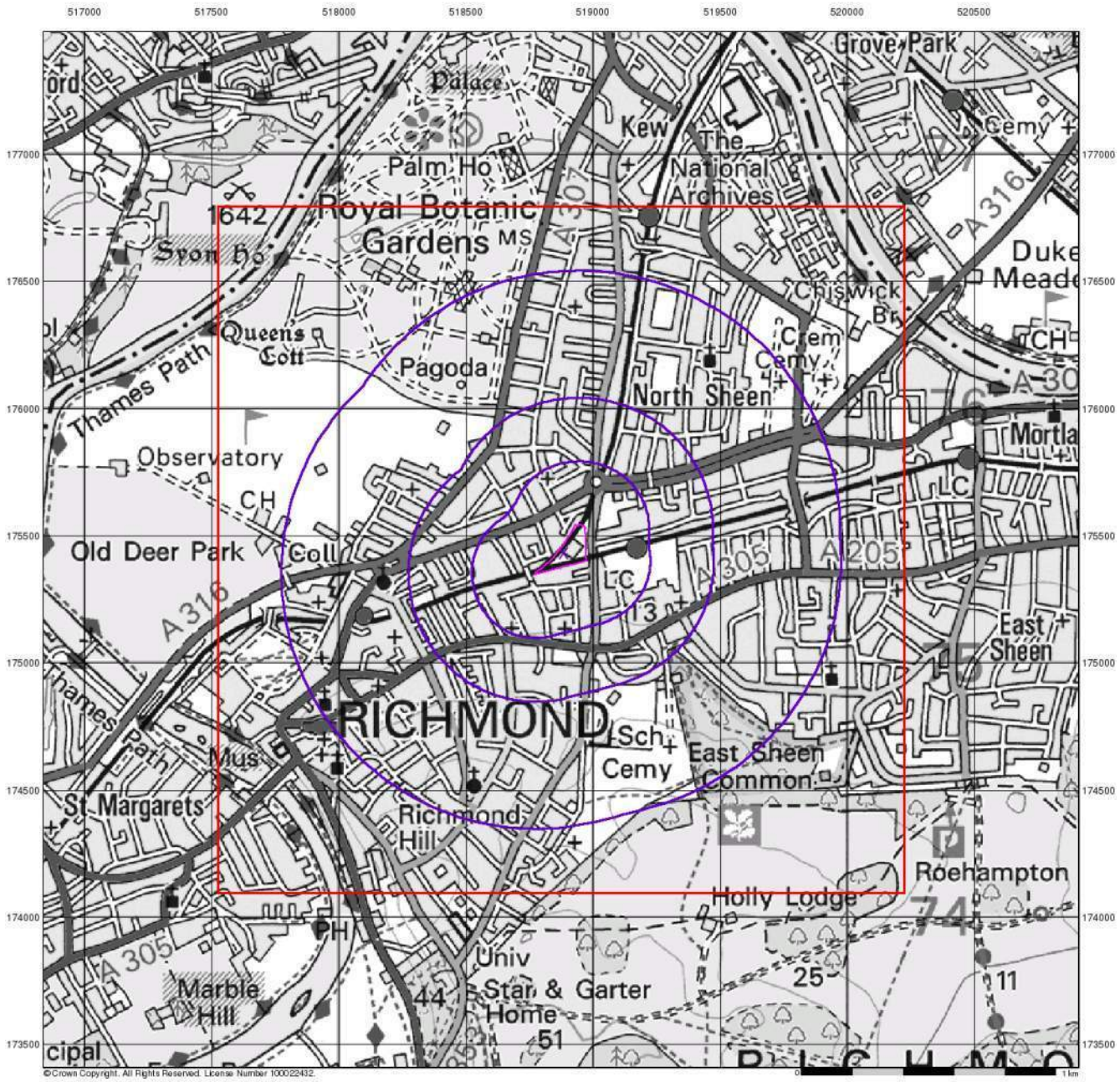


FAIRHURST

Source Protection Zones

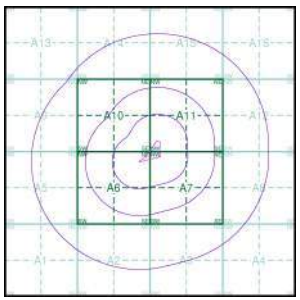
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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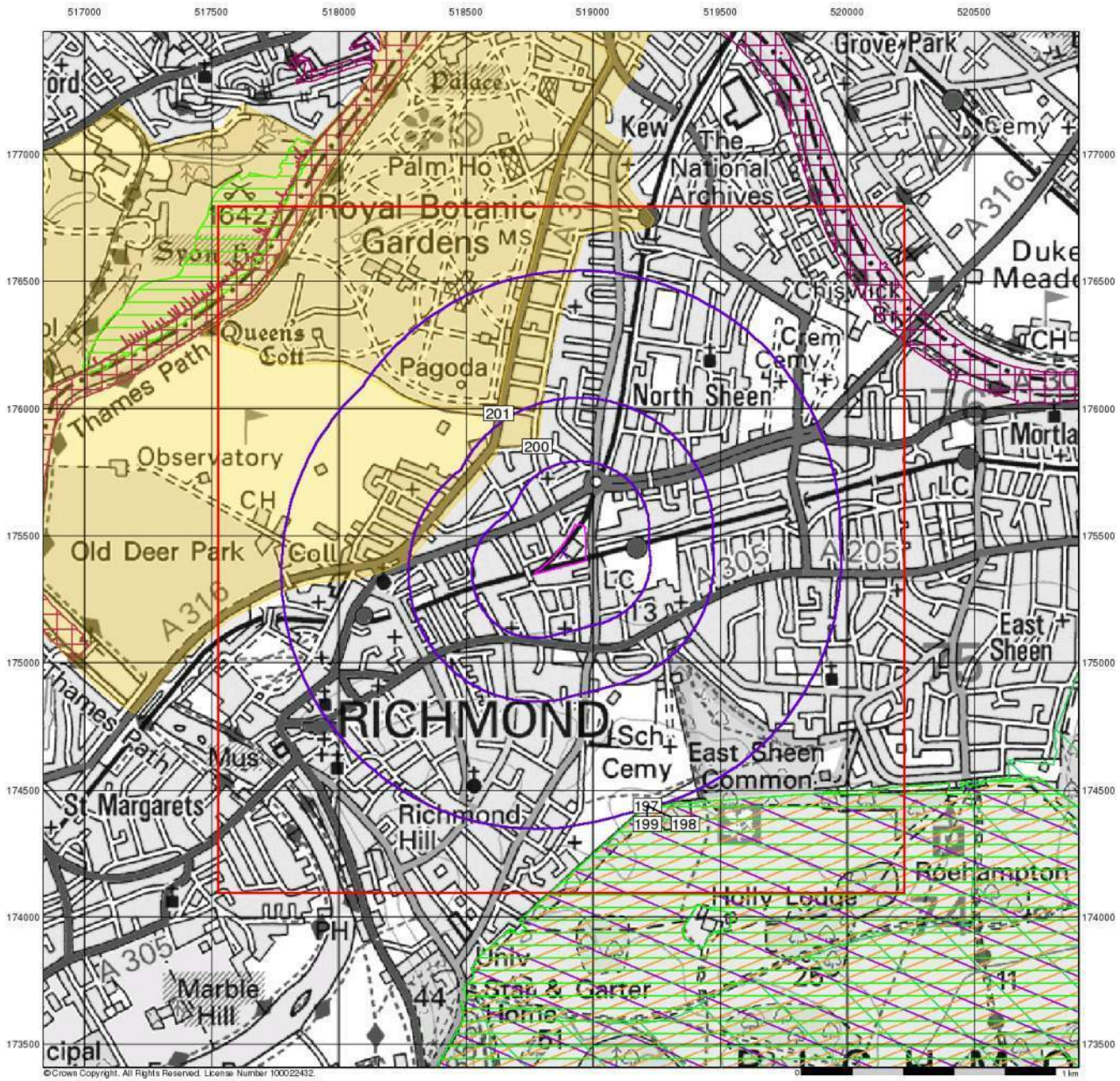
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB



FAIRHURST

Sensitive Land Uses

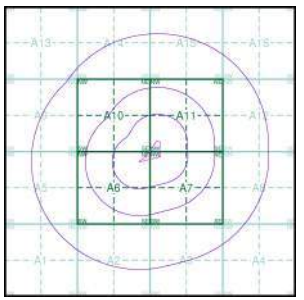
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

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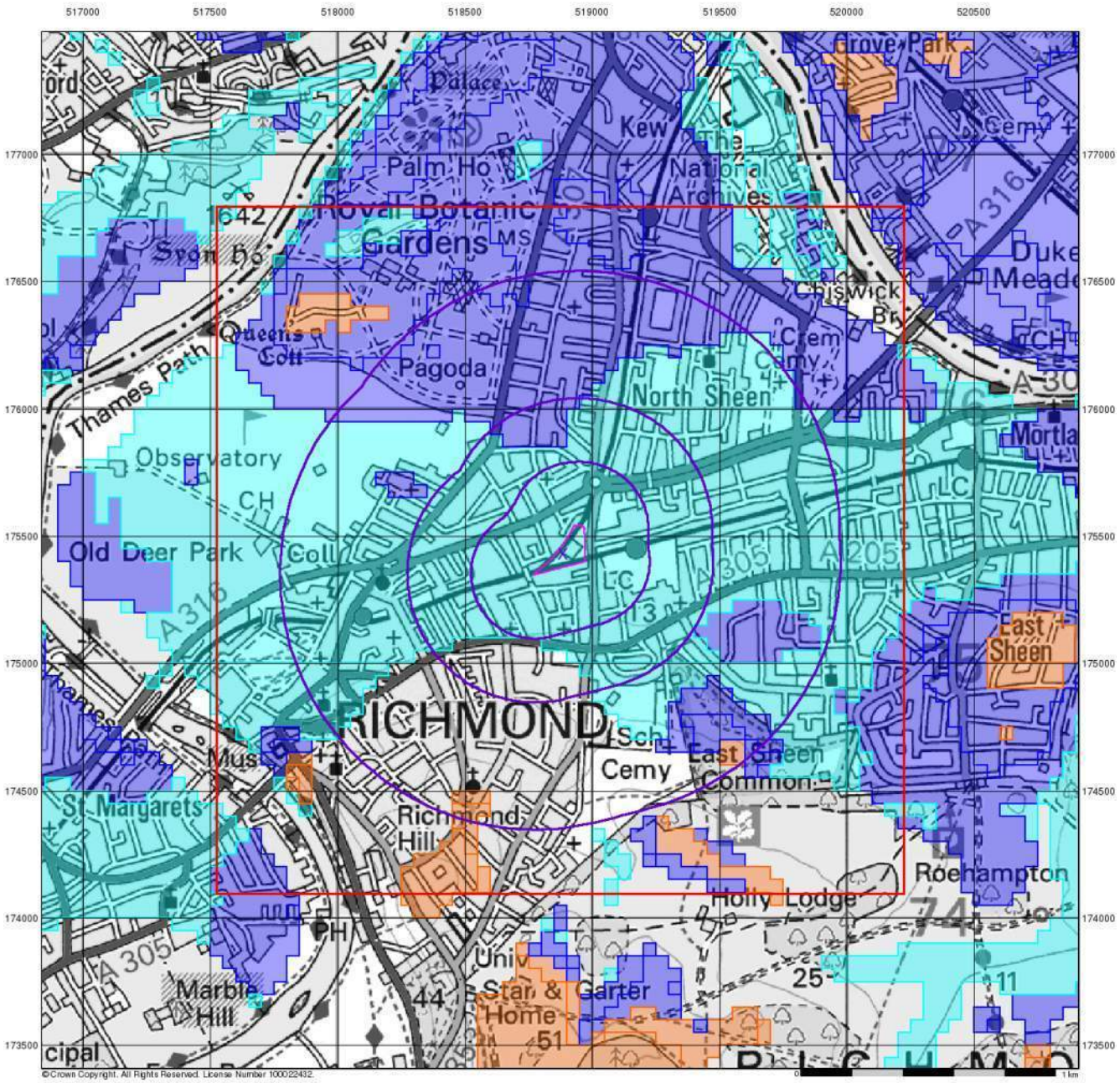
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



FAIRHURST

BGS Flood GFS Data

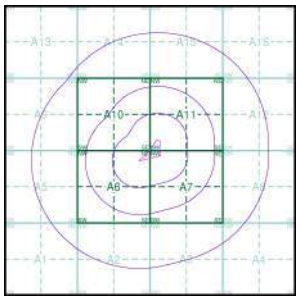
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

FAIRHURST

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
142584674_1_1

Customer Reference:
Homebase, Richmond

National Grid Reference:
518890, 175430

Slice:
A

Site Area (Ha):
1.58

Search Buffer (m):
1000

Site Details:

Homebase Ltd, 84
Manor Road
RICHMOND
TW9 1YB

Client Details:

Ms C Barber
Fairhurst
135 Park Street
London
SE1 9EA

FAIRHURST

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	9
Hazardous Substances	10
Geological	11
Industrial Land Use	16
Sensitive Land Use	45
Data Currency	46
Data Suppliers	53
Useful Contacts	54

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Radon Potential dataset Copyright Notice

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Report Version v53.0

FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes		Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		1		
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 1		3	5	4
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 3			Yes	
Pollution Incidents to Controlled Waters	pg 3		1	1	
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 3				(*13)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 6	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 7			5	10

FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 9	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 9				3
Potentially Infilled Land (Water)	pg 9				2
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 10		1		
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)	pg 10		1		
Planning Hazardous Substance Consents	pg 10		1		
Planning Hazardous Substance Enforcements					

FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 11	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry					
BGS Recorded Mineral Sites	pg 11				2
BGS Urban Soil Chemistry	pg 11		Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 14	Yes			
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 14	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 14	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 14	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 14	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 16	1	37	45	111
Fuel Station Entries	pg 32		2	3	3
Points of Interest - Commercial Services	pg 33		9	8	14
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 35		17	5	21
Points of Interest - Public Infrastructure	pg 39		8	9	30
Points of Interest - Recreational and Environmental	pg 43		3	3	5
Gas Pipelines					
Underground Electrical Cables					

FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves	pg 45				1
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest	pg 45				1
Special Areas of Conservation	pg 45				1
Special Protection Areas					
World Heritage Sites	pg 45			1	1

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A7NW (NW)	0	1	518885 175433
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11NW (N)	311	1	518885 175850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A7SW (S)	381	1	518950 175000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NE (SE)	495	1	519400 175150
1	**Discharge Consents** Operator: Bg Properties Plc. Property Type: SUB-STATION/ELECTRICITY/GAS/AIR CONDITIONING SUPPLY Location: Depot & Gas Holder Station, Manor Road, Richmond Authority: Environment Agency, Thames Region Catchment Area: Not Given Reference: CATM.3197 Permit Version: 1 Effective Date: 14th April 1998 Issued Date: 14th April 1998 Revocation Date: 5th November 1999 Discharge Type: Miscellaneous Discharges - Mine / Groundwater As Raised Discharge Environment: Underground Water Receiving Water: River Terrace Gravels **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A11SW (NE)	143	2	519080 175620
2	**Local Authority Pollution Prevention and Controls** Name: Bp Express Shopping Location: Lower Mortlake Road, RICHMOND, Surrey, TW9 4LU Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 04/PVR Dated: 31st December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A11SW (N)	169	3	518973 175709
3	**Local Authority Pollution Prevention and Controls** Name: Sainsburys Service Station Location: Manor Road, Lower Richmond Road, RICHMOND, Surrey, TW Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 19/PVR Dated: 30th August 2000 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A11SW (NE)	206	3	519121 175671
4	**Local Authority Pollution Prevention and Controls** Name: Lance Owen Location: 1-5 North Road, RICHMOND, Surrey, TW9 4HA Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: EP/M/93/01/P1 Dated: 23rd September 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status: Authorisation revokedRevoked** Positional Accuracy: Automatically positioned to the address	A11SW (NE)	237	3	519068 175749
5	**Local Authority Pollution Prevention and Controls** Name: Black Horse Service Station Location: 174-176 Sheen Road, RICHMOND, Surrey, TW9 1XD Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 13/PVR Dated: 31st December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A7SW (S)	323	3	518961 175063

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Local Authority Pollution Prevention and Controls** Name: Richmond Motor Centre (Esso) Location: 293 Lower Richmond Road, RICHMOND, Surrey, TW9 4LU Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 11/PVR Dated: 31st December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A11SE (NE)	365	3	519298 175687
7	**Local Authority Pollution Prevention and Controls** Name: Richmond Service Station Location: 22-24 Popham Gardens, Lower Richmond Road, RICHMOND, Surrey, TW9 4LJ Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 05/PVR Dated: 31st December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	421	3	519332 175744
8	**Local Authority Pollution Prevention and Controls** Name: Pristine Laundries Location: 90 Kew Road, Richmond, Tw9 2pq Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: LBRUT/DC/21 Dated: 1st April 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A10SW (W)	474	3	518315 175478
9	**Local Authority Pollution Prevention and Controls** Name: Vip Dry Cleaners Location: 21 Lower Richmond Road, Richmond, Tw9 2lp Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: Not Supplied Dated: 17th May 2013 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A6NW (W)	482	3	518294 175408
10	**Local Authority Pollution Prevention and Controls** Name: Ducane Dry Cleaners Location: 2 Westminster House, Kew Road, Richmond, Tw9 2nd Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: LBRUT/DC/09 Dated: 1st April 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	718	3	518069 175213
11	**Local Authority Pollution Prevention and Controls** Name: East Sheen Service Station Location: 567 Upper Richmond Road West, LONDON, SW14 7ED Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 12/PVR Dated: 31st December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A8NW (E)	748	3	519716 175312
12	**Local Authority Pollution Prevention and Controls** Name: Prospect Filling Station Location: 199 Lower Richmond Road, RICHMOND, Surrey, TW9 4LN Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: 14/PVR Dated: 31st December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorisation revokedRevoked** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	761	3	519675 175811

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Local Authority Pollution Prevention and Controls** Name: The Clean Machine Location: 18 Eton Street, Richmond, Tw9 1ee Authority: London Borough of Richmond upon Thames, Environmental Health Department Permit Reference: LBRUT/DC/04 Dated: 1st April 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A5SE (SW)	866	3	518045 174881
	Nearest Surface Water Feature	A6SE (S)	314	-	518817 175037
14	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Bells Garage, TWICKENHAM Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Note: Confirmed As A Pollution Incident Incident Date: 4th May 1989 Incident Reference: SE890158 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A11SW (NE)	213	2	519100 175700
14	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Dancer Road Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Note: Confirmed As A Pollution Incident Incident Date: 3rd December 1991 Incident Reference: SE910347 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SW (NE)	254	2	519140 175720
	Water Abstractions Operator: Richmond Athletics Assoc Ltd Licence Number: 28/39/35/0009 Permit Version: 100 Location: Gravel At Richmond Athletics Ground, Kew Foot Road, Richmond Authority: Environment Agency, Thames Region Abstraction: Sports Grounds/Facilities: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 75 Yearly Rate (m3): 15911 Details: Gravel At Richmond Athletics Ground, Kew Foot Road, Richmond, Surrey Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (W)	1017	2	517800 175650
	Water Abstractions Operator: Royal Mid Surrey Golf Club Licence Number: 28/39/35/0006 Permit Version: 100 Location: Borehole B Gravel At Royal Mid Surrey Golf Club, Richmond Authority: Environment Agency, Thames Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Gravel At Royal Mid Surrey Golf Club, Old Deer Park, Twickenham Road, Richmond, Surrey Authorised Start: 01 March Authorised End: 31 October Permit Start Date: 28th March 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1367	2	517450 175700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Royal Mid Surrey Golf Club Licence Number: 28/39/35/0006 Permit Version: 100 Location: Borehole A Gravel At Royal Mid Surrey Golf Club, Richmond Authority: Environment Agency, Thames Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 480 Yearly Rate (m3): 43000 Details: Gravel At Royal Mid Surrey Golf Club, Old Deer Park, Twickenham Road, Richmond, Surrey Authorised Start: 01 March Authorised End: 31 October Permit Start Date: 28th March 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1371	2	517460 175750
	Water Abstractions Operator: The Trustees Of Royal Mid-Surrey Golf Club Licence Number: 28/39/35/0006 Permit Version: Not Supplied Location: Royal Mid-Surrey Golf Club, Old Deer Park, Twickenham Road, RICHMOND Authority: Environment Agency, Thames Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 480 Yearly Rate (m3): 43000 Details: Not Supplied Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1371	2	517460 175750
	Water Abstractions Operator: D & D Leisure Sports Ltd Licence Number: 28/39/39/0180 Permit Version: 100 Location: Dukes Meadow Golf Club, London - Borehole Authority: Environment Agency, Thames Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 55 Yearly Rate (m3): 8000 Details: Dukes Meadow Golf Club, Great Chertsey Road, London, W4 Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NE)	1723	2	520500 176320
	Water Abstractions Operator: D G Tilles & R H Tilles Licence Number: 28/39/34/0008 Permit Version: 103 Location: The Exiles Ground, Twickenham- Borehole A Authority: Environment Agency, Thames Region Abstraction: Sports Grounds/Facilities: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: The Exiles Ground, Twickenham Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 24th April 2003 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SW)	1757	2	517840 173860

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: D.G.Tilles & R.H.Tilles Licence Number: 28/39/34/0008 Permit Version: 102 Location: Borehole At The Exiles Ground, Twickenham Authority: Environment Agency, Thames Region Abstraction: Sports Grounds/Facilities: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: The Exiles Ground, Twickenham Authorised Start: 01 October Authorised End: 30 September Permit Start Date: 14th September 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SW)	1757	2	517840 173860
	Water Abstractions Operator: Threadneedle Property Part. Licence Number: 28/39/34/0008 Permit Version: 101 Location: Borehole At The Exiles Ground, Twickenham Authority: Environment Agency, Thames Region Abstraction: Sports Grounds/Facilities: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: The Exiles Ground, Twickenham Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SW)	1757	2	517840 173860
	Water Abstractions Operator: Cable & Wireless (Meadowbank) Ltd Licence Number: 28/39/34/0008 Permit Version: 100 Location: Borehole At The Exiles Ground, Twickenham Authority: Environment Agency, Thames Region Abstraction: Sports Grounds/Facilities: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 56 Yearly Rate (m3): 5300 Details: The Exiles Ground, Twickenham Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 15th October 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(SW)	1757	2	517840 173860
	Water Abstractions Operator: The Secretary Of State For Justice Licence Number: Th/039/0035/002 Permit Version: 1 Location: Well 2 At The National Archives, Kew, Richmond, Surrey Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 23rd June 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1763	2	519490 177220

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: The Secretary Of State For Justice Licence Number: Th/039/0035/002 Permit Version: 1 Location: Well 2 At The National Archives, Kew, Richmond, Surrey Authority: Environment Agency, Thames Region Abstraction: Amenity: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 23rd June 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1763	2	519490 177220
	Water Abstractions Operator: The Secretary Of State For Justice Licence Number: Th/039/0035/002 Permit Version: 1 Location: Well 1 At The National Archives. Kew, Richmond,Surrey Authority: Environment Agency, Thames Region Abstraction: Amenity: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 23rd June 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1798	2	519480 177260
	Water Abstractions Operator: The Secretary Of State For Justice Licence Number: Th/039/0035/002 Permit Version: 1 Location: Well 1 At The National Archives. Kew, Richmond,Surrey Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 23rd June 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1798	2	519480 177260
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 39 West London Scale: 1:100,000	A7NW (NW)	0	2	518885 175433
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A7NW (NW)	0	1	518885 175433
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A7NW (NW)	0	1	518885 175433
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Defences None				
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 302.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SW (S)	440	4	519040 174959
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 87.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SW (S)	444	4	519025 174955
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1669.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SE (SE)	490	4	519312 175048
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 333.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SE (SE)	490	4	519312 175048
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 62.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SE (SE)	490	4	519312 175048
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 557.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SE (SE)	511	4	519282 174994
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 585.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A7SW (S)	517	4	519016 174877
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A8SW (SE)	821	4	519560 174827
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 28.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A8SW (SE)	821	4	519560 174827

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A8SW (SE)	839	4	519558 174800
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A8SW (SE)	839	4	519558 174800
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 56.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A8SW (SE)	841	4	519555 174794
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A8SW (SE)	842	4	519556 174795
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A3NE (SE)	865	4	519534 174743
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 348.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A3NE (SE)	866	4	519537 174744

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: London Borough of Richmond Upon Thames - Has no landfill data to supply		0	5	518885 175433
30	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A7SW (S)	613	-	519007 174775
31	**Potentially Infilled Land (Non-Water)** Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A3NE (SE)	805	-	519465 174764
32	**Potentially Infilled Land (Non-Water)** Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1988	A12NW (NE)	831	-	519747 175820
33	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1871	A2NE (S)	657	-	518615 174710
34	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1871	A2NE (S)	687	-	518613 174680

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	**Control of Major Accident Hazards Sites (COMAH)** Name: Transco Plc Location: Manor Road, RICHMOND, Surrey, TW9 4QH Reference: Not Supplied Type: Lower Tier **Status: Active** Positional Accuracy: Manually positioned to the address or location	A11SW (NE)	140	6	519093 175593
36	**Notification of Installations Handling Hazardous Substances (NIHHS)** Name: Transco Location: Ricmond Holder Station, Manor Road, RICHMOND, Surrey, TW9 4OB **Status: Not Active** Positional Accuracy: Manually positioned to the address or location	A11SW (NE)	137	6	519093 175588
37	**Planning Hazardous Substance Consents** Name: British Gas North Thames Location: Richmond Holder Station, Manor Road, Richmond, TW9 4QB Authority: London Borough of Richmond upon Thames Application Ref: 92/1926/Hs Hazardous Substance: Liquefied extremely flammable gas (including LPG) and natural gas (whether liquefied or not) Maximum Quantity: 115 Application date: 18th November 1992 **Decision: Deemed Consent GrantedGranted** Positional Accuracy: Located by supplier to within 10m	A11SW (NE)	156	5	519104 175608

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Thames Group	A7NW (NW)	0	1	518885 175433
	BGS Estimated Soil Chemistry No data available				
38	**BGS Recorded Mineral Sites** Site Name: Pesthouse Common Gravel Pit Location: , Richmond, Surrey Source: British Geological Survey, National Geoscience Information Service Reference: 164156 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Palaeogene Geology: London Clay Formation Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A7SW (S)	614	1	519012 174776
39	**BGS Recorded Mineral Sites** Site Name: Sheen Common Gravel Pit Location: , East Sheen, Surrey Source: British Geological Survey, National Geoscience Information Service Reference: 164175 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Wolstonian Geology: Taplow Gravel Formation Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A3NE (SE)	861	1	519495 174717
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518820, 175217 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 17.80 mg/kg Cadmium Measured Concentration: 2.90 mg/kg Chromium Measured Concentration: 96.10 mg/kg Lead Measured Concentration: 287.00 mg/kg Nickel Measured Concentration: 33.30 mg/kg	A6NE (S)	139	1	518820 175217
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518799, 175617 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 20.10 mg/kg Cadmium Measured Concentration: 1.40 mg/kg Chromium Measured Concentration: 88.90 mg/kg Lead Measured Concentration: 389.60 mg/kg Nickel Measured Concentration: 39.70 mg/kg	A10SE (NW)	152	1	518799 175617
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 519109, 175261 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 16.80 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 51.30 mg/kg Lead Measured Concentration: 287.90 mg/kg Nickel Measured Concentration: 19.30 mg/kg	A7NW (SE)	195	1	519109 175261

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518841, 175735 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 16.60 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 59.90 mg/kg Lead Measured Concentration: 194.20 mg/kg Nickel Measured Concentration: 18.60 mg/kg	A10SE (N)	214	1	518841 175735
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 519257, 175746 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.10 mg/kg Cadmium Measured Concentration: 1.80 mg/kg Chromium Measured Concentration: 79.70 mg/kg Lead Measured Concentration: 204.10 mg/kg Nickel Measured Concentration: 22.50 mg/kg	A11SE (NE)	360	1	519257 175746
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518725, 174855 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 16.80 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 57.60 mg/kg Lead Measured Concentration: 200.70 mg/kg Nickel Measured Concentration: 19.30 mg/kg	A6SE (S)	496	1	518725 174855
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518150, 175250 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 14.40 mg/kg Cadmium Measured Concentration: 1.10 mg/kg Chromium Measured Concentration: 83.70 mg/kg Lead Measured Concentration: 178.30 mg/kg Nickel Measured Concentration: 23.70 mg/kg	A5NE (W)	632	1	518150 175250
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518164, 175649 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.00 mg/kg Cadmium Measured Concentration: 1.00 mg/kg Chromium Measured Concentration: 69.50 mg/kg Lead Measured Concentration: 96.50 mg/kg Nickel Measured Concentration: 18.70 mg/kg	A9SE (W)	676	1	518164 175649

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518300, 174805 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 14.40 mg/kg Cadmium Measured Concentration: 0.40 mg/kg Chromium Measured Concentration: 53.60 mg/kg Lead Measured Concentration: 319.00 mg/kg Nickel Measured Concentration: 17.60 mg/kg	A6SW (SW)	721	1	518300 174805
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 519348, 174760 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 10.00 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 39.80 mg/kg Lead Measured Concentration: 54.90 mg/kg Nickel Measured Concentration: 6.60 mg/kg	A3NE (SE)	743	1	519348 174760
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 519290, 176226 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 20.50 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 55.10 mg/kg Lead Measured Concentration: 380.00 mg/kg Nickel Measured Concentration: 28.00 mg/kg	A15SE (NE)	763	1	519290 176226
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 519756, 175702 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 13.40 mg/kg Cadmium Measured Concentration: 2.50 mg/kg Chromium Measured Concentration: 92.40 mg/kg Lead Measured Concentration: 113.40 mg/kg Nickel Measured Concentration: 23.50 mg/kg	A12SW (E)	806	1	519756 175702
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 518628, 176301 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 20.70 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 49.60 mg/kg Lead Measured Concentration: 111.50 mg/kg Nickel Measured Concentration: 15.90 mg/kg	A14SE (N)	818	1	518628 176301

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 519801, 175178 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 17.00 mg/kg Cadmium Measured Concentration: 5.20 mg/kg Chromium Measured Concentration: 75.60 mg/kg Lead Measured Concentration: 196.50 mg/kg Nickel Measured Concentration: 30.50 mg/kg	A8NW (E)	857	1	519801 175178
	BGS Urban Soil Chemistry Averages Source: British Geological Survey, National Geoscience Information Service Sample Area: London Count Id: 7209 Arsenic Minimum Concentration: 1.00 mg/kg Arsenic Average Concentration: 17.00 mg/kg Arsenic Maximum Concentration: 161.00 mg/kg Cadmium Minimum Concentration: 0.10 mg/kg Cadmium Average Concentration: 0.90 mg/kg Cadmium Maximum Concentration: 165.20 mg/kg Chromium Minimum Concentration: 13.00 mg/kg Chromium Average Concentration: 79.00 mg/kg Chromium Maximum Concentration: 2094.00 mg/kg Lead Minimum Concentration: 11.00 mg/kg Lead Average Concentration: 280.00 mg/kg Lead Maximum Concentration: 10000.00 mg/kg Nickel Minimum Concentration: 2.00 mg/kg Nickel Average Concentration: 28.00 mg/kg Nickel Maximum Concentration: 506.00 mg/kg	A7NW (NW)	0	1	518885 175433
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (NW)	0	1	518874 175457
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A7NW (NW)	0	1	518885 175433

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	**Contemporary Trade Directory Entries** Name: Currys Location: 86, Manor Road, Richmond, Surrey, TW9 1YB Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (N)	0	-	518885 175437
41	**Contemporary Trade Directory Entries** Name: Trident Construction Location: Clarence Court, 5, Dee Road, Richmond, TW9 2JN Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	20	-	518766 175373
41	**Contemporary Trade Directory Entries** Name: Laxton Rice Transport Location: 1, Dee Road, Richmond, Surrey, TW9 2JN Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	32	-	518742 175361
41	**Contemporary Trade Directory Entries** Name: Perfect Clean Location: 1, Dee Road, Richmond, Surrey, TW9 2JN Classification: Carpet, Curtain & Upholstery Cleaners **Status: Active** Positional Accuracy: Manually positioned to the address or location	A6NE (SW)	32	-	518742 175361
42	**Contemporary Trade Directory Entries** Name: Traders Builders Merchants Location: 8-14, Bardolph Road, Richmond, Surrey, TW9 2LH Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	25	-	518882 175506
42	**Contemporary Trade Directory Entries** Name: Tankcoat Ltd Location: 8-14, Bardolph Road, Richmond, Surrey, TW9 2LH Classification: Tank Cleaning & Repairing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	25	-	518882 175506
42	**Contemporary Trade Directory Entries** Name: Travis Perkins Location: 8-14, Bardolph Road, Richmond, Surrey, TW9 2LH Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	25	-	518882 175506
42	**Contemporary Trade Directory Entries** Name: Travis Perkins Plc Location: 8-10, Bardolph Road, Richmond, TW9 2LH Classification: Builders' Merchants **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SW (N)	26	-	518882 175508
43	**Contemporary Trade Directory Entries** Name: Foxprint Location: 16, Bardolph Road, Richmond, Surrey, TW9 2LH Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	33	-	518922 175573
43	**Contemporary Trade Directory Entries** Name: M S George Location: 13, St. Georges Road, Richmond, Surrey, TW9 2LE Classification: Aerosols **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SW (N)	33	-	518922 175573
43	**Contemporary Trade Directory Entries** Name: Td Tom Davies Ltd Location: 28, Bardolph Road, Richmond, Surrey, TW9 2LH Classification: Optical Goods - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	33	-	518922 175573
44	**Contemporary Trade Directory Entries** Name: Fiberweb Plc Location: 1, Victoria Villas, Richmond, Surrey, TW9 2GW Classification: Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A6NE (W)	53	-	518791 175435

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
45	**Contemporary Trade Directory Entries** Name: James Bros Location: 1, Trinity Road, Richmond, Surrey, TW9 2LD Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (N)	69	-	518863 175562
45	**Contemporary Trade Directory Entries** Name: Cu-Ni-Crft Location: Trinity Rd, Richmond, Surrey, TW9 2LD Classification: Powder Coatings **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A10SE (N)	80	-	518848 175556
46	**Contemporary Trade Directory Entries** Name: Cleaners Richmond Location: Victoria Villas, Richmond, Surrey, TW9 2JX Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A10SE (NW)	107	-	518770 175492
46	**Contemporary Trade Directory Entries** Name: The Original Poster Co Ltd Location: Victoria Villas, Richmond, Surrey, TW9 2JX Classification: Greeting Card Publishers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A10SE (NW)	107	-	518770 175492
47	**Contemporary Trade Directory Entries** Name: Coys Location: 237, Lower Mortlake Road, Richmond, Surrey, TW9 2LL Classification: Classic Car Specialists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (N)	130	-	518869 175656
48	**Contemporary Trade Directory Entries** Name: Stable Motors Location: Richmond, TW9 2JJ Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A6NE (W)	145	-	518655 175439
49	**Contemporary Trade Directory Entries** Name: Allport Ltd Location: London House, 243-253, Lower Mortlake Road, Richmond, Surrey, TW9 2LS Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	146	-	518918 175686
49	**Contemporary Trade Directory Entries** Name: Grander Water Location: London House, 243-253, Lower Mortlake Road, Richmond, Surrey, TW9 2LL Classification: Water Softeners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	146	-	518918 175686
49	**Contemporary Trade Directory Entries** Name: B P Express Location: Lower Mortlake Road, Richmond, Surrey, TW9 2LL Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	165	-	518962 175707
49	**Contemporary Trade Directory Entries** Name: Network Connectors Ltd Location: Lower Mortlake Road, Richmond, Surrey, TW9 2LL Classification: Cable & Wire Equipment Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (N)	165	-	518962 175707
49	**Contemporary Trade Directory Entries** Name: Colin Ferns Ltd Location: Rear of 63-65, Raleigh Road, Richmond, TW9 2DU Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SW (N)	179	-	518966 175720
50	**Contemporary Trade Directory Entries** Name: G T Garage Services Ltd Location: Rear Of, 63-65, Raleigh Road, Richmond, Surrey, TW9 2DU Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A11SW (N)	165	-	518897 175702

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	**Contemporary Trade Directory Entries** Name: Kwik Fit Location: 48, Sheendale Road, Richmond, Surrey, TW9 2JJ Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A10SE (W)	172	-	518676 175497
51	**Contemporary Trade Directory Entries** Name: Hora'S Hardware Location: 203, Lower Mortlake Road, Richmond, Surrey, TW9 2LP Classification: Hardware **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (NW)	217	-	518664 175542
52	**Contemporary Trade Directory Entries** Name: Dantec Design Ltd Location: 96, Lower Mortlake Road, Richmond, Surrey, TW9 2JG Classification: Car Customizing Specialists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (W)	176	-	518643 175473
52	**Contemporary Trade Directory Entries** Name: William Grant & Sons Location: 84, Lower Mortlake Road, Richmond, TW9 2HS Classification: Distilleries **Status: Active** Positional Accuracy: Automatically positioned to the address	A10SE (W)	203	-	518601 175463
52	**Contemporary Trade Directory Entries** Name: Distillers Ltd Location: 84, Lower Mortlake Road, Richmond, Surrey, TW9 2HS Classification: Distilleries **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A10SE (W)	203	-	518601 175463
53	**Contemporary Trade Directory Entries** Name: Gone Potty Location: 213, Lower Mortlake Road, Richmond, Surrey, TW9 2LN Classification: Pottery Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (NW)	202	-	518701 175558
53	**Contemporary Trade Directory Entries** Name: V I P Dry Cleaners Location: 211, Lower Mortlake Road, RICHMOND, Surrey, TW9 2LP Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A10SE (NW)	211	-	518683 175550
53	**Contemporary Trade Directory Entries** Name: Abate Graffiti Solutions Ltd Location: 211, Lower Mortlake Road, Richmond, Surrey, TW9 2LP Classification: Graffiti Removers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (NW)	211	-	518683 175550
54	**Contemporary Trade Directory Entries** Name: Richmond Architectural Location: 22, Castlegate, Richmond, Surrey, TW9 2HJ Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (NW)	210	-	518726 175607
55	**Contemporary Trade Directory Entries** Name: Afends Europe Ltd Location: The Bottle Factory Orchard rd, Richmond, Surrey, TW9 4AQ Classification: Clothing & Fabrics - Manufacturers **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A11SW (NE)	234	-	519176 175638
56	**Contemporary Trade Directory Entries** Name: Lance Owen (Richmond) Location: 1, North Road, Richmond, Surrey, TW9 4HA Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (NE)	237	-	519068 175749
56	**Contemporary Trade Directory Entries** Name: Now Vauxhall Location: Richmond, Surrey, Tw9 4ha Classification: Car Dealers **Status: Active** Positional Accuracy: Manually positioned to the address or location	A11SW (NE)	237	-	519068 175749

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	**Contemporary Trade Directory Entries** Name: Dairy Crest Ltd Location: Orchard Road, Richmond, Surrey, TW9 4NY Classification: Dairies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (E)	238	-	519206 175552
58	**Contemporary Trade Directory Entries** Name: Chiswick Fireplace Co Location: Corner Of Dancer Rd,Lower Richmond Rd, Richmond, Surrey, TW9 4LE Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A11SW (NE)	244	-	519136 175710
59	**Contemporary Trade Directory Entries** Name: Q Pets Co Location: Unit 7, Sandycombe Centre 1-9, Sandycombe Road, Richmond, Surrey, TW9 2EP Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (N)	253	-	519021 175785
59	**Contemporary Trade Directory Entries** Name: Service Point (Uk) Location: Unit 7, Sandycombe Centre, 1-9, Sandycombe Road, Richmond, Surrey, TW9 2EP Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (N)	253	-	519021 175785
59	**Contemporary Trade Directory Entries** Name: Homecare Home Improvements Ltd Location: Unit 9, Sandycombe Centre, 1-9, Sandycombe Road, Richmond, Surrey, TW9 2EP Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (N)	260	-	519024 175791
60	**Contemporary Trade Directory Entries** Name: Natgraphics Location: Hydrex House, Garden Road, Richmond, Surrey, TW9 4NR Classification: Printing Engineering Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	283	-	519235 175624
60	**Contemporary Trade Directory Entries** Name: Natgrathics Location: Hydrex House, Garden Road, Richmond, Surrey, TW9 4NR Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A11SE (NE)	283	-	519235 175624
61	**Contemporary Trade Directory Entries** Name: Hammond Vivian Ltd Location: Power House, 27, Market Road, Richmond, Surrey, TW9 4LZ Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A11SE (NE)	291	-	519249 175607
61	**Contemporary Trade Directory Entries** Name: G & W Auto Recovery Service Ltd Location: Unit 2, Market Road, Richmond, Surrey, TW9 4LZ Classification: Breakdown and Recovery **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A11SE (NE)	313	-	519264 175632
61	**Contemporary Trade Directory Entries** Name: Richmond Service Centre Location: Unit 2, Market Road, Richmond, TW9 4LZ Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	321	-	519281 175605
61	**Contemporary Trade Directory Entries** Name: Woodfinish Location: 17, Market Road, Richmond, TW9 4LZ Classification: French Polishing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	336	-	519295 175610

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
62	**Contemporary Trade Directory Entries** Name: Shell Blackhorse Location: 174, Sheen Road, Richmond, Surrey, TW9 1XD Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A7SW (S)	323	-	518961 175063
62	**Contemporary Trade Directory Entries** Name: Rontce Location: 174, Sheen Road, Richmond, Surrey, TW9 1XD Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (S)	323	-	518961 175063
62	**Contemporary Trade Directory Entries** Name: Total Location: 174-176 Sheen Rd, Richmond, Surrey, TW9 1XD Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (S)	323	-	518961 175063
63	**Contemporary Trade Directory Entries** Name: A Dunn Location: 128, Sheen Road, Richmond, Surrey, TW9 1UR Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Manually positioned to an adjacent address or location	A6SE (SW)	325	-	518577 175091
63	**Contemporary Trade Directory Entries** Name: Cleaners Of Richmond Location: 120a, Sheen Road, Richmond, Surrey, TW9 1UR Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SE (SW)	344	-	518552 175086
63	**Contemporary Trade Directory Entries** Name: Quickprint Location: 114, Sheen Road, Richmond, Surrey, TW9 1UR Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A6SE (SW)	354	-	518537 175085
64	**Contemporary Trade Directory Entries** Name: Smarty Paints Location: 28, Sandycombe Road, Richmond, Surrey, TW9 2DY Classification: Ceramic Manufacturers, Supplies & Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11NW (N)	327	-	518991 175867
65	**Contemporary Trade Directory Entries** Name: Ats Euromaster Ltd Location: Kings Road, Richmond, Surrey, TW10 6EG Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SE (SW)	370	-	518624 175011
66	**Contemporary Trade Directory Entries** Name: Alpha Location: Maisonette First and Second Floor, 107, Sheen Road, Richmond, TW9 1YJ Classification: Rubbish Clearance **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SE (SW)	375	-	518546 175050
67	**Contemporary Trade Directory Entries** Name: Smith Brothers Location: 63, Sandycombe Road, Richmond, Surrey, TW9 2EP Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11NW (N)	392	-	519027 175927
67	**Contemporary Trade Directory Entries** Name: A S G Designs Location: 119-123, Sandycombe Road, Richmond, Surrey, TW9 2EP Classification: Stained Glass Designers & Producers **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A11NW (N)	407	-	519034 175940
68	**Contemporary Trade Directory Entries** Name: Air & Sea Excess Luggage Worldwide Movers Ltd Location: 102-104, Sheen Road, Richmond, Surrey, TW9 1UF Classification: Boxes & Cartons **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	397	-	518488 175072

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	**Contemporary Trade Directory Entries** Name: Rapid Clear Location: 96, Sheen Road, Richmond, Surrey, TW9 1UF Classification: Rubbish Clearance **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	414	-	518472 175065
68	**Contemporary Trade Directory Entries** Name: Spaceist Ltd Location: 85, Sheen Road, Richmond, Surrey, TW9 1YJ Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	428	-	518486 175032
68	**Contemporary Trade Directory Entries** Name: Method Products Location: 85, Sheen Road, Richmond, Surrey, TW9 1YJ Classification: Cleaning Materials & Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A6SW (SW)	428	-	518486 175032
69	**Contemporary Trade Directory Entries** Name: Shell Location: 21-22, Popham Gardens, Lower Richmond Road, Richmond, Surrey, TW9 4LJ Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	421	-	519332 175744
69	**Contemporary Trade Directory Entries** Name: Braymarsh Cash Ltd Location: 21-22, Popham Gardens, Lower Richmond Road, Richmond, TW9 4LJ Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	422	-	519332 175744
69	**Contemporary Trade Directory Entries** Name: Petropolis Location: 21-22, Popham Gardens, Lower Richmond Road, Richmond, TW9 4LJ Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	422	-	519332 175744
70	**Contemporary Trade Directory Entries** Name: F & Team Cleaning Services Location: 26, Norfolk House, Courtlands, Sheen Road, Richmond, Surrey, TW10 5AT Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (S)	432	-	519047 174973
71	**Contemporary Trade Directory Entries** Name: Clearance Unlimited Location: A, 47, Lower Mortlake Road, Richmond, Surrey, TW9 2LW Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NW (W)	433	-	518347 175432
72	**Contemporary Trade Directory Entries** Name: Village Dry Cleaning Location: 94, Sheen Road, Richmond, Surrey, TW9 1UF Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	434	-	518455 175055
72	**Contemporary Trade Directory Entries** Name: Wingas Location: Burleigh House, 73, Sheen Road, Richmond, TW9 1YJ Classification: Gas Suppliers **Status: Active** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	455	-	518454 175025
72	**Contemporary Trade Directory Entries** Name: White Hart Location: 78, Sheen Road, Richmond, Surrey, TW9 1UF Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	480	-	518410 175035

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**Contemporary Trade Directory Entries** Name: Simpson Drewett & Co Ltd Location: 70, Sheen Road, Richmond, Surrey, TW9 1UF Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	489	-	518386 175051
72	**Contemporary Trade Directory Entries** Name: Great Projects Location: 62, Sheen Road, Richmond, Surrey, TW9 1UF Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SW (SW)	520	-	518375 175016
73	**Contemporary Trade Directory Entries** Name: Kew Gardeners Location: 148, Kew Road, Richmond, Surrey, TW9 2AU Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (NW)	434	-	518554 175757
74	**Contemporary Trade Directory Entries** Name: Browns Window Cleaning Services Location: 19, Temple Road, Richmond, Surrey, TW9 2EB Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (N)	436	-	518904 175976
75	**Contemporary Trade Directory Entries** Name: William Mehornay Location: 17, Princes Road, Richmond, Surrey, TW10 6DQ Classification: China & Glassware Manufacturers & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6SE (SW)	437	-	518552 174972
76	**Contemporary Trade Directory Entries** Name: Phillips Edwin London Ltd Location: 25, Bicester Road, Richmond, Surrey, TW9 4QL Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (E)	455	-	519413 175632
77	**Contemporary Trade Directory Entries** Name: Interiors Of Richmond Ltd Location: 98, Kew Road, Richmond, Surrey, TW9 2PQ Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SW (W)	455	-	518343 175502
77	**Contemporary Trade Directory Entries** Name: Surrey Cleaning Services Location: 98, Kew Road, Richmond, Surrey, TW9 2PQ Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A10SW (W)	455	-	518343 175502
77	**Contemporary Trade Directory Entries** Name: Pestroy Preservation (Richmond) Ltd Location: 92-94 Kew Rd, Richmond, Surrey, TW9 2PQ Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A10SW (W)	467	-	518324 175484
77	**Contemporary Trade Directory Entries** Name: Alex Location: 90, Kew Road, Richmond, Surrey, TW9 2PQ Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A10SW (W)	473	-	518316 175476
78	**Contemporary Trade Directory Entries** Name: Nations Petroleum Location: Worple Way, Richmond, Surrey, TW10 6AG Classification: Oil & Gas Exploration Supplies & Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A6SW (SW)	462	-	518463 175007
79	**Contemporary Trade Directory Entries** Name: Action Graphics Ltd Location: Dunstable Rd, Richmond, Surrey, TW9 1UH Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A6SW (SW)	465	-	518382 175098

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
80	**Contemporary Trade Directory Entries** Name: Pest Controllers Richmond Location: 309, Sheen Road, Richmond, Surrey, TW10 5AW Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SE)	467	-	519375 175162
81	**Contemporary Trade Directory Entries** Name: Renoir Location: 157, Kew Road, Richmond, Surrey, TW9 2PN Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SW (W)	481	-	518340 175565
82	**Contemporary Trade Directory Entries** Name: H Frederick & Co Ltd Location: 143-145, Kew Road, Richmond, Surrey, TW9 2PN Classification: Bathroom Fixtures - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SW (W)	513	-	518281 175499
82	**Contemporary Trade Directory Entries** Name: Hugo Austin Location: 129, Kew Road, Richmond, Surrey, TW9 2PN Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SW (W)	530	-	518254 175462
83	**Contemporary Trade Directory Entries** Name: Jomar Engineering Location: 119, Sandycombe Road, Richmond, Surrey, TW9 2ER Classification: Sheet Metal Work **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (N)	523	-	519073 176051
83	**Contemporary Trade Directory Entries** Name: Acton Green Sash Services Location: 119-123 Sandycombe Road, Richmond, Surrey, TW9 2AD Classification: Windows - Sash **Status: Active** Positional Accuracy: Automatically positioned to the address	A11NW (N)	523	-	519073 176050
83	**Contemporary Trade Directory Entries** Name: Edison & Crapper Location: Old Station Works, 119-123, Sandycombe Road, Richmond, Surrey, TW9 2EP Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A11NW (N)	524	-	519073 176051
84	**Contemporary Trade Directory Entries** Name: Bushwood Books Ltd Location: 6, Marksbury Avenue, RICHMOND, Surrey, TW9 4JF Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NE (NE)	539	-	519357 175905
85	**Contemporary Trade Directory Entries** Name: Shell Richmond Location: 22-24 Lower Richmond Road, Richmond, Surrey, TW9 4LJ Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A11NE (NE)	556	-	519462 175786
86	**Contemporary Trade Directory Entries** Name: W T S Tyre & Battery Service Location: 32-36, Kew Road, Richmond, Surrey, TW9 2NA Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A6NW (W)	558	-	518216 175331
87	**Contemporary Trade Directory Entries** Name: Flambeau Location: 111, Kew Road, Richmond, Surrey, TW9 2PN Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A6NW (W)	559	-	518218 175423

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	**Contemporary Trade Directory Entries** Name: London Borough Of Richmond Location: The Lodge, Kings Ride Gate, Richmond, TW10 5BJ Classification: Cemeteries & Crematoria **Status: Active** Positional Accuracy: Automatically positioned to the address	A7SE (SE)	580	-	519291 174917
89	**Contemporary Trade Directory Entries** Name: Ajacks Office Cleaning Co Location: 52, Lambert Avenue, Richmond, Surrey, TW9 4QU Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	603	-	519562 175637
90	**Contemporary Trade Directory Entries** Name: Dunne & Dusted Location: Old Deer Park, Kew Road, Richmond, TW9 2AZ Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A10SW (NW)	610	-	518319 175762
91	**Contemporary Trade Directory Entries** Name: Barilla Uk Ltd Location: Rosedale House, 2a, Rosedale Road, Richmond, Surrey, TW9 2SZ Classification: Food Products - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A9SE (W)	626	-	518161 175483
91	**Contemporary Trade Directory Entries** Name: Mijoy Co Ltd Location: Rosedale House, 2a, Rosedale Road, Richmond, Surrey, TW9 2SZ Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A9SE (W)	626	-	518161 175483
92	**Contemporary Trade Directory Entries** Name: Zainali Ltd Ta Lucy White Location: Flat, 212, Sandycombe Road, Richmond, Surrey, TW9 2EQ Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	647	-	519058 176180
92	**Contemporary Trade Directory Entries** Name: Lucy White Dry Cleaners Location: 212, Sandycombe Road, Richmond, TW9 2EQ Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (N)	647	-	519058 176180
92	**Contemporary Trade Directory Entries** Name: Montien Spice Co Ltd Location: 214b, Sandycombe Road, Richmond, Surrey, TW9 2EQ Classification: Food Products - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (N)	661	-	519062 176193
92	**Contemporary Trade Directory Entries** Name: Q Laminations Ltd Location: 230, Sandycombe Road, Richmond, Surrey, TW9 2EQ Classification: Lamination & Encapsulation Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	700	-	519069 176232
93	**Contemporary Trade Directory Entries** Name: Call Print Ltd Location: 61, Kew Road, Richmond, Surrey, TW9 2NQ Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	650	-	518125 175314
93	**Contemporary Trade Directory Entries** Name: Pepsico International Ltd Location: 63, Kew Road, Richmond, Surrey, TW9 2QL Classification: Soft Drinks - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5NE (W)	661	-	518112 175339
94	**Contemporary Trade Directory Entries** Name: Richmond Royal Hospital Location: Kew Foot Road, Richmond, Surrey, TW9 2TE Classification: Hospitals **Status: Active** Positional Accuracy: Automatically positioned to the address	A9SE (W)	653	-	518154 175563

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
95	**Contemporary Trade Directory Entries** Name: Consilient Health Location: Thames Link House, 1, Church Road, RICHMOND, Surrey, TW9 2QE Classification: Chemists' & Pharmacists' Suppliers & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	665	-	518117 175251
96	**Contemporary Trade Directory Entries** Name: A E S Electric Ltd Location: 37-39, Kew Foot Road, Richmond, Surrey, TW9 2SS Classification: Electricity Generating & Distributing Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SE (W)	675	-	518111 175489
96	**Contemporary Trade Directory Entries** Name: Your Energy Location: 37-39, Kew Foot Road, Richmond, Surrey, TW9 2SS Classification: Windmills & Wind Power Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SE (W)	675	-	518111 175489
96	**Contemporary Trade Directory Entries** Name: Bandai Location: 37-39 Kew Foot Road, Richmond, Surrey, TW9 2SS Classification: Toys, Games & Sporting Goods - Manufacturers **Status: Active** Positional Accuracy: Manually positioned to the address or location	A9SE (W)	686	-	518101 175496
97	**Contemporary Trade Directory Entries** Name: The Eauzone Location: Westminster House,Kew Rd, Richmond, Surrey, TW9 2ND Classification: Toiletries **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	707	-	518078 175225
97	**Contemporary Trade Directory Entries** Name: Ducane Dry Cleaners Location: 2 Westminster House, Kew Road, Richmond, TW9 2ND Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	717	-	518070 175211
97	**Contemporary Trade Directory Entries** Name: Ducane Dry Cleaners Location: 2, Westminster House, Kew Road, Richmond, Surrey, TW9 2ND Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5NE (W)	718	-	518069 175213
97	**Contemporary Trade Directory Entries** Name: Du Cane Location: 2, Westminster House, Kew Road, Richmond, Surrey, TW9 2ND Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5NE (W)	718	-	518069 175213
97	**Contemporary Trade Directory Entries** Name: Robert Dyas Ltd Location: 27b, The Quadrant, Richmond, Surrey, TW9 1DN Classification: Hardware **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	723	-	518072 175174
97	**Contemporary Trade Directory Entries** Name: Commuterclean Location: Richmond Railway Station, Kew Road, Richmond, Surrey, TW9 2NA Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	723	-	518072 175174
97	**Contemporary Trade Directory Entries** Name: Foehn Ltd Location: Marcar House, Parkshot, Richmond, Surrey, TW9 2RG Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5NE (W)	748	-	518033 175246
97	**Contemporary Trade Directory Entries** Name: Marcar Steel & Engineering Ltd Location: Marcar House, Parkshot, Richmond, Surrey, TW9 2RG Classification: Engineers - General **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	748	-	518033 175246

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
97	**Contemporary Trade Directory Entries** Name: Cardooo Location: Unit 313, Parkshot House, 5, Kew Road, Richmond, TW9 2PR Classification: Greeting Card Publishers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5NE (W)	763	-	518022 175219
98	**Contemporary Trade Directory Entries** Name: The Hanway Press Ltd Location: 67, Marksbury Avenue, Richmond, Surrey, TW9 4JE Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SE (NE)	712	-	519345 176138
99	**Contemporary Trade Directory Entries** Name: Rainbow Creations Ltd Location: 234, Sandycombe Road, Richmond, Surrey, TW9 2EQ Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (N)	726	-	519073 176257
99	**Contemporary Trade Directory Entries** Name: Tidman Mail Order Ltd Location: 236, Sandycombe Road, Richmond, TW9 2EQ Classification: Electronic Component Manufacturers & Distributors **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (N)	733	-	519074 176264
99	**Contemporary Trade Directory Entries** Name: Playtime Duplication Location: 236a-236b, Sandycombe Road, Richmond, TW9 2EQ Classification: Copying & Duplicating Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	733	-	519076 176264
99	**Contemporary Trade Directory Entries** Name: Mastercar Ltd Location: Rear of 240, Sandycombe Road, Richmond, TW9 2EQ Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (N)	741	-	519062 176274
99	**Contemporary Trade Directory Entries** Name: Mark Stephens Location: 245, Sandycombe Road, Richmond, Surrey, TW9 2EW Classification: Cabinet Makers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	771	-	519105 176298
100	**Contemporary Trade Directory Entries** Name: North Sheen Carpet Cleaners Location: 12, Alexandra Road, Richmond, Surrey, TW9 2BS Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	729	-	519024 176268
101	**Contemporary Trade Directory Entries** Name: All Timber Infestation & Consultancy Services Ltd Location: Gainsborough House,2 Sheen Road, Richmond, Surrey, TW9 1AE Classification: Damp & Dry Rot Control **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A5SE (SW)	731	-	518096 175076
102	**Contemporary Trade Directory Entries** Name: Bettaprint Ltd Location: 9, Lichfield Terrace, Sheen Road, Richmond, Surrey, TW9 1AS Classification: Copying & Duplicating Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	734	-	518152 174957
102	**Contemporary Trade Directory Entries** Name: Devi Khakhria Designs Location: 9, Lichfield Terrace, Sheen Road, Richmond, Surrey, TW9 1AS Classification: Stained Glass Designers & Producers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	734	-	518152 174957
102	**Contemporary Trade Directory Entries** Name: American Dry Cleaning Location: 4, Lichfield Terrace, Sheen Road, Richmond, Surrey, TW9 1AS Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	762	-	518116 174964

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
103	**Contemporary Trade Directory Entries** Name: B P Connect Location: Richmond, Surrey, Tw9 4ll Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12NW (NE)	735	-	519630 175851
104	**Contemporary Trade Directory Entries** Name: East Sheen Service Station Location: 567, Upper Richmond Road West, London, SW14 7ED Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (E)	747	-	519715 175311
104	**Contemporary Trade Directory Entries** Name: Texaco Location: 567, Upper Richmond Road West, London, SW14 7ED Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (E)	747	-	519715 175311
104	**Contemporary Trade Directory Entries** Name: Star Service Stations Location: 567, Upper Richmond Road West, London, SW14 7ED Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	748	-	519716 175312
105	**Contemporary Trade Directory Entries** Name: Rubbish Lads Ltd Location: 100, Church Road, Richmond, Surrey, TW10 6LW Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A2NW (SW)	771	-	518491 174631
106	**Contemporary Trade Directory Entries** Name: Elite Textile Care Location: 21, Kew Road, Richmond, TW9 2NQ Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	775	-	518008 175229
106	**Contemporary Trade Directory Entries** Name: Selclene Location: 5, Kew Road, Richmond, Surrey, TW9 2PR Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	775	-	518008 175229
106	**Contemporary Trade Directory Entries** Name: Realtime Location: 5, Kew Road, Richmond, TW9 2PR Classification: Computer Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	775	-	518008 175229
106	**Contemporary Trade Directory Entries** Name: Hotch Potch Location: 5, Kew Road, Richmond, Surrey, TW9 2PR Classification: Greeting Card Publishers & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A5NE (W)	775	-	518008 175229
106	**Contemporary Trade Directory Entries** Name: European Network Management Location: 5, Kew Road, Richmond, Surrey, TW9 2PR Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	775	-	518008 175229
106	**Contemporary Trade Directory Entries** Name: 24 Hr Pest Control Location: 5, Kew Road, Richmond, Surrey, TW9 2PR Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A5NE (W)	775	-	518008 175229
107	**Contemporary Trade Directory Entries** Name: Westlake Garages Ltd Location: 193-195, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	789	-	519703 175817

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
107	**Contemporary Trade Directory Entries** Name: Richmond Motors Location: 193-195, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	789	-	519703 175817
108	**Contemporary Trade Directory Entries** Name: Klopman International Location: 34, The Quadrant, Richmond, Surrey, TW9 1DN Classification: Textile Manufacturing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	806	-	518017 175071
108	**Contemporary Trade Directory Entries** Name: Cleaning Services Richmond Location: 23, The Quadrant, Richmond, Surrey, TW9 1BP Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (W)	823	-	517988 175104
108	**Contemporary Trade Directory Entries** Name: Snappy Snaps Location: 40, The Quadrant, Richmond, Surrey, TW9 1DN Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	830	-	518004 175039
108	**Contemporary Trade Directory Entries** Name: Coors Brewing International Ltd Location: 22, The Quadrant, Richmond, Surrey, TW9 1BP Classification: Brewers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (W)	835	-	517980 175089
109	**Contemporary Trade Directory Entries** Name: Newport Industries Location: Spencer House, 23, Sheen Road, Richmond, Surrey, TW9 1BN Classification: Chemicals - Distributors & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	819	-	518079 174915
109	**Contemporary Trade Directory Entries** Name: Montblanc Uk Location: 1, Towers Place, Richmond, TW9 1EG Classification: Stationery Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	847	-	518066 174883
109	**Contemporary Trade Directory Entries** Name: Kall Kwik Location: 12B Eton Street, Richmond, Surrey, TW9 1EE Classification: Printers **Status: Active** Positional Accuracy: Manually positioned to the address or location	A5SE (SW)	848	-	518053 174902
109	**Contemporary Trade Directory Entries** Name: The Clean Machine Location: 18, Eton Street, Richmond, Surrey, TW9 1EE Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	866	-	518045 174882
109	**Contemporary Trade Directory Entries** Name: Fast Stitch Location: First Floor Flat, 18, Eton Street, Richmond, TW9 1EE Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	867	-	518044 174881
110	**Contemporary Trade Directory Entries** Name: Atics Location: Gainsborough House, 2, Sheen Road, Richmond, TW9 1AE Classification: Damp & Dry Rot Control **Status: Active** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	825	-	518038 174976
111	**Contemporary Trade Directory Entries** Name: Vectra Ltd Location: Process House, 36, Paradise Road, Richmond, TW9 1SE Classification: Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	834	-	518094 174865

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
112	**Contemporary Trade Directory Entries** Name: Webuyanycar.Com Location: 179-181, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	842	-	519758 175823
112	**Contemporary Trade Directory Entries** Name: We Buy Any Car Richmond Location: 179-181, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	842	-	519758 175823
112	**Contemporary Trade Directory Entries** Name: Tantra Media Location: Diamond House, 179, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	842	-	519758 175823
112	**Contemporary Trade Directory Entries** Name: Nespack Location: Diamond House, 179, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Engineering Machine Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	842	-	519758 175823
112	**Contemporary Trade Directory Entries** Name: Hi-Tech Technologies Location: Flat 1, 179, Lower Richmond Road, Richmond, Surrey, TW9 4LN Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	842	-	519758 175823
112	**Contemporary Trade Directory Entries** Name: Mj Studio & M & M Restoration Location: 179-181 Lower Richmond Rd, Richmond, Surrey, TW9 4LN Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NW (NE)	842	-	519758 175823
113	**Contemporary Trade Directory Entries** Name: London Motor Co Location: 267, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (N)	856	-	519118 176382
113	**Contemporary Trade Directory Entries** Name: L M C Location: 267, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A15SW (N)	856	-	519118 176382
113	**Contemporary Trade Directory Entries** Name: London Cars Direct Location: 267, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	856	-	519118 176382
113	**Contemporary Trade Directory Entries** Name: Kew Village Cars Location: 267, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	856	-	519118 176382
113	**Contemporary Trade Directory Entries** Name: Proud Industrial Ltd Location: 277, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Graffiti Removers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	902	-	519109 176430
114	**Contemporary Trade Directory Entries** Name: Pro Cleaners Richmond Location: 13, Quadrant Road, Richmond, Surrey, TW9 1DH Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	859	-	517971 175042

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
115	**Contemporary Trade Directory Entries** Name: Wastedge Ltd Location: Cobden House, Park Lane, Richmond, Surrey, TW9 2RA Classification: Computer Recycling & Disposal **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5NE (W)	860	-	517932 175171
116	**Contemporary Trade Directory Entries** Name: Plastered Location: 115, Church Road, Richmond, TW10 6LS Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A2NW (SW)	865	-	518462 174542
117	**Contemporary Trade Directory Entries** Name: Mapharm Ltd Location: 424, Upper Richmond Road West, London, SW14 7JX Classification: Pharmaceutical Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	870	-	519843 175358
117	**Contemporary Trade Directory Entries** Name: Sportscraft Location: 424, Upper Richmond Road West, London, SW14 7JX Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	870	-	519843 175358
117	**Contemporary Trade Directory Entries** Name: Sportscraft Location: 424, Upper Richmond Road West, London, SW14 7JX Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	870	-	519843 175358
117	**Contemporary Trade Directory Entries** Name: Sportscraft Location: 424, Upper Richmond Road West, London, SW14 7JX Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	870	-	519843 175358
117	**Contemporary Trade Directory Entries** Name: Richmond Auto Centre Location: 424a, Upper Richmond Road West, London, SW14 7JX Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	870	-	519842 175358
117	**Contemporary Trade Directory Entries** Name: Richmond & Sheen Green Plumbing & Heating Co Location: 422, Upper Richmond Road West, London, SW14 7JX Classification: Heating Services - Industrial and Commercial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	876	-	519849 175358
117	**Contemporary Trade Directory Entries** Name: Techno Heat Location: 420, Upper Richmond Road West, London, SW14 7JX Classification: Heating Services - Industrial and Commercial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	884	-	519857 175357
117	**Contemporary Trade Directory Entries** Name: Classic Lights Location: 420, Upper Richmond Road West, London, SW14 7JX Classification: Lampshade Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	884	-	519857 175357
117	**Contemporary Trade Directory Entries** Name: Richmond Road Automobiles Location: 418, Upper Richmond Road West, London, SW14 7JX Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (E)	890	-	519863 175358
117	**Contemporary Trade Directory Entries** Name: Bathstore Location: 410 Upper Richmond Rd West, London, SW14 7JX Classification: Bathroom Fixtures - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8NW (E)	911	-	519884 175358

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
118	**Contemporary Trade Directory Entries** Name: G A L Car Repairs Location: Rear Of, 129, Kingsway, London, SW14 7HN Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	884	-	519841 175676
118	**Contemporary Trade Directory Entries** Name: Auto Diagnostic Centre Location: Rear Of, 129, Kingsway, London, SW14 7HN Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (E)	884	-	519841 175676
118	**Contemporary Trade Directory Entries** Name: Alfa Craft Location: 129, Kingsway, London, SW14 7HN Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (E)	884	-	519841 175676
118	**Contemporary Trade Directory Entries** Name: Daley Motors Location: Rear Of, 129, Kingsway, London, SW14 7HN Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A12SE (E)	929	-	519886 175680
119	**Contemporary Trade Directory Entries** Name: F & S Cleaning Services Location: 15, Deanhill Court, Upper Richmond Road West, London, SW14 7DJ Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (E)	890	-	519846 175225
120	**Contemporary Trade Directory Entries** Name: Fracture Technologies Ltd Location: 5, Queens Rise, Richmond, Surrey, TW10 6HL Classification: Oil & Gas Extraction **Status: Active** Positional Accuracy: Automatically positioned to the address	A2NE (S)	892	-	518727 174457
121	**Contemporary Trade Directory Entries** Name: Supasnaps Location: 5, Lower George Street, Richmond, Surrey, TW9 1HU Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	901	-	517982 174919
121	**Contemporary Trade Directory Entries** Name: Sketchley Retail Ltd Location: 5, Lower George Street, Richmond, Surrey, TW9 1HU Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	901	-	517982 174919
122	**Contemporary Trade Directory Entries** Name: Richmond Cleaners Location: 2, Quadrant Road, Richmond, Surrey, TW9 1DH Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	907	-	517946 174979
122	**Contemporary Trade Directory Entries** Name: Richmond Cleaners Location: 2, Quadrant Road, Richmond, Surrey, TW9 1DH Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	907	-	517946 174979
122	**Contemporary Trade Directory Entries** Name: The Richmond Man And Van Location: 3,Duke Street, Richmond, Surrey, TW9 1HP Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	946	-	517903 174978
123	**Contemporary Trade Directory Entries** Name: Weather Vain Location: 283, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Waterproof Clothing & Rainwear **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	919	-	519108 176447

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
123	**Contemporary Trade Directory Entries** Name: Royal Dry Cleaners Location: 297, Sandycombe Road, Richmond, Surrey, TW9 3LU Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (N)	962	-	519106 176492
124	**Contemporary Trade Directory Entries** Name: Reheat Location: 29, Greville Road, Richmond, Surrey, TW10 6HR Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3SW (S)	960	-	518904 174397
125	**Contemporary Trade Directory Entries** Name: Jack Wills Location: 6, Church Court, Richmond, Surrey, TW9 1JL Classification: Leisure & Sportswear Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	989	-	517905 174877
125	**Contemporary Trade Directory Entries** Name: Currys Location: 51-52, George Street, Richmond, Surrey, TW9 1HJ Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A5SE (SW)	997	-	517875 174916
126	**Contemporary Trade Directory Entries** Name: Azo Print Ltd Location: 44, Kingsway, London, SW14 7HW Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	992	-	519942 175720
127	**Fuel Station Entries** Name: Beacon Filling Station Location: Lower Mortlake Road, Sandycombe Road, Richmond, Surrey, TW9 2LL Brand: BP Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A11SW (N)	165	-	518961 175707
128	**Fuel Station Entries** Name: Sainsburys Richmond Location: Manor Road, Richmond, Surrey, TW9 1YB Brand: Sainsburys Premises Type: Hypermarket **Status: Open** Positional Accuracy: Manually positioned to the address or location	A11SW (NE)	208	-	519120 175674
129	**Fuel Station Entries** Name: Shell Blackhorse Location: 174, Sheen Road, Richmond, Surrey, TW9 1XD Brand: Shell Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A7SW (S)	323	-	518961 175063
130	**Fuel Station Entries** Name: Richmond Motor Centre Location: 293 Lower Richmond Road, Manor Gardens, North Sheen, RICHMOND, Surrey, TW9 4LU Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A11SE (NE)	365	-	519298 175687
131	**Fuel Station Entries** Name: Shell Richmond Location: 22-24 Lower Richmond Road, Nitan Road, Richmond, Surrey, TW9 4LJ Brand: Shell Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A11SE (NE)	421	-	519332 175744
132	**Fuel Station Entries** Name: Empire Filling Station Location: 2-4 Lower Mortlake Road, RICHMOND, Surrey, TW9 2JA Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Located by supplier to within 100m	A6NW (W)	568	-	518208 175297

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
133	**Fuel Station Entries** Name: East Sheen Service Station Location: 567, Upper Richmond Road West, London, SW14 7ED Brand: TEXACO Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A8NW (E)	748	-	519716 175312
134	**Fuel Station Entries** Name: Prospect Filling Station Location: 205 Lower Richmond Road, North Sheen, RICHMOND, Surrey, TW9 4LN Brand: Total Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A12NW (NE)	761	-	519675 175811
135	**Points of Interest - Commercial Services** Name: Laxton Rice Transport Location: Argyle House, Dee Road, Richmond, TW9 2JN Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
136	**Points of Interest - Commercial Services** Name: Coys Location: 237 Lower Mortlake Road, Richmond, TW9 2LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A10SE (N)	130	7	518869 175656
136	**Points of Interest - Commercial Services** Name: Allport Ltd Location: London House 243-253, Lower Mortlake Road, Richmond, TW9 2LS Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11SW (N)	146	7	518918 175686
137	**Points of Interest - Commercial Services** Name: Stable Motors Location: 6 Sheendale Road, Richmond, TW9 2JJ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A6NE (W)	141	7	518662 175442
137	**Points of Interest - Commercial Services** Name: Stable Motors Location: 5 Sheendale Road, Richmond, TW9 2JJ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A6NE (W)	141	7	518662 175442
137	**Points of Interest - Commercial Services** Name: Kwik-Fit (GB) Limited Location: 48 Sheendale Road, Richmond, TW9 2JJ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A10SE (W)	172	7	518676 175497
137	**Points of Interest - Commercial Services** Name: Kwik-Fit (GB) Limited Location: 48 Sheendale Road, Richmond, TW9 2JJ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A10SE (W)	172	7	518675 175496
138	**Points of Interest - Commercial Services** Name: Colin Ferns Ltd Location: Rear of 63-65, Raleigh Road, Richmond, TW9 2DU Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11SW (N)	182	7	518972 175723
138	**Points of Interest - Commercial Services** Name: Colin Ferns Ltd Location: 65 Raleigh Road, Richmond, TW9 2DU Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11SW (N)	189	7	518942 175732

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
139	**Points of Interest - Commercial Services** Name: Richmond Service Centre Location: Unit 2, Market Road, Richmond, TW9 4LZ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11SE (NE)	289	7	519252 175589
139	**Points of Interest - Commercial Services** Name: Richmond Service Centre Location: Unit 2, Market Road, Richmond, TW9 4LZ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11SE (NE)	290	7	519253 175589
139	**Points of Interest - Commercial Services** Name: Bushwood Books Ltd Location: 17 Market Road, Richmond, TW9 4LZ Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11SE (NE)	336	7	519296 175609
140	**Points of Interest - Commercial Services** Name: Smith Bros Location: 63 Sandycombe Road, Richmond, TW9 2EP Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11NW (N)	392	7	519027 175927
140	**Points of Interest - Commercial Services** Name: Smith Brothers Location: 63 Sandycombe Road, Richmond, TW9 2EP Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11NW (N)	392	7	519026 175926
141	**Points of Interest - Commercial Services** Name: Shell Richmond Location: 22-24 Lower Richmond Road, Nitan Road, Richmond, TW9 4LJ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A11SE (NE)	420	7	519331 175743
141	**Points of Interest - Commercial Services** Name: Car Wash Location: 22-24 Lower Richmond Road, Nitan Road, Richmond, Surrey, TW9 4LJ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A11SE (NE)	421	7	519332 175744
142	**Points of Interest - Commercial Services** Name: Hand Car Wash Location: 47a Lower Mortlake Road, Richmond, TW9 2LW Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A6NW (W)	433	7	518347 175431
143	**Points of Interest - Commercial Services** Name: Jomar Engineering Location: 119 Sandycombe Road, Richmond, TW9 2ER Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location	A11NW (N)	523	7	519073 176051
143	**Points of Interest - Commercial Services** Name: Jomar Engineering Location: Old Station Works 119-123, Sandycombe Road, Richmond, TW9 2EP Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location	A11NW (N)	523	7	519073 176051
144	**Points of Interest - Commercial Services** Name: Bushwood Books Ltd Location: 6 Marksbury Avenue, Richmond, TW9 4JF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11NE (NE)	538	7	519356 175905
145	**Points of Interest - Commercial Services** Name: Mastercar Ltd Location: Rear of 240, Sandycombe Road, Richmond, TW9 2EQ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A15SW (N)	745	7	519077 176276

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
145	**Points of Interest - Commercial Services** Name: Master Car Ltd Location: Flat 240, Sandycombe Road, Richmond, TW9 2EQ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A15SW (N)	746	7	519077 176277
146	**Points of Interest - Commercial Services** Name: Alfa Craft Location: 193-195 Lower Richmond Road, Richmond, TW9 4LN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (NE)	789	7	519703 175817
147	**Points of Interest - Commercial Services** Name: Alfa Craft Location: Rear Of 129, Kingsway, London, SW14 7HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	829	7	519790 175642
147	**Points of Interest - Commercial Services** Name: Auto Diagnostic Centre Location: 129 Kingsway, London, SW14 7HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	883	7	519840 175675
147	**Points of Interest - Commercial Services** Name: Gal Car Repairs Location: Rear Of 129, Kingsway, London, SW14 7HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	884	7	519841 175676
147	**Points of Interest - Commercial Services** Name: Alfa Craft Location: 129 Kingsway, London, SW14 7HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	884	7	519841 175676
147	**Points of Interest - Commercial Services** Name: Auto Diagnostic Centre Location: Rear Of 129, Kingsway, London, SW14 7HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	884	7	519841 175676
147	**Points of Interest - Commercial Services** Name: G A L Car Repairs Location: Rear of 129, Kingsway, London, SW14 7HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	884	7	519841 175676
148	**Points of Interest - Commercial Services** Name: Richmond Valeting Centre Location: 424a Upper Richmond Road West, London, SW14 7JX Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A8NW (E)	869	7	519842 175358
149	**Points of Interest - Commercial Services** Name: Thameside Shipping Location: 69 Onslow Road, Richmond, TW10 6QA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A1NE (SW)	996	7	518179 174550
150	**Points of Interest - Manufacturing and Production** Name: Burgess Properties Location: Aaron House 6, Bardolph Road, Richmond, TW9 2LH Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A10SE (NW)	21	7	518861 175468
150	**Points of Interest - Manufacturing and Production** Name: Aaron House Location: 2-6 Bardolph Road, Richmond, TW9 2LH Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A10SE (NW)	21	7	518861 175468

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
150	**Points of Interest - Manufacturing and Production** Name: Works Location: TW9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A6NE (W)	26	7	518831 175438
150	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A6NE (W)	27	7	518828 175437
150	**Points of Interest - Manufacturing and Production** Name: Tank Location: TW9 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A10SE (W)	42	7	518821 175451
151	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11SW (N)	28	7	518912 175562
152	**Points of Interest - Manufacturing and Production** Name: Richmond International Business Centre Location: TW9 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A6NE (SW)	31	7	518751 175377
152	**Points of Interest - Manufacturing and Production** Name: Argyle House Location: 1 Dee Road, Richmond, TW9 2JN Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
152	**Points of Interest - Manufacturing and Production** Name: Property Solutions Ltd Location: 1 Dee Road, Richmond, TW9 2JN Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
152	**Points of Interest - Manufacturing and Production** Name: A-Z 1st Freeofficefinder.Com Location: Argyle House, Dee Road, Richmond, TW9 2JN Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
152	**Points of Interest - Manufacturing and Production** Name: Mls Business Centres Location: 1 Dee Road, Richmond, TW9 2JN Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
152	**Points of Interest - Manufacturing and Production** Name: Richmond International Business Centre Location: 1 Dee Road, Richmond, TW9 2JN Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
152	**Points of Interest - Manufacturing and Production** Name: Serviced Offices Management Location: 1 Dee Road, Richmond, TW9 2JN Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A6NE (SW)	32	7	518742 175361
153	**Points of Interest - Manufacturing and Production** Name: Burgess Properties Location: 19-22 Victoria Villas, Richmond, TW9 2JX Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A10SE (NW)	107	7	518769 175491

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
153	**Points of Interest - Manufacturing and Production** Name: Cliveden Business Centre Location: Cliveden House, 19-22 Victoria Villas, Richmond, Surrey, TW9 2JX Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A10SE (NW)	108	7	518769 175492
154	**Points of Interest - Manufacturing and Production** Name: Works Location: TW9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11SW (N)	140	7	518915 175680
154	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11SW (N)	142	7	518918 175682
155	**Points of Interest - Manufacturing and Production** Name: Factory Location: TW9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11SE (NE)	253	7	519211 175603
155	**Points of Interest - Manufacturing and Production** Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11SE (NE)	257	7	519215 175603
156	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11SE (NE)	281	7	519234 175621
156	**Points of Interest - Manufacturing and Production** Name: Tank Location: TW9 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A11SE (NE)	351	7	519293 175663
157	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A6SW (SW)	489	7	518389 175047
158	**Points of Interest - Manufacturing and Production** Name: Works Location: TW9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11NW (N)	532	7	519070 176060
158	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A11NW (N)	533	7	519073 176061
159	**Points of Interest - Manufacturing and Production** Name: Rosedale House Ltd Location: Rosedale House 2a, Rosedale Road, Richmond, TW9 2SZ Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A9SE (W)	626	7	518161 175483
159	**Points of Interest - Manufacturing and Production** Name: Rosedale House Ltd Location: Rosedale House 2a, Rosedale Road, Richmond, TW9 2SZ Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A9SE (W)	626	7	518161 175483

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
159	**Points of Interest - Manufacturing and Production** Name: A E S Wind Generation Location: 37-39 Kew Foot Road, Richmond, TW9 2SS Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to address or location	A9SE (W)	675	7	518111 175489
160	**Points of Interest - Manufacturing and Production** Name: Works Location: TW9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A6SW (SW)	651	7	518283 174920
160	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A6SW (SW)	652	7	518283 174919
161	**Points of Interest - Manufacturing and Production** Name: A-Z 1st Freeofficefinder.Com Location: 2 Sheen Rd, Richmond Upon Thames, Richmond, Surrey, TW10 5AW Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A5SE (SW)	770	7	518104 174968
161	**Points of Interest - Manufacturing and Production** Name: Regus Location: Gainsborough House 2, Sheen Road, Richmond, TW9 1AE Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A5SE (SW)	830	7	518037 174966
161	**Points of Interest - Manufacturing and Production** Name: Regus Location: Gainsborough House 2, Sheen Road, Richmond, TW9 1AE Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A5SE (SW)	830	7	518037 174966
161	**Points of Interest - Manufacturing and Production** Name: Regus Plc Location: Gainsborough House 2, Sheen Road, Richmond, TW9 1AE Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A5SE (SW)	830	7	518037 174966
162	**Points of Interest - Manufacturing and Production** Name: Mwb Business Exchange Location: 5 Kew Road, Richmond, TW9 2PR Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A5NE (W)	775	7	518008 175229
162	**Points of Interest - Manufacturing and Production** Name: M W B Business Exchange Location: 5 Kew Road, Richmond, TW9 2PR Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A5NE (W)	775	7	518008 175229
163	**Points of Interest - Manufacturing and Production** Name: Caesarstone Location: Clifford House 424, Upper Richmond Road West, London, SW14 7JX Category: Extractive Industries Class Code: Stone Quarrying and Preparation Positional Accuracy: Positioned to address or location	A8NW (E)	870	7	519843 175358
163	**Points of Interest - Manufacturing and Production** Name: Caesarstone Marble Specialists Location: 424 Upper Richmond Road West, London, SW14 7JX Category: Extractive Industries Class Code: Stone Quarrying and Preparation Positional Accuracy: Positioned to address or location	A8NW (E)	870	7	519842 175358
164	**Points of Interest - Manufacturing and Production** Name: Tank Location: TW10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	874	7	518913 174486

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
165	**Points of Interest - Manufacturing and Production** Name: Fracture Technologies Ltd Location: 5 Queens Rise, Richmond, TW10 6HL Category: Extractive Industries Class Code: Oil and Gas Extraction, Refinery and Product Manufacture Positional Accuracy: Positioned to address or location	A2NE (S)	893	7	518726 174457
166	**Points of Interest - Manufacturing and Production** Name: Works Location: TW10 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A2NW (SW)	927	7	518214 174610
166	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A2NW (SW)	928	7	518214 174608
167	**Points of Interest - Manufacturing and Production** Name: Works Location: TW9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A15NW (N)	950	7	519126 176476
167	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A15NW (N)	952	7	519130 176477
168	**Points of Interest - Public Infrastructure** Name: North Sheen Rail Station Location: Manor Grove, TW9 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A7NW (E)	152	7	519122 175434
168	**Points of Interest - Public Infrastructure** Name: North Sheen Station Location: Manor Grove, TW9 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A7NW (E)	152	7	519122 175434
169	**Points of Interest - Public Infrastructure** Name: BP Express Location: Lower Mortlake Road, Richmond, TW9 2LL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SW (N)	164	7	518961 175706
169	**Points of Interest - Public Infrastructure** Name: Beacon Filling Station Location: Lower Mortlake Road, Richmond, TW9 2LL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SW (N)	165	7	518962 175707
169	**Points of Interest - Public Infrastructure** Name: BP Service Station Location: Lower Mortlake Road, Richmond, TW9 2LL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SW (N)	165	7	518962 175707
169	**Points of Interest - Public Infrastructure** Name: Beacon Filling Station Location: Lower Mortlake Road, Sandycombe Road, Richmond, TW9 2LL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SW (N)	165	7	518961 175707
169	**Points of Interest - Public Infrastructure** Name: BP Express Location: Lower Mortlake Road, Richmond, TW9 2LL Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SW (N)	169	7	518973 175709

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
170	**Points of Interest - Public Infrastructure** Name: Sainsbury's Richmond Location: Manor Road, Richmond, TW9 1YB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SW (NE)	208	7	519120 175674
171	**Points of Interest - Public Infrastructure** Name: Richmond (London) Fire Station Location: Richmond Fire Station 323, Lower Richmond Road, Richmond, TW9 4PN Category: Central and Local Government Class Code: Fire Brigade Stations Positional Accuracy: Positioned to address or location	A11SE (NE)	309	7	519243 175673
172	**Points of Interest - Public Infrastructure** Name: Tcs Blackhorse Location: 174 Sheen Road, Richmond, TW9 1XD Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7SW (S)	323	7	518961 175063
172	**Points of Interest - Public Infrastructure** Name: TCS Blackhorse Location: 174 Sheen Road, Richmond, TW9 1XD Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7SW (S)	323	7	518961 175063
172	**Points of Interest - Public Infrastructure** Name: Shell Blackhorse Location: 174 Sheen Road, Richmond, TW9 1XD Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7SW (S)	324	7	518960 175062
173	**Points of Interest - Public Infrastructure** Name: Rapid Clear Location: 96 Sheen Road, Richmond, TW9 1UF Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A6SW (SW)	414	7	518472 175065
174	**Points of Interest - Public Infrastructure** Name: Petropolis Location: 21-22 Popham Gardens, Lower Richmond Road, Richmond, TW9 4LJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SE (NE)	420	7	519331 175743
174	**Points of Interest - Public Infrastructure** Name: Tcs Richmond Location: 21-22 Popham Gardens, Lower Richmond Road, Richmond, TW9 4LJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SE (NE)	421	7	519332 175744
174	**Points of Interest - Public Infrastructure** Name: TCS Richmond Location: 22-24 Lower Richmond Road, Nitan Road, Richmond, Surrey, TW9 4LJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SE (NE)	421	7	519332 175744
174	**Points of Interest - Public Infrastructure** Name: Braymarsh Cash Ltd Location: 21-22 Popham Gardens, Lower Richmond Road, Richmond, TW9 4LJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11SE (NE)	422	7	519332 175744
175	**Points of Interest - Public Infrastructure** Name: London Borough of Richmond Location: The Lodge, Kings Ride Gate, Richmond, TW10 5BJ Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to address or location	A7SE (SE)	580	7	519291 174917
176	**Points of Interest - Public Infrastructure** Name: Richmond Police Station Location: 18-20 Kew Road, Richmond, TW9 2NA Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A5NE (W)	641	7	518136 175279

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
177	**Points of Interest - Public Infrastructure** Name: Richmond (London) Rail Station Location: The Quadrant, TW9 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A5NE (W)	725	7	518071 175173
177	**Points of Interest - Public Infrastructure** Name: Richmond Nll Rail Station Location: The Quadrant, TW9 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A5NE (W)	725	7	518071 175173
177	**Points of Interest - Public Infrastructure** Name: Richmond Station Location: The Quadrant, TW9 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A5NE (W)	725	7	518071 175173
178	**Points of Interest - Public Infrastructure** Name: Texaco Location: 567 Upper Richmond Road West, London, SW14 7ED Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NW (E)	747	7	519715 175311
178	**Points of Interest - Public Infrastructure** Name: East Sheen Service Station Location: 567 Upper Richmond Road West, London, SW14 7ED Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NW (E)	748	7	519716 175312
178	**Points of Interest - Public Infrastructure** Name: Texaco Location: 567 Upper Richmond Road West, London, SW14 7ED Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NW (E)	748	7	519716 175311
178	**Points of Interest - Public Infrastructure** Name: Star Service Stations Location: 567 Upper Richmond Road West, London, SW14 7ED Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NW (E)	748	7	519716 175312
178	**Points of Interest - Public Infrastructure** Name: East Sheen Sstn Location: 567 Upper Richmond Road West, London, SW14 7ED Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NW (E)	748	7	519716 175312
178	**Points of Interest - Public Infrastructure** Name: East Sheen Service Station Location: 567 Upper Richmond Road West, London, SW14 7ED Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NW (E)	748	7	519716 175312
179	**Points of Interest - Public Infrastructure** Name: Rubbish Lads Ltd Location: 100 Church Road, Richmond, TW10 6LW Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A2NW (SW)	771	7	518491 174631
180	**Points of Interest - Public Infrastructure** Name: East Sheen Cemetery Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NE (SE)	780	7	519291 174690
181	**Points of Interest - Public Infrastructure** Name: North Sheen Cemetery Location: TW9 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A12NW (NE)	781	7	519641 175928

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
182	**Points of Interest - Public Infrastructure** Name: Cemetery Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	797	7	518973 174577
183	**Points of Interest - Public Infrastructure** Name: Richmond Cemetery Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	824	7	519091 174579
184	**Points of Interest - Public Infrastructure** Name: North Finchley Bus Station Location: 88 Kingsway, London, SW14 7HW Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A12SW (E)	878	7	519828 175709
185	**Points of Interest - Public Infrastructure** Name: North Sheen Cemetery Location: TW9 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A16SW (NE)	909	7	519650 176133
185	**Points of Interest - Public Infrastructure** Name: North Sheen Cemetery (Fulham) Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A16SW (NE)	924	7	519671 176132
186	**Points of Interest - Public Infrastructure** Name: Graveyard Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A1NE (SW)	912	7	518078 174759
186	**Points of Interest - Public Infrastructure** Name: Graveyard Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A1NE (SW)	916	7	518107 174721
186	**Points of Interest - Public Infrastructure** Name: Graveyard Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A1NE (SW)	921	7	518101 174720
187	**Points of Interest - Public Infrastructure** Name: Richmond Cemetery Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	944	7	519032 174440
187	**Points of Interest - Public Infrastructure** Name: Richmond Cemetery Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	948	7	519050 174441
188	**Points of Interest - Public Infrastructure** Name: East Sheen Cemetery Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	960	7	519209 174469
188	**Points of Interest - Public Infrastructure** Name: Cemetery Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	960	7	519202 174467

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
189	**Points of Interest - Public Infrastructure** Name: Tesco Petrol Filling Station Location: 29 George Street, Richmond, TW9 1HY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A5SE (SW)	961	7	517922 174904
190	**Points of Interest - Public Infrastructure** Name: Cemetery Location: TW10 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A3SW (S)	973	7	518926 174387
191	**Points of Interest - Public Infrastructure** Name: New Cemetery Location: SW14 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A12NW (NE)	978	7	519851 175951
191	**Points of Interest - Public Infrastructure** Name: Mortlake Cemetery Location: Clifford Avenue, London, SW14 7BU Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to address or location	A12NW (NE)	986	7	519857 175958
192	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A11SW (N)	225	7	518887 175762
192	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A10SE (N)	226	7	518866 175758
192	**Points of Interest - Recreational and Environmental** Name: Playground Location: Raleigh Road, TW9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A10SE (N)	226	7	518866 175757
193	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A6SW (SW)	448	7	518489 175002
193	**Points of Interest - Recreational and Environmental** Name: Playground Location: Albany Road, TW10 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A6SW (SW)	450	7	518496 174994
194	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A11NW (NE)	497	7	519157 175994
194	**Points of Interest - Recreational and Environmental** Name: Playground Location: Dancer Road, TW9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A11NW (NE)	505	7	519160 176002
195	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A11SE (E)	573	7	519533 175632

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
195	**Points of Interest - Recreational and Environmental** Name: Playground Location: Lambert Avenue, TW9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A11SE (E)	575	7	519534 175635
196	**Points of Interest - Recreational and Environmental** Name: Playground Location: Somerton Avenue, TW9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	669	7	519625 175660
196	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	676	7	519632 175660

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
197	**National Nature Reserves** Name: Richmond Park Multiple Areas: N Total Area (m2): 8464578.19 Source: Natural England Reference: 1007634 Designation Date: Not Supplied	A3NE (S)	992	8	519213 174437
198	**Sites of Special Scientific Interest** Name: Richmond Park Multiple Areas: N Total Area (m2): 8464578.19 Source: Natural England Reference: 1002388 Designation Details: National Nature Reserve Designation Date: 4th March 1992 Date Type: Notified Designation Details: Special Area Of Conservation Designation Date: 4th March 1992 Date Type: Notified Designation Details: Site Of Special Scientific Interest Designation Date: 4th March 1992 Date Type: Notified	A3NE (S)	992	8	519213 174437
199	**Special Areas of Conservation** Name: Richmond Park Multiple Areas: N Total Area (m2): 8464322.93 Source: Natural England Reference: UK0030246 **Status: Designated**	A3NE (S)	992	8	519211 174437
200	**World Heritage Sites** Name: Royal Botanic Gardens, Kew Reference: 1000102 Area(m^2): 3453565.18 Source: Historic England Designation Date: 1st January 2003	A10NE (N)	345	10	518778 175851
201	**World Heritage Sites** Name: Royal Botanic Gardens, Kew Reference: 1000102 Area(m^2): 1365103.99 Source: Historic England Designation Date: 1st January 2003	A10NE (NW)	534	10	518628 175981

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Royal Borough of Kingston upon Thames - Environmental Health Department	April 2013	Annual Rolling Update
London Borough of Wandsworth - Environmental Health Department	January 2013	Annual Rolling Update
London Borough of Merton - Environmental Health Department	January 2015	Annual Rolling Update
London Borough of Hounslow - Contaminated Land Section	May 2014	Annual Rolling Update
London Borough of Ealing - Environmental Health and Trading Standards Division	October 2013	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	September 2013	Annual Rolling Update
London Borough of Richmond upon Thames - Planning and Review Department	September 2014	Annual Rolling Update
Discharge Consents		
Environment Agency - Thames Region	July 2017	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - Thames Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - Kent & South London Area	July 2017	Quarterly
Environment Agency - South East Region - North East Thames Area	July 2017	Quarterly
Environment Agency - Thames Region	July 2017	Quarterly
Local Authority Integrated Pollution Prevention And Control		
London Borough of Wandsworth - Environmental Health Department	August 2014	Annual Rolling Update
London Borough of Hounslow - Environmental Health Department	February 2013	Annual Rolling Update
London Borough of Richmond upon Thames - Environmental Health Department	January 2015	Annual Rolling Update
London Borough of Ealing - Environmental Health and Trading Standards Division	July 2015	Annual Rolling Update
Royal Borough of Kingston upon Thames - Environmental Health Department	June 2016	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	March 2014	Annual Rolling Update
London Port Health Authority - Environmental Services	October 2014	Annual Rolling Update
London Borough of Merton - Environmental Health Department	September 2014	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
London Borough of Wandsworth - Environmental Health Department	August 2014	Annual Rolling Update
London Borough of Hounslow - Environmental Health Department	February 2013	Annual Rolling Update
London Borough of Richmond upon Thames - Environmental Health Department	January 2015	Annual Rolling Update
London Borough of Ealing - Environmental Health and Trading Standards Division	July 2015	Annual Rolling Update
Royal Borough of Kingston upon Thames - Environmental Health Department	June 2016	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	March 2014	Annual Rolling Update
London Port Health Authority - Environmental Services	October 2014	Annual Rolling Update
London Borough of Merton - Environmental Health Department	September 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
London Borough of Wandsworth - Environmental Health Department	August 2014	Annual Rolling Update
London Borough of Hounslow - Environmental Health Department	February 2013	Annual Rolling Update
London Borough of Richmond upon Thames - Environmental Health Department	January 2015	Annual Rolling Update
London Borough of Ealing - Environmental Health and Trading Standards Division	July 2015	Annual Rolling Update
Royal Borough of Kingston upon Thames - Environmental Health Department	June 2016	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	March 2014	Annual Rolling Update
London Port Health Authority - Environmental Services	October 2014	Annual Rolling Update
London Borough of Merton - Environmental Health Department	September 2014	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	May 2017	
Pollution Incidents to Controlled Waters		
Environment Agency - Thames Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - Thames Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - Thames Region	March 2013	As notified

Agency & Hydrological	Version	Update Cycle
Registered Radioactive Substances		
Environment Agency - Thames Region	January 2015	
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - South East Region - Kent & South London Area	July 2017	Quarterly
Environment Agency - South East Region - North East Thames Area	July 2017	Quarterly
Environment Agency - Thames Region - North East Area	July 2017	Quarterly
Environment Agency - Thames Region - South East Area	July 2017	Quarterly
Water Abstractions		
Environment Agency - Thames Region	July 2017	Quarterly
Water Industry Act Referrals		
Environment Agency - Thames Region	July 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones		
Environment Agency - Head Office	July 2017	Quarterly
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	August 2017	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	August 2017	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	August 2017	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	August 2017	Quarterly
Flood Defences		
Environment Agency - Head Office	August 2017	Quarterly
OS Water Network Lines		
Ordnance Survey	July 2017	6 Weekly
Surface Water 1 in 30 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability		
Environment Agency - Head Office	October 2013	As notified
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	May 2017	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - Kent & South London Area	May 2017	Quarterly
Environment Agency - South East Region - North East Thames Area	May 2017	Quarterly
Environment Agency - Thames Region - North East Area	May 2017	Quarterly
Environment Agency - Thames Region - South East Area	May 2017	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - Kent & South London Area	July 2017	Quarterly
Environment Agency - South East Region - North East Thames Area	July 2017	Quarterly
Environment Agency - Thames Region - North East Area	July 2017	Quarterly
Environment Agency - Thames Region - South East Area	July 2017	Quarterly
Local Authority Landfill Coverage		
London Borough of Ealing	May 2000	Not Applicable
London Borough of Hammersmith And Fulham - Environmental Health Department	May 2000	Not Applicable
London Borough of Hounslow - Environmental Health Department	May 2000	Not Applicable
London Borough of Merton - Environmental Health Department	May 2000	Not Applicable
London Borough of Richmond upon Thames	May 2000	Not Applicable
London Borough of Wandsworth - Environmental Health Department	May 2000	Not Applicable
Royal Borough of Kingston upon Thames - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
London Borough of Wandsworth - Environmental Health Department	April 2003	Not Applicable
London Borough of Ealing	May 2000	Not Applicable
London Borough of Hammersmith And Fulham - Environmental Health Department	May 2000	Not Applicable
London Borough of Hounslow - Environmental Health Department	May 2000	Not Applicable
London Borough of Merton - Environmental Health Department	May 2000	Not Applicable
London Borough of Richmond upon Thames	May 2000	Not Applicable
Royal Borough of Kingston upon Thames - Environmental Health Department	September 2003	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency - Thames Region - North East Area	March 2003	Not Applicable
Environment Agency - Thames Region - South East Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - North East Area	March 2003	Not Applicable
Environment Agency - Thames Region - South East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - North East Area	June 2015	Not Applicable
Environment Agency - Thames Region - South East Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	September 2017	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
London Borough of Ealing	February 2016	Annual Rolling Update
London Borough of Hounslow	February 2016	Annual Rolling Update
London Borough of Merton	February 2016	Annual Rolling Update
London Borough of Richmond upon Thames	February 2016	Annual Rolling Update
London Borough of Wandsworth - Technical Services	February 2016	Annual Rolling Update
Royal Borough of Kingston upon Thames	February 2016	Annual Rolling Update
London Port Health Authority - Environmental Services	January 2008	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Protection	September 2014	Annual Rolling Update
Planning Hazardous Substance Consents		
London Borough of Hammersmith And Fulham - Environmental Protection	August 2015	Annual Rolling Update
London Borough of Ealing	February 2016	Annual Rolling Update
London Borough of Hounslow	February 2016	Annual Rolling Update
London Borough of Merton	February 2016	Annual Rolling Update
London Borough of Richmond upon Thames	February 2016	Annual Rolling Update
London Borough of Wandsworth - Technical Services	February 2016	Annual Rolling Update
Royal Borough of Kingston upon Thames	February 2016	Annual Rolling Update
London Port Health Authority - Environmental Services	January 2008	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2017	Bi-Annually
BGS Urban Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Urban Soil Chemistry Averages British Geological Survey - National Geoscience Information Service	October 2015	As notified
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	June 2017	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2017	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	September 2017	Quarterly
Points of Interest - Education and Health PointX	September 2017	Quarterly
Points of Interest - Manufacturing and Production PointX	September 2017	Quarterly
Points of Interest - Public Infrastructure PointX	September 2017	Quarterly
Points of Interest - Recreational and Environmental PointX	September 2017	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	May 2017	Bi-Annually
Areas of Adopted Green Belt		
London Borough of Ealing	May 2017	As notified
London Borough of Hounslow	May 2017	As notified
London Borough of Richmond upon Thames	May 2017	As notified
Royal Borough of Kingston upon Thames	May 2017	As notified
Areas of Unadopted Green Belt		
London Borough of Ealing	May 2017	As notified
London Borough of Hounslow	May 2017	As notified
London Borough of Richmond upon Thames	May 2017	As notified
Royal Borough of Kingston upon Thames	May 2017	As notified
Areas of Outstanding Natural Beauty		
Natural England	August 2017	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	Annually
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	August 2017	Bi-Annually
Marine Nature Reserves		
Natural England	August 2017	Bi-Annually
National Nature Reserves		
Natural England	August 2017	Bi-Annually
National Parks		
Natural England	August 2017	Bi-Annually
Nitrate Vulnerable Zones		
Environment Agency - Head Office	June 2017	Bi-Annually
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	
Ramsar Sites		
Natural England	August 2017	Bi-Annually
Sites of Special Scientific Interest		
Natural England	August 2017	Bi-Annually
Special Areas of Conservation		
Natural England	August 2017	Bi-Annually
Special Protection Areas		
Natural England	August 2017	Bi-Annually
World Heritage Sites		
Historic England	May 2017	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	The Coal Authority
British Geological Survey	BGS 1835 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	CEH Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Peter Brett Associates	pba peterbrett

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**London Borough of Richmond upon Thames - Environmental Health Department** 4 Waldegrave Road, Teddington, Middlesex, TW11 8EN	Telephone: 020 8891 1411 Fax: 020 8891 7702 Website: www.richmond.gov.uk
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 023 8079 2000 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**London Borough of Richmond upon Thames** Civic Centre, 44 York Street, Twickenham, Middlesex, TW1 3BZ	Telephone: 020 8891 1411 Fax: 020 8891 7702 Website: www.richmond.gov.uk
6	**Health and Safety Executive** 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
10	**Historic England** 1 Waterhouse Square, 138 - 142 Holborn, London, EC1N 2ST	Telephone: 0370 333 0607 Email: customers@historicengland.org.uk Website: www.historicengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

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FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

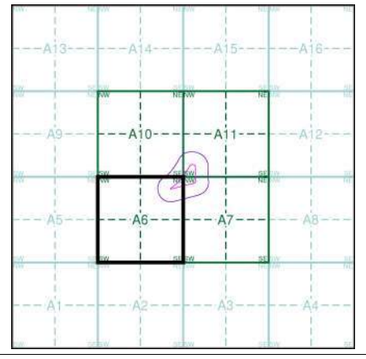
Geological

- BGS Recorded Mineral Site

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A6



Order Details

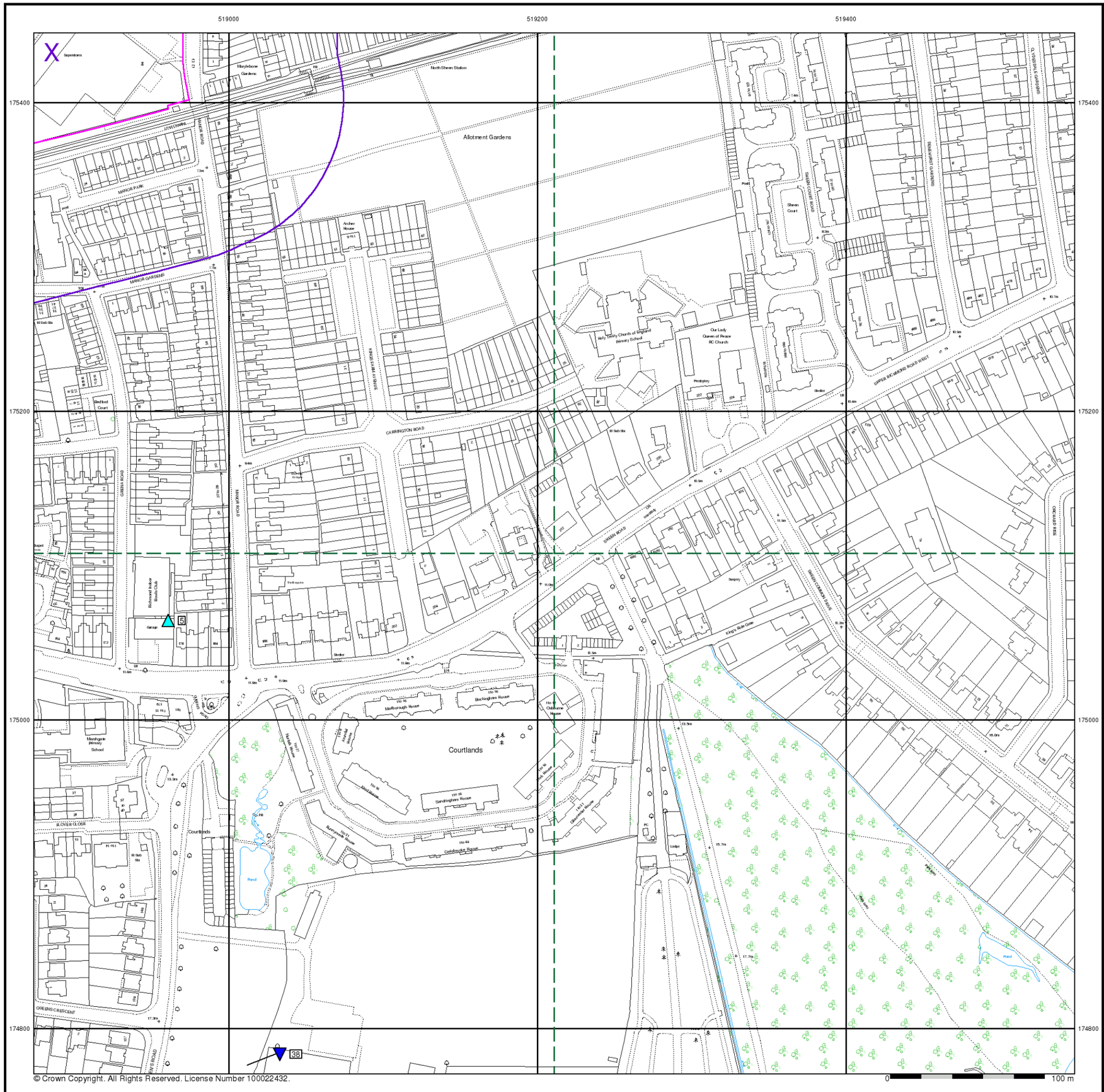
Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Plot Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
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- Integrated Pollution Prevention Control
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- Water Abstraction
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Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Recorded Mineral Site

Waste

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- Registered Landfill Site (Location)
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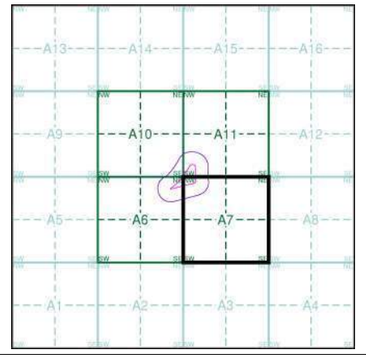
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A7



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Plot Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
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Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
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Geological

- BGS Recorded Mineral Site

Waste

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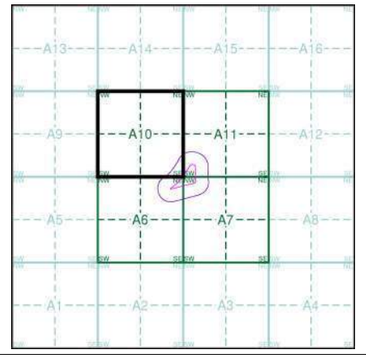
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A10



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Plot Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP
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Fax: 0844 844 9951
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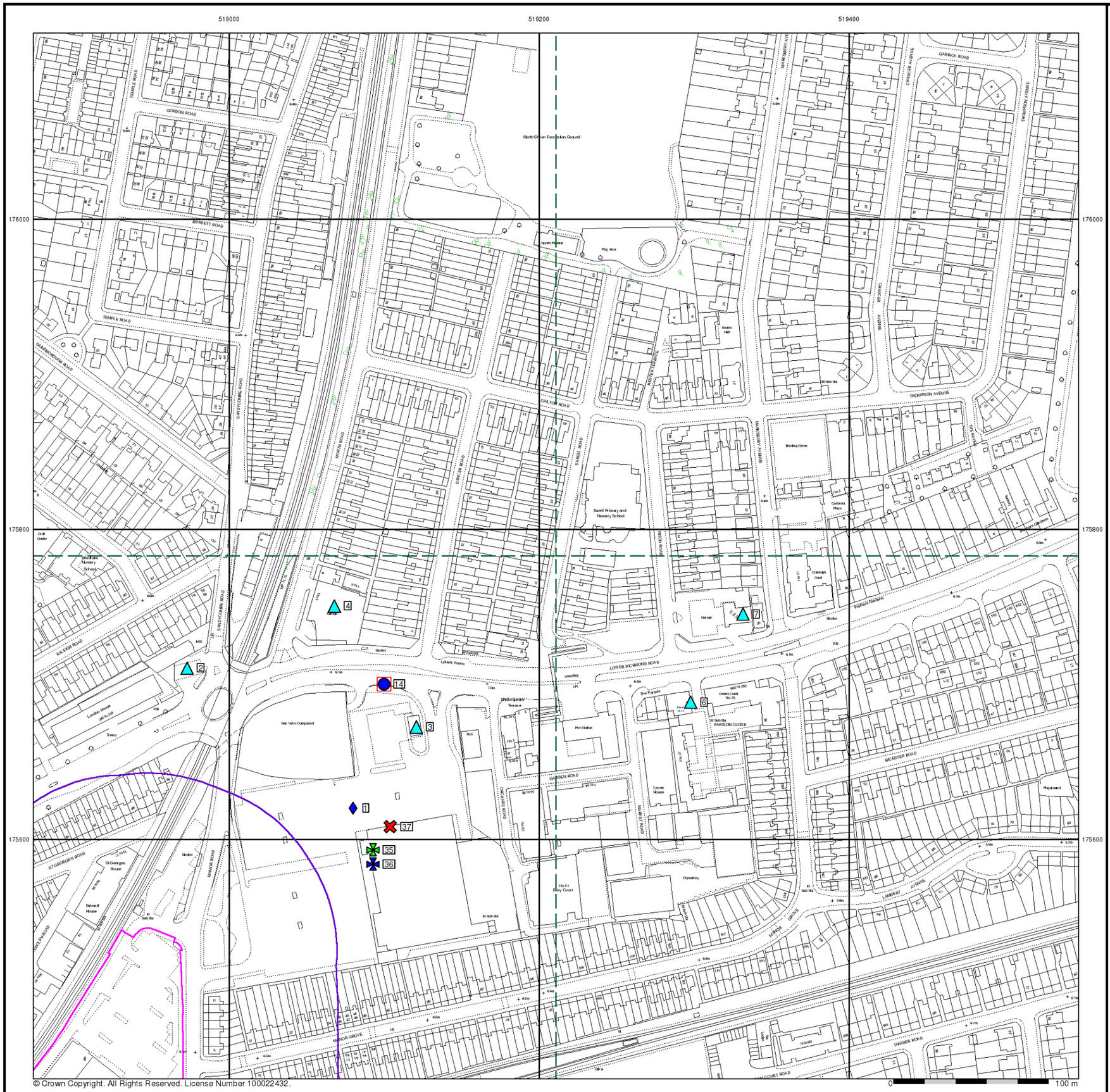

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FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
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Waste

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- Registered Waste Treatment or Disposal Site

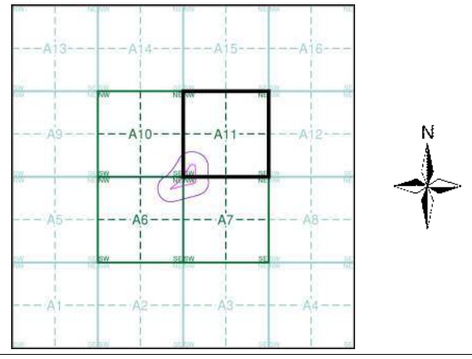
Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Recorded Mineral Site

Site Sensitivity Map - Segment A11



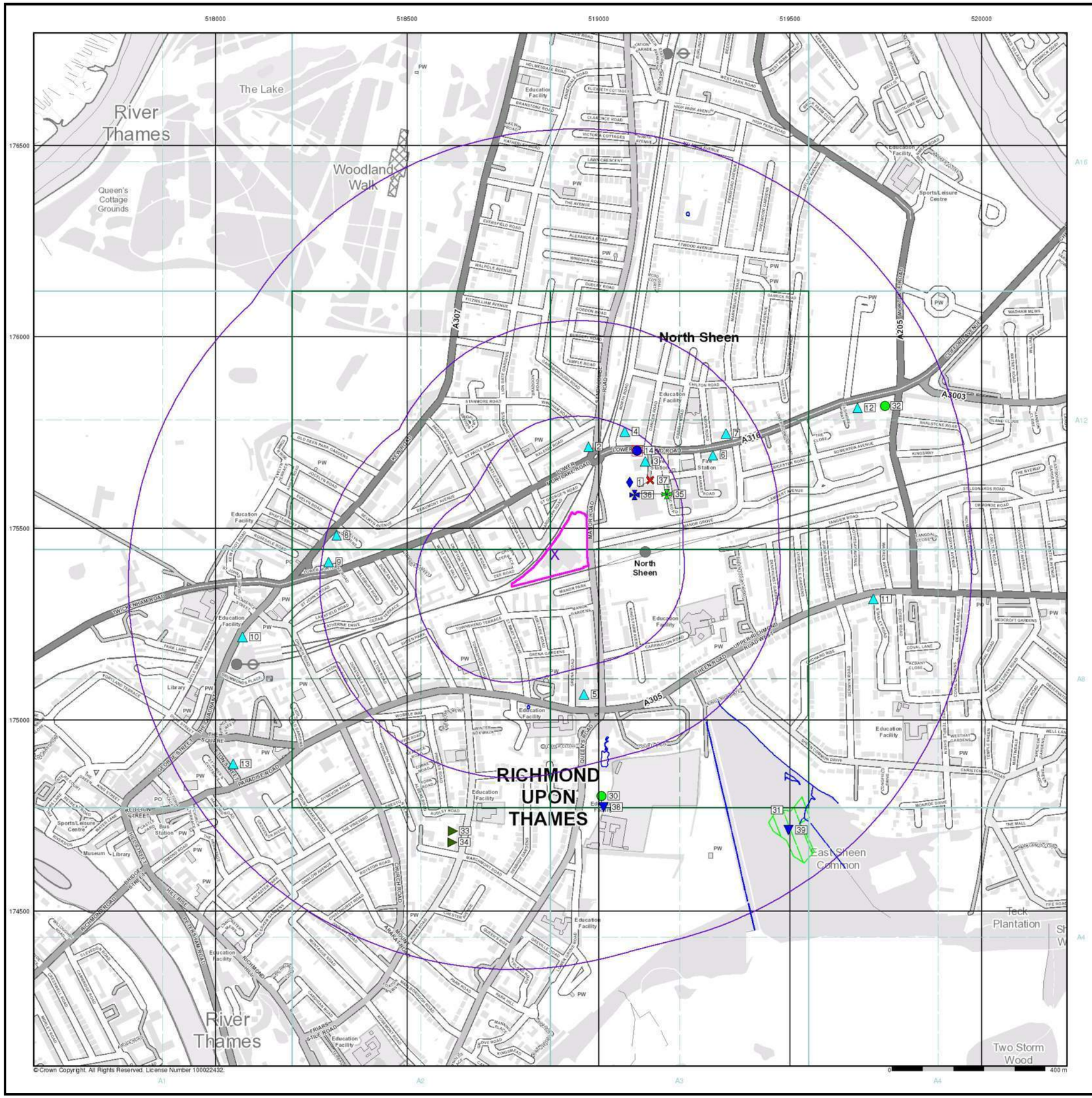
Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Plot Buffer (m):	100

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



FAIRHURST

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
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- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

COMAH Site | Explosive Site

- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Recorded Mineral Site

Waste

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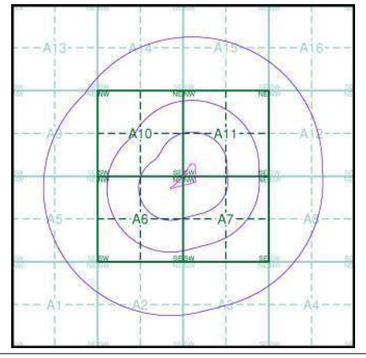
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

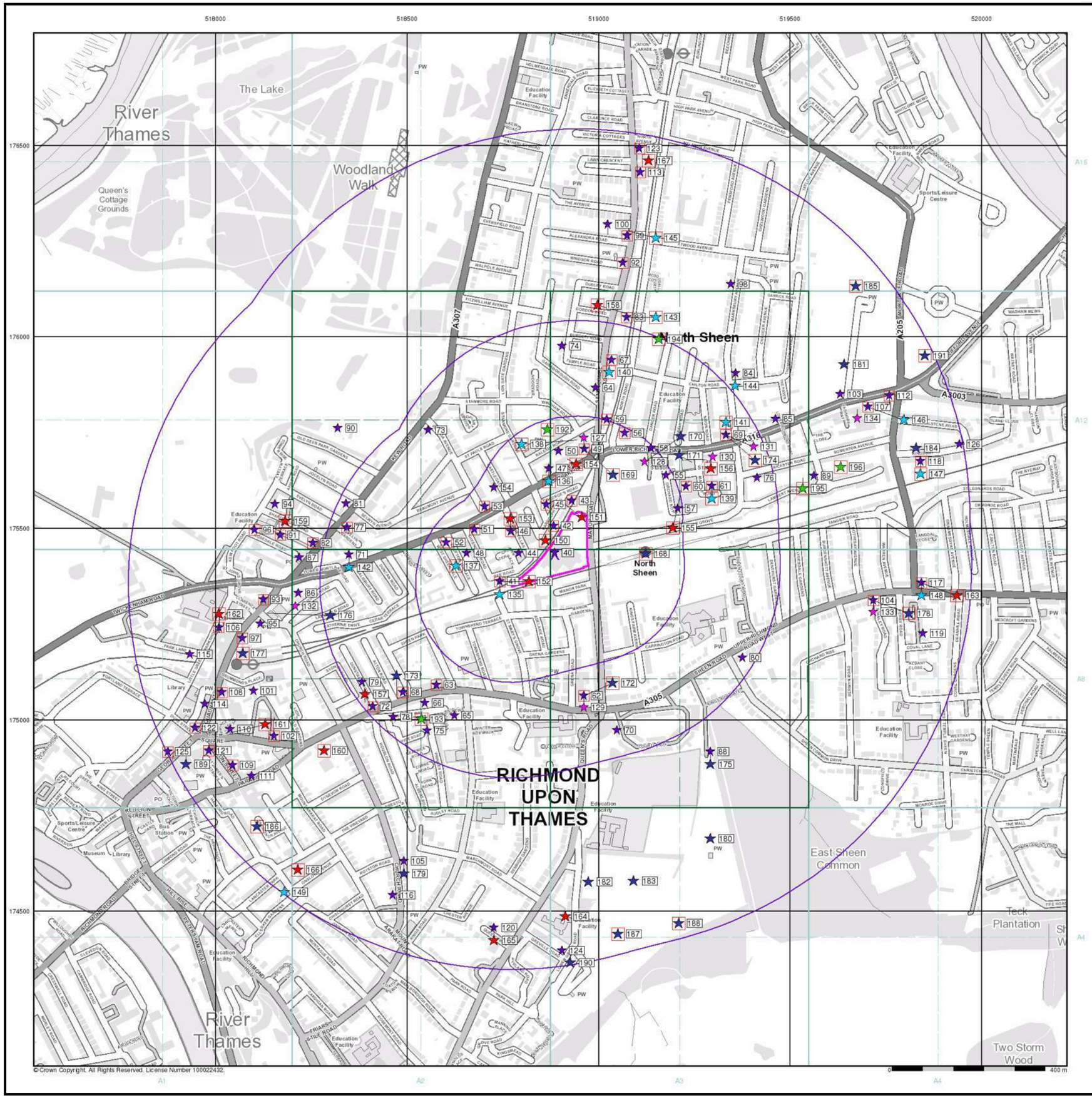
Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



FAIRHURST

Industrial Land Use Map

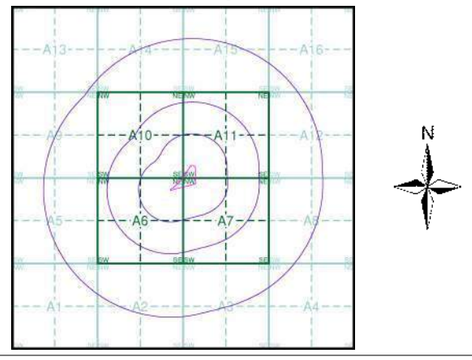
General

Specified Site
Specified Buffer(s)
Bearing Reference Point
Slice
Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

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Tel: 0844 844 9952
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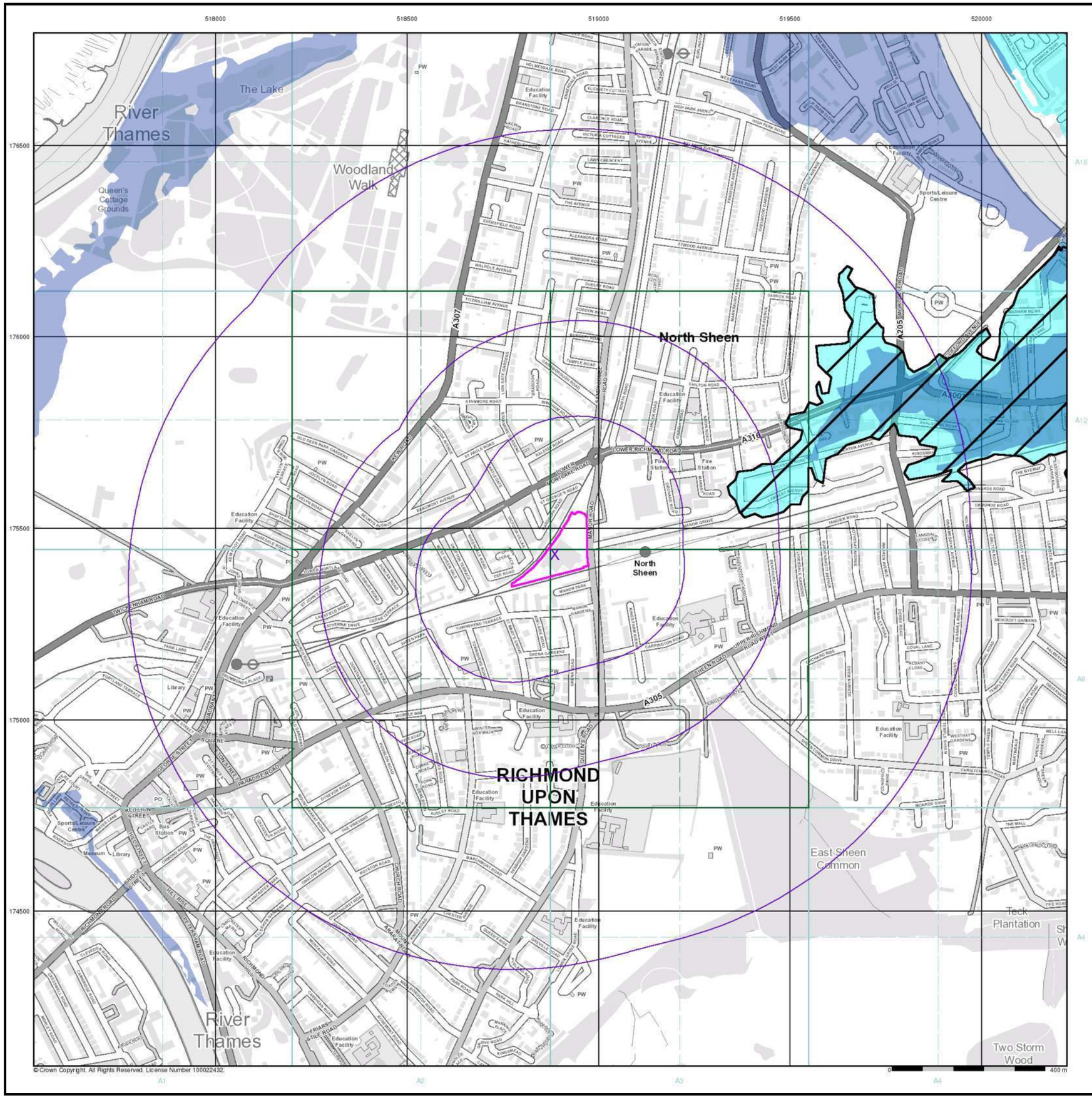


FAIRHURST

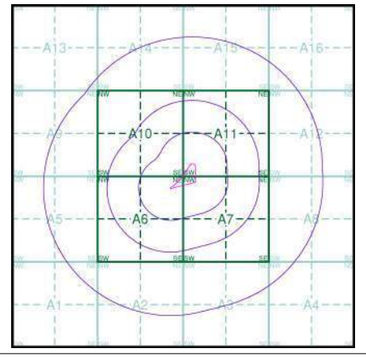
General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

Order Number:	142584674_1_1
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Site Details

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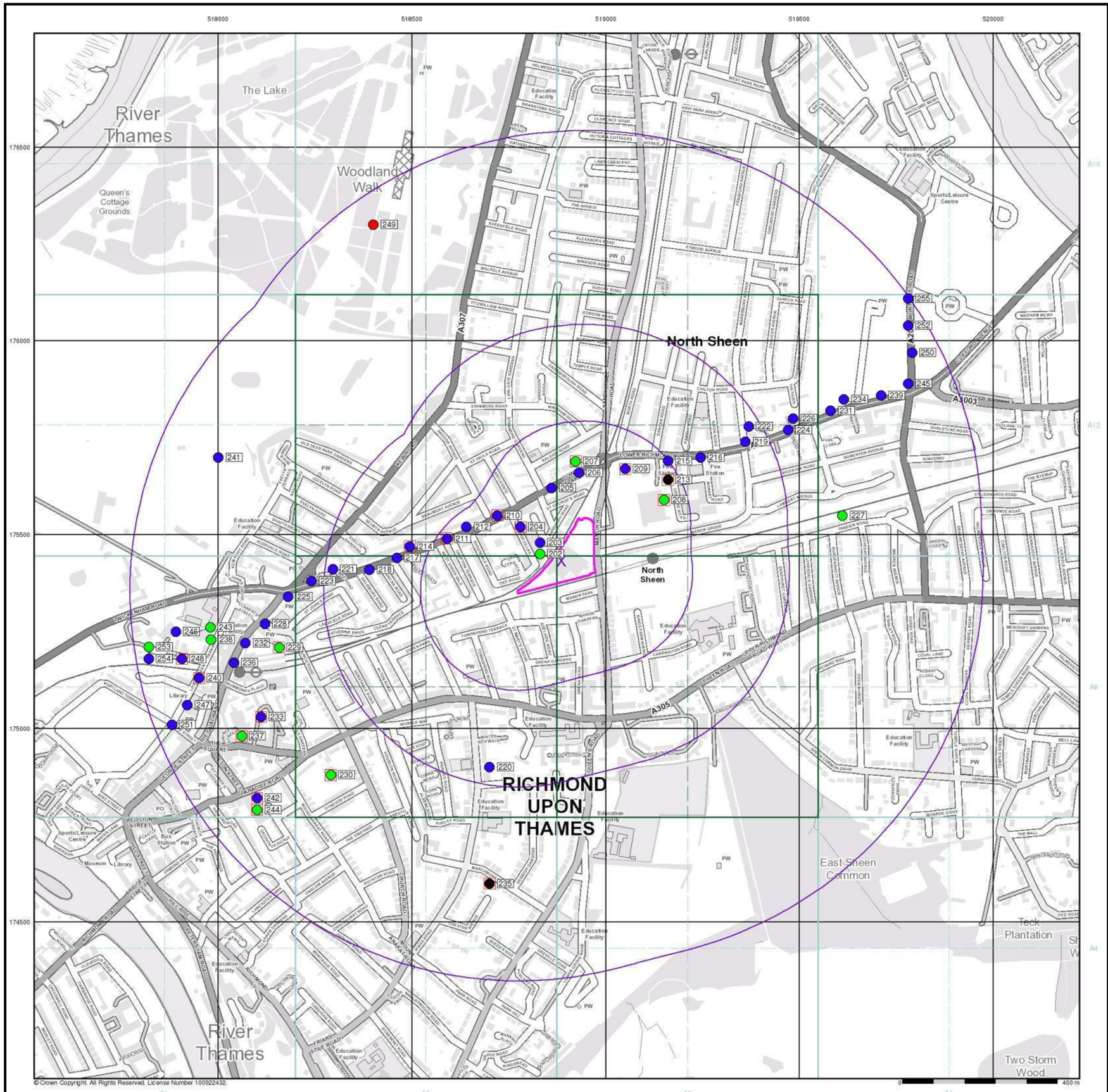


FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

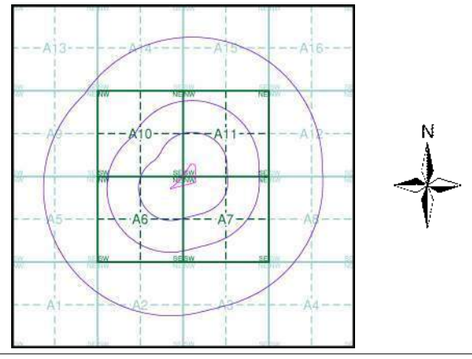
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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Site Details

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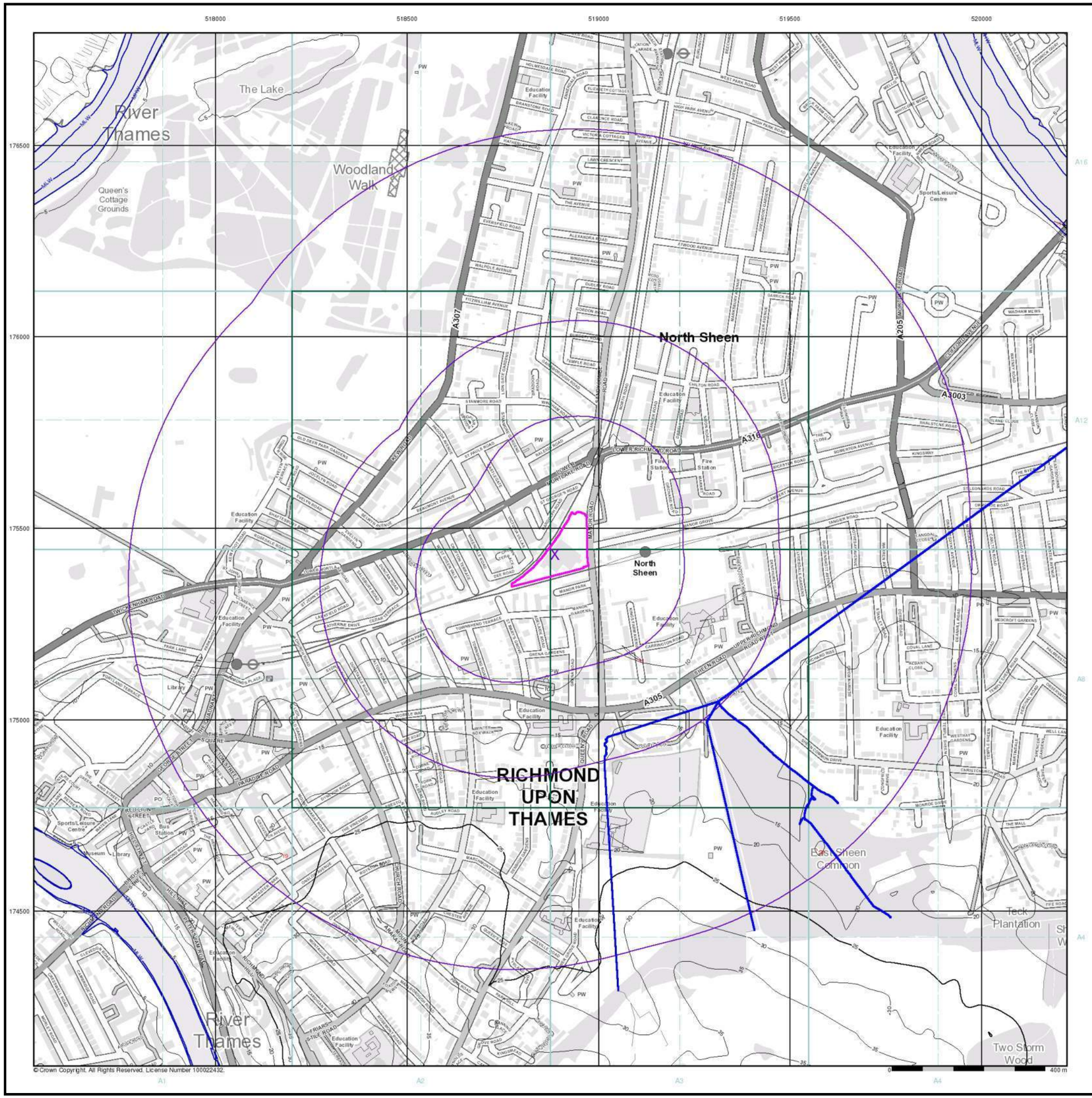


FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

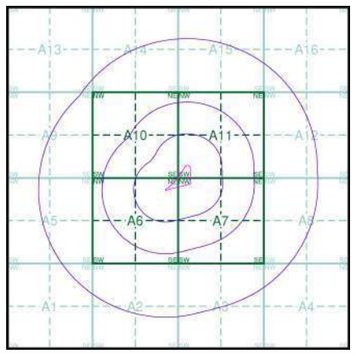
Standard Contour 105 100 95

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



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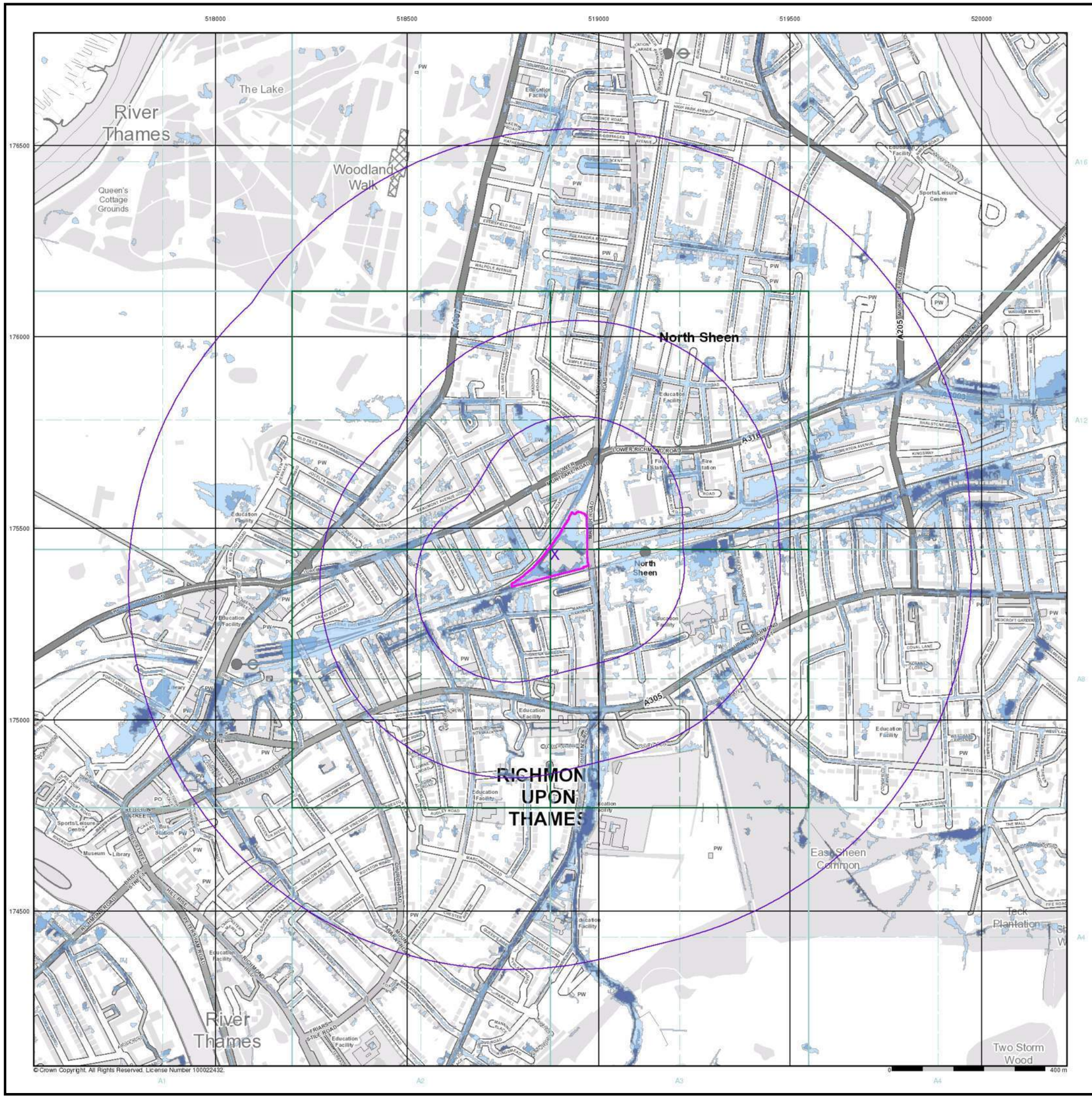

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FAIRHURST

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Risk of Flooding from Surface Water

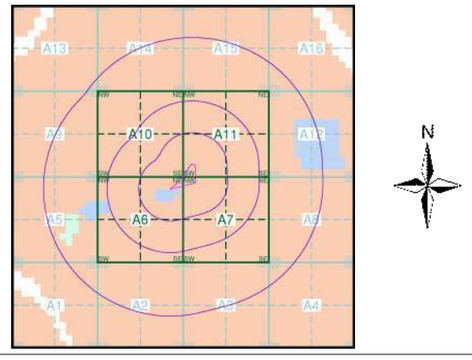
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



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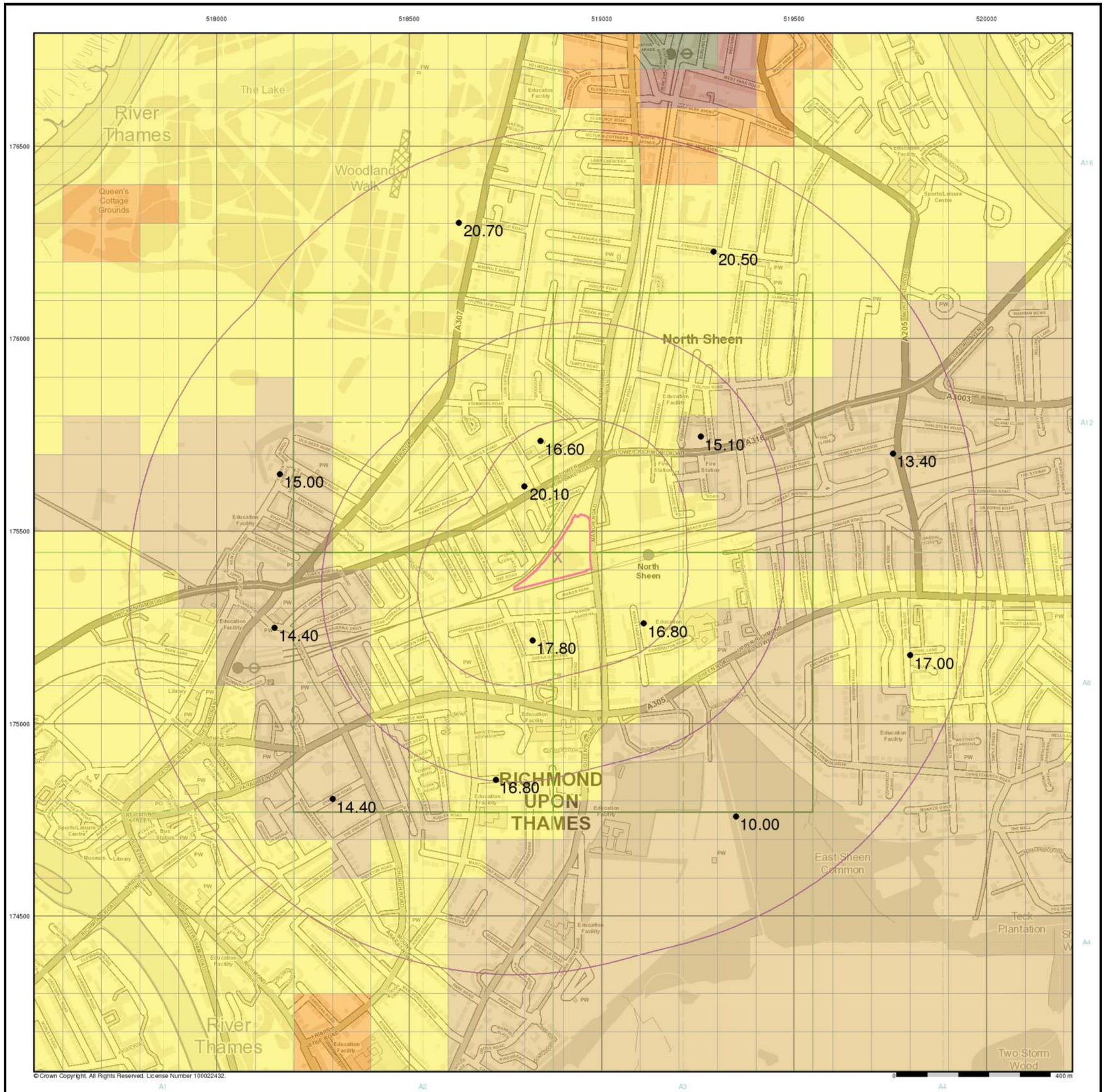

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FAIRHURST

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

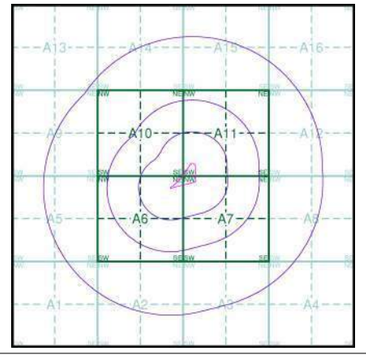
Urban Soil Chemistry Arsenic

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Arsenic Concentrations mg/kg

- < 15
- 15 - 25
- 25 - 35
- 35 - 45
- 45 - 60
- 60 - 120
- > 120

Urban Soil Chemistry Arsenic - Slice A



Order Details

Order Details:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha)	1.58
Search Buffer (m)	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

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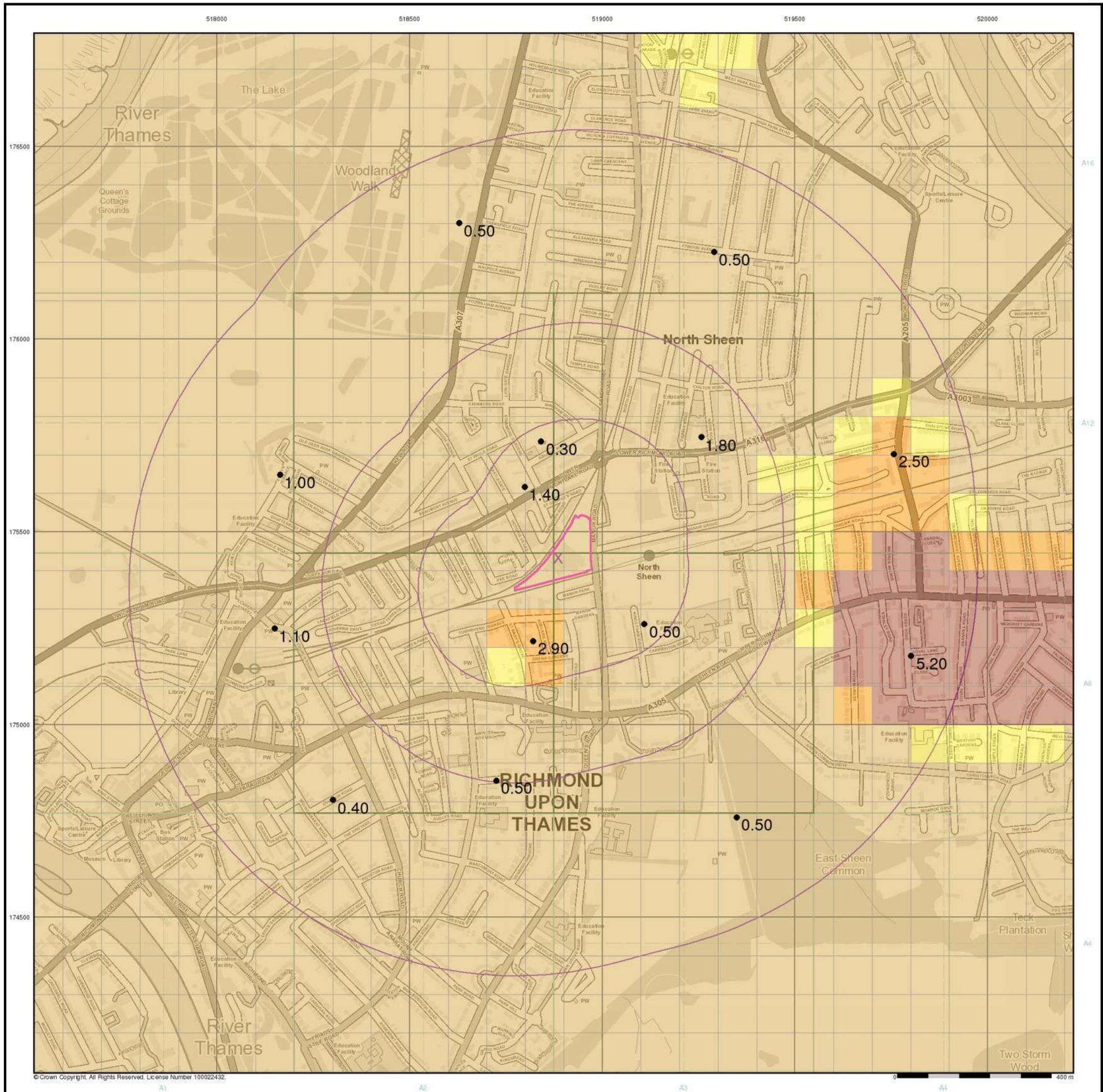


FAIRHURST

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

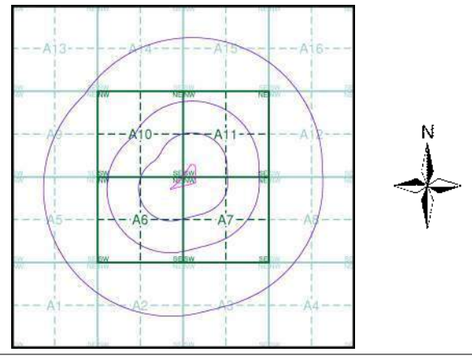
Urban Soil Chemistry Cadmium

BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Cadmium Concentrations mg/kg

- < 1.8
- 1.8 - 2.2
- 2.2 - 3.0
- > 3.0

Urban Soil Chemistry Cadmium - Slice A



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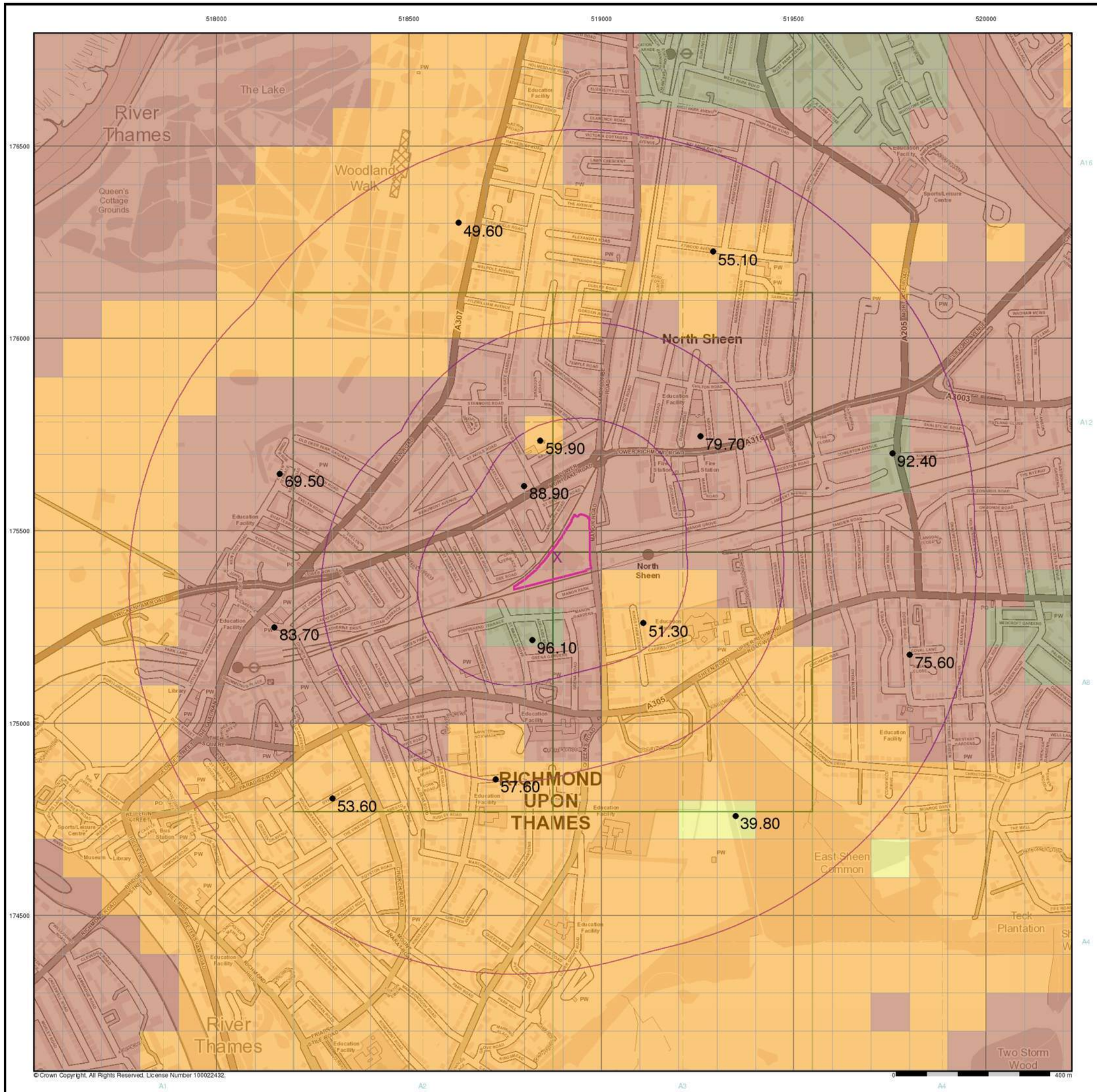


FAIRHURST

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

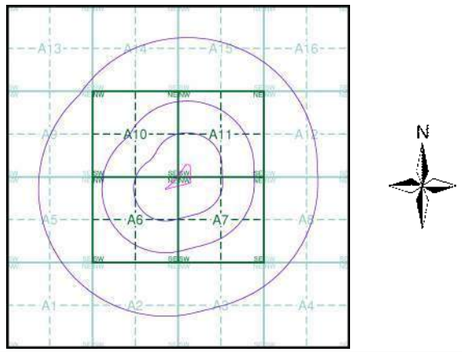
Urban Soil Chemistry Chromium

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Chromium Concentrations mg/kg

- < 20
- 20 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- 120 - 180
- > 180

Urban Soil Chemistry Chromium - Slice A



Order Details

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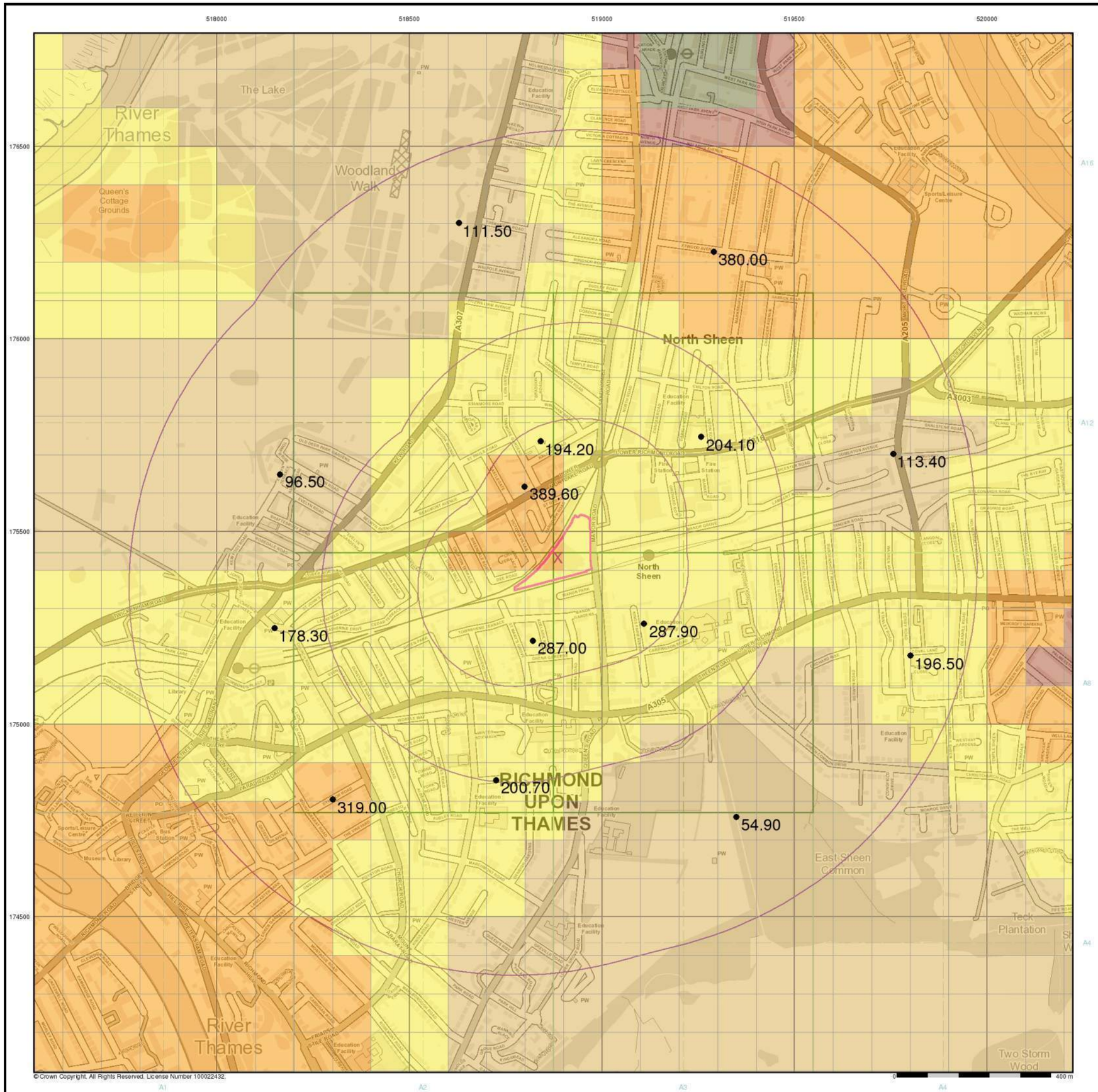
Customer Ref:	Homebase, Richmond
National Grid Reference:	518890, 175430
Slice:	A
Site Area (Ha)	1.58
Search Buffer (m)	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB



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FAIRHURST

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

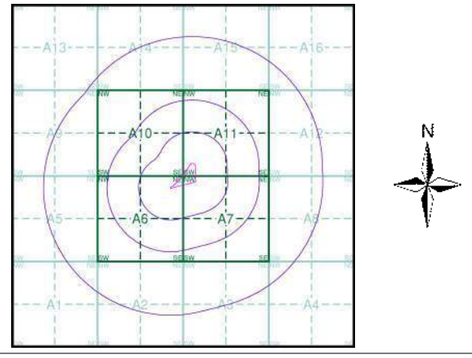
Urban Soil Chemistry Lead

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Lead Concentrations mg/kg

- < 150
- 150 - 300
- 300 - 600
- 600 - 900
- > 900

Urban Soil Chemistry Lead - Slice A



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Site Details

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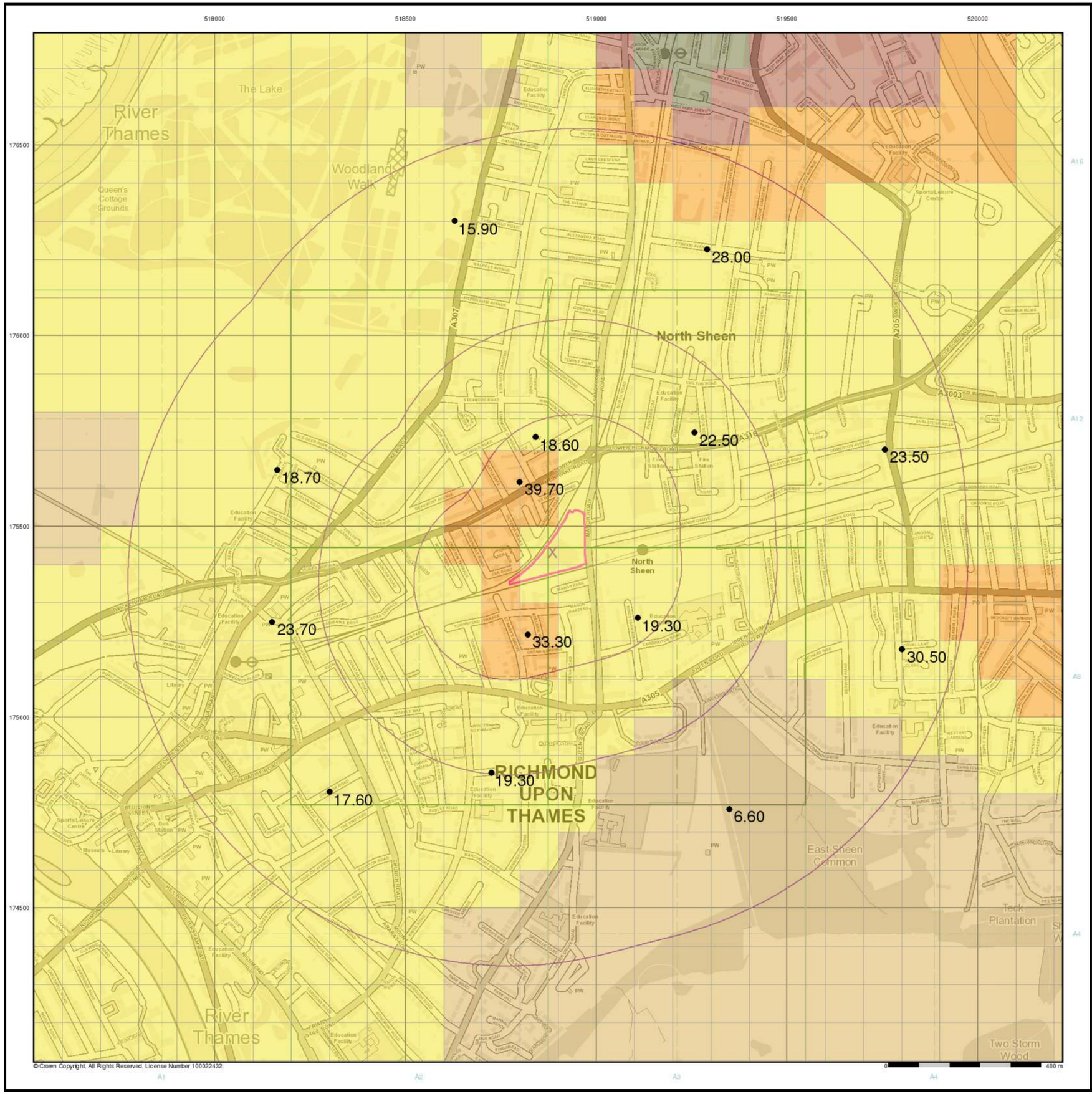


FAIRHURST

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

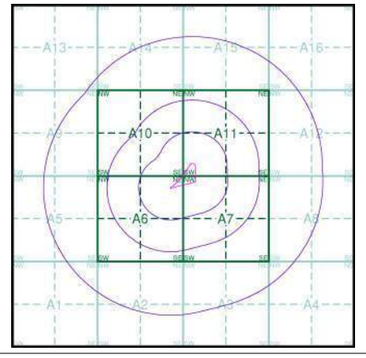
Urban Soil Chemistry Nickel

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Urban Soil Chemistry Nickel - Slice A



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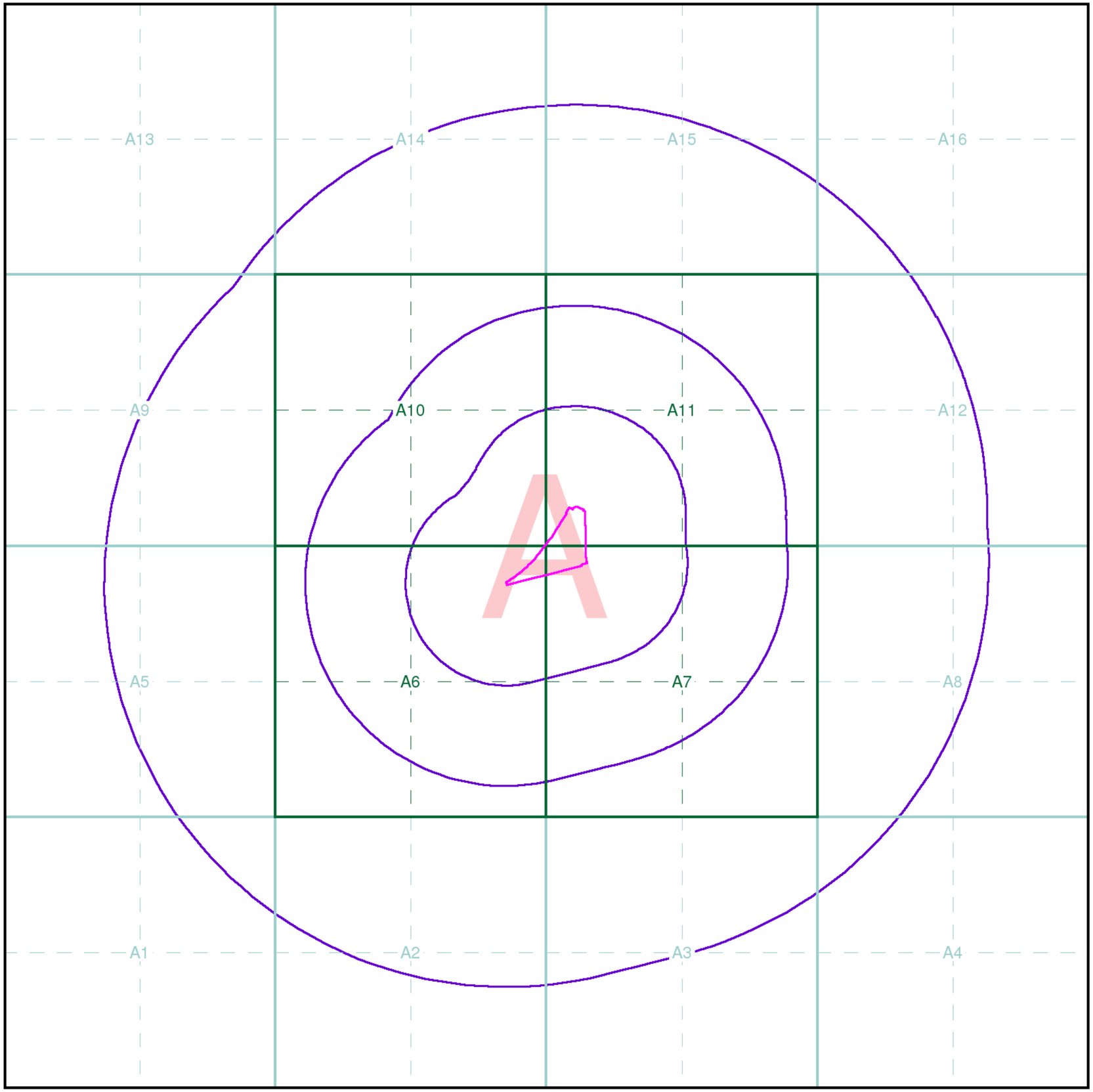

FAIRHURST

Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Ms C Barber, Fairhurst, 135 Park Street, London, SE1 9EA,

Order Details

Order Number:	142584674_1_1
Customer Ref:	Homebase, Richmond
National Grid Reference:	518910, 175440
Site Area (Ha):	1.58
Search Buffer (m):	1000

Site Details

Homebase Ltd, 84, Manor Road, RICHMOND, TW9 1YB

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APPENDIX C

Detailed Unexploded Ordnance (UXO) Threat and Risk Assessment

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United Kingdom

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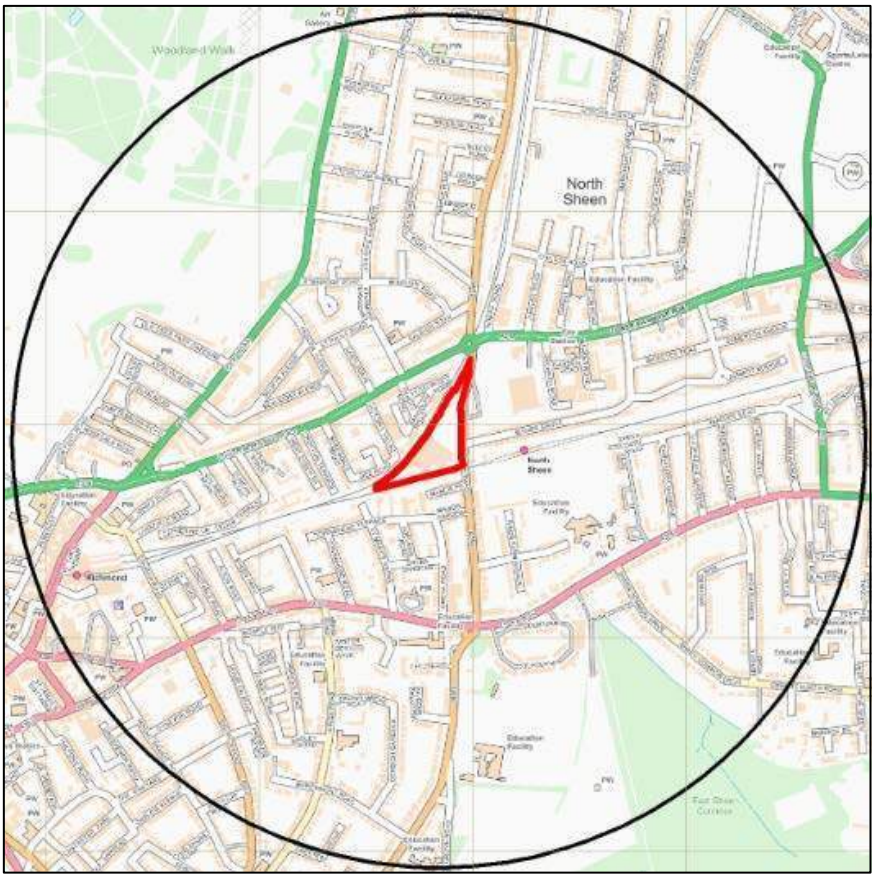
Detailed Unexploded Ordnance (UXO) Threat & Risk Assessment

Meeting the requirements of *CIRIA* C681 'Unexploded Ordnance (UXO) A guide for the Construction Industry' Risk Management Framework



6 ALPHA PROJECT NUMBER	P7115	**ORIGINATOR**	S. Barratt
LANDMARK ORDER NUMBER	190053937_1	**REVIEWED BY**	B. Wilkinson (10th January 2018)
CLIENT REFERENCE	126782	**RELEASED BY**	R. Griffiths (11th January 2018)
SITE	Homebase Ltd, 84, Manor Road, Richmond, TW9 1YB		
RATING	**HIGH** - This Site requires further action to reduce risk to ALARP during intrusive activities.		

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Acronyms and Abbreviations

AA	Anti-Aircraft
AAA	Anti-Aircraft Ammunition
ALARP	As Low As Reasonably Practicable
AOD	Above Ordnance Datum
ARP	Air Raid Precaution
AXO	Abandoned Explosive Ordnance
BD	Bomb Disposal
BDO	Bomb Disposal Officer
bgl	Below Ground Level
BGS	British Geological Survey
BH	Borehole
BPD	Bomb Penetration Depth
CDP	Cast Driven Piles
CFA	Continuous Flight Auger
CIRIA	Construction Industry Research and Information Association
CPT	Cone Penetration Testing
CS	County Series
EO	Explosive Ordnance
EOC	Explosive Ordnance Clearance
EOD	Explosive Ordnance Disposal
GI	Ground Investigation
GIS	Geographic Information Systems
GL	Ground Level
GP	General Purpose
GPS	Global Positioning Systems
HAA	Heavy Anti-Aircraft
HE	High Explosive
HO	Home Office
HSE	Health and Safety Executive
IB	Incendiary Bomb
kg	Kilograms
km	Kilometres
LAA	Light Anti-Aircraft
LCC	London County Council
LE	Low Explosive
LSA	Land Service Ammunition
m	Metres
MoD	Ministry of Defence
mm	Millimetres
NEQ	Net Explosive Quantity
NFF	National Filling Factory
NGR	National Grid Reference
OD	Ordnance Datum
OS	Ordnance Survey
PM	Parachute Mine
PoW	Prisoner of War
RADAR	Radio Detection And Ranging
RAF	Royal Air Force
RN	Royal Navy
RNAS	Royal Naval Air Service
ROF	Royal Ordnance Factory
SAA	Small Arms Ammunition
TA	Territorial Army
TNT	Trinitrotoluene
UK	United Kingdom
UN	United Nations
USAAF	United States Army Air Force
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
V Weapons	*Vergeltungswaffe* – Vengeance Weapons
WD	War Department
WWI	World War One
WWII	World War Two

EXECUTIVE SUMMARY

Study Site

The Client has defined the Study Site as "Homebase Ltd, 84, Manor Road, Richmond, TW9 1YB". The Site is located at NGR 518920, 175460.

Risk Level

HIGH

Potential Threat Sources

The most probable UXO threat is posed by WWII *German* HE bombs, whilst IBs and *British* AAA projectiles (which were used to defend against *German* bombing raids) pose a residual threat.

Risk Pathway

Given the types of UXO that might be present on-site, all types of aggressive intrusive engineering activities may generate a significant risk pathway.

Key Findings

During WWII, the Study Site was situated within *Richmond Municipal Borough,* which recorded 22 HE bomb strikes per 100 hectares, a low level of bombing.

Luftwaffe aerial reconnaissance photography associated with the Site did not identify any primary bombing targets located on-site or within 1,000m of the Site boundary.

ARP records associated with the Site did not note any HE bomb strikes within it however, six were recorded; 5m to the south, 50m to the north-west, 55m to the north-west, 70m to the south-west, 130m to the north-west and 155m to the east.

Official bomb damage mapping was not available. However, an analysis of post-war mapping identified "*Ruins"* 40m to the south and 65m to the south. In addition, photographic evidence and further research identified bomb damage along *Stanmore Gardens* located 180m north-west and *Peldon Avenue* located 345m to the south.

Pre-WWII mapping (1934 - 1936) and aerial photography (1945) associated with the Site shows that it was located within a densely developed urban area during WWII, with the Site itself consisting of a timber yard and several small structures. As a result, it is considered likely that employees from the timber yard may have observed and reported any UXB entry holes which would have been dealt with at the time. However, given the trajectory of incoming weapons this in fact may not have been the case.

The Site has undergone significant post-war redevelopment in some areas, with the construction and demolition of small structures between the late-1940s and late-1980s, prior to the development of the large superstore in the 1990s. Consequently, it is considered likely that any UXO within the structural foundations of post-war buildings would have been discovered and removed, however, the potential for deep buried UXO to be present within remaining areas is assessed to be extant. Given the immediate vicinity of the Site was subjected to bombing, the following risk mitigation measures are recommended as a minimum, in order to reduce risks ALARP, during intrusive works in all previously undisturbed ground i.e. that which has not previously been excavated, probed, drilled or otherwise intrusively disturbed since it had potentially become contaminated with UXO.

EXECUTIVE SUMMARY (…continued)

Recommended Risk Mitigation

All Groundworks in All Areas:

1. Operational UXO Emergency Response Plan; appropriate Site Management documentation should be held on-site to guide and plan for the actions which should be undertaken in the event of a suspected or confirmed UXO discovery (this plan can be supplied by *6 Alpha*);

2. UXO Safety & Awareness Briefings; the briefings are essential when there is a possibility of an UXO / UXB encounter and are a vital part of the general safety requirement. All personnel working on the Site should receive a briefing on the identification of an UXO / UXB, what actions they should take to keep people and equipment away from such a hazard and to alert Site management. Information concerning the nature of the UXO / UXB threat should be held in the Site office and displayed for general information on notice boards, both for reference and as a reminder for ground workers. The Safety & Awareness briefing is an essential part of the *Health & Safety Plan* for the Site and helps to evidence conformity with the principles laid down in the *CDM* regulations 2015 (this briefing can be delivered directly, or in some cases remotely, by *6 Alpha*).

Excavations and Trial Pits into Previously Undisturbed Ground:

3. EOD Banksman Support; an EOD Engineer should be on-site, in the EOD Banksman role, to monitor all 'open' intrusive works into previously undisturbed ground as they progress and identify suspicious items which may or may not be UXO / UXB whilst also acting as the first point of contact for all UXO associated matters (this service can be provided by *6 Alpha*).

Cable Percussive Boreholes and Piling into Previously Undisturbed Ground:

4. Intrusive UXO Survey; Where 'blind' intrusive works into previously undisturbed ground are proposed, an intrusive UXO survey (employing down-hole magnetometer or MagCone techniques) is strongly recommended. Such a survey should extend to the *assessed average bomb penetration depth* or to the maximum depth of the works, whichever is encountered first, or until geology is encountered through which it is assessed a UXB would not penetrate, to identify for signs of sub-surface anomalies which may model as the target UXO in advance of said works. (this service can be provided by *6 Alpha*).

For further information, please contact Envirocheck:

Website: http://www.envirocheck.co.uk

Telephone: +44 (0)844 844 9952

Email: customerservice@envirocheck.co.uk

ASSESSMENT METHODOLOGY

Approach

6 Alpha Associates is an independent, specialist risk management consultancy practice, which has assessed the risk of encountering UXO (as well as buried bulk high explosives) at this Site, by employing a process advocated for this purpose by *CIRIA*. The *CIRIA* guide for managing UXO risks in the construction industry (C681) not only represents best practice but has also been endorsed by the *HSE*. Any risk mitigation solution is recommended *only* because it delivers the Client a risk reduced to ALARP at best value.

UXO hazards can be identified through the investigation of local and national archives associated with the Site, *MoD* archives, local historical sources, historical mapping as well as contemporaneous aerial photography (if it is available). Hazards will have only been recorded if there is specific information that could reasonably place them within the boundaries of the Site. The amalgamation of information is then assessed to enable the researcher to provide relevant and accurate risk mitigation practices.

The assessment of UXO risk is a measure of *probability of encounter* and *consequence of encounter*; the former being a function of the identified hazard and proposed development methodology; the latter being a function of the type of hazard and the proximity of personnel (and/or other 'sensitive receptors', such as equipment) to the hazard, at the moment of encounter.

If UXO risks are identified, the methods of mitigation we have recommended are considered reasonably and sufficiently robust to reduce them to ALARP. We advocate the adoption of the legal ALARP principle because it is a key factor in efficiently and effectively ameliorating UXO risks. It also provides a ready means for assessing the Client's tolerability of UXO risk. In essence, the principle states that if the cost of reducing a risk significantly outweighs the benefit, then the risk may be considered tolerable. This does not mean that there is never a requirement for UXO risk mitigation, but that any mitigation must demonstrate that it is beneficial. Any additional mitigation that delivers diminishing benefits and that consume disproportionate time, money and effort are considered *de minimis* and thus unnecessary. Because of this principle, UXB and UXO risks will rarely be reduced to zero (nor need they be).

Important Notes

Key source material is referenced within this document, whilst secondary/anecdotal information may be available upon request.

Although this report is up to date and accurate at the time of writing, our databases are continually being populated as and when additional information becomes available. Nonetheless, *6 Alpha* have exercised all reasonable care, skill and due diligence in providing this service and producing this report.

The assessment levels are based upon our professional opinion and have been supported by our interpretation of historical records and third party data sources. Wherever possible, *6 Alpha* has sought to corroborate and to verify the accuracy of all data we have employed, but we are not accountable for any inherent errors that may be contained in third party data sets (e.g. *National Archive* or other library sources), and over which *6 Alpha* cannot exercise control.

STAGE ONE – SITE LOCATION AND DESCRIPTION

Study Site

The Client has defined the Study Site as "Homebase Ltd, 84, Manor Road, Richmond, TW9 1YB". The Site is located at NGR 518920, 175460. The Site location and Site boundary are presented at *Figures 1* and *2* respectively.

Location Description

The Study Site is situated within the *London Borough of Richmond-Upon-Thames* and covers an area of 1.8 hectares (ha).

Furthermore, the Site is bounded by:

- North-west: A railway line and industrial facilities*;*
- East: *Manor Road;*
- South: A railway line and residential houses.

Aerial Photography (2018) (*Figure 3*)

Aerial photography (2018) corroborates the information above and shows that the Site is situated within a densely developed urban area. The Study Site itself consists of a large industrial building, hard-standing and a large Hard-standing car park.

Proposed Works

The Client has described the following:

- *"Medium Trial Pit between 1m and 5m below ground level;*
- *Cable percussive boreholes up to 25m bgl;*
- *Basement and piling anticipated".*

Ground Conditions

It is important to establish the specific ground conditions in order to determine the maximum *German* UXB penetration depth as well as the potential for other types of munitions to be buried.

If the Site investigations and/or construction methodologies change, and/or if a specific methodology is to be employed, and/or if the scope of work is focused upon a specific part of the Site, then *6 Alpha* are to be informed so that the prospective UXO risks and the associated risk mitigation methodology might be re-assessed. Certain ground conditions may also constrain certain types of UXO risk mitigative works e.g. magnetometer survey is adversely affected in mineralised and made ground.

It is important to establish the provenance of made ground, where this is recorded as being part of the site ground make-up, in order to accurately determine the ground levels at the time when the site may have become potentially contaminated with UXO and so as to accurately determine the average / maximum bomb penetration depths and make appropriate recommendations aimed at reducing the risk to ALARP.

STAGE ONE – SITE LOCATION AND DESCRIPTION (…continued)

Ground Conditions

BGS borehole log "TQ17NE436 – Victoria Villas Richmond Upon Thames 1" (located 25m to the west), recorded the following strata:

Depth bgl (m)	Strata	Description
0.00m to 0.10m	Made Ground	Concrete
0.10m to 0.80m	Made Ground	Brown clayey silty sand with some gravel of brick, flint, concrete and clinker and some lenses of soft to firm brown sandy clay with occasional brick cobbles (0.70m).
0.80m to 1.50m	Clay	Soft brown sandy clay (0.70m)… from 1.00m, some fine to medium flint gravel.
1.50m to 1.80m	Sand	Medium dense brown fine to coarse silty sand with some lenses of sandy clay and some fine to coarse subrounded to angular flint gravel (0.30m).
1.80m to 2.80m	Sand/Gravel	Medium dense brown fine to coarse sand and fine to coarse angular to rounded flint gravel (1.00m).
2.80m to 3.00m	Clay	Soft grey sandy clay with a little flint gravel.
3.00m to 3.90m	Sand	Medium dense brown fine to coarse sand with some fine to medium angular to subrounded flint and quartzite gravel (0.90m).
3.90m to 6.00m	Sand/Gravel	Medium dense brown slightly clayey silty fine to coarse sand and fine to coarse rounded to angular flint and quartzite gravel (2.10m) …from 5.00m, very sandy gravel.
6.00m to 6.30m	Clay	Stiff grey clay with some brown sand and fine to coarse flint gravel (0.30m).
6.30m to 15.00m	Clay	Stiff extremely closely fissured grey-brown clay with occasional black silt partings (8.70m). …from 10.55m, very closely fissured. …from 13.00m, very stiff …from 13.45m, occasional black silty sand partings.

STAGE TWO – REVIEW OF HISTORICAL DATASETS

Sources of Information Consulted

The following primary information sources have been used in order to establish the background UXO threat:

1. *6 Alpha*'s *Azimuth* Database;
2. *Home Office* WWII Bomb Census Maps;
3. WWII and post-WWII aerial photography;
4. Official Abandoned Bomb Register;
5. Information gathered from the *National Archives* at *Kew*;
6. Historic UXO information provided by *33 Engineer Regiment* (Explosive Ordnance Disposal) at *Carver Barracks, Wimbish*.

Potential Sources of UXO Contamination

In general, there are several activities that might contaminate a site with UXO but the three most common ways are: legacy munitions from military training/exercises; deliberate or accidental dumping (AXO) and ordnance resulting from war fighting activities (also known as the Explosive Remnants of War (ERW)).

During WWII, the *Luftwaffe* undertook bombing campaigns all over the *UK*. The most common type of UXO discovered today is the aerially delivered high explosive (HE) bomb, which are comparatively thick-skinned and dropped from enemy aircraft. If the bomb did not detonate when it was dropped, the force of impact enabled the UXO to penetrate the ground, often leaving behind it a UXB entry hole. These entry holes were not always apparent and some went unreported, leaving the bomb buried and unrecorded. More rarely, additional forms of *German* UXO are occasionally discovered including *inter alia V1* and *V2* rockets, Incendiary Bombs (IBs), and Anti-personnel (AP) bomblets.

Although the *Luftwaffe* had designated primary bombing targets across the *UK*, their high-altitude night bombing was not accurate. As a result, thousands of buildings were damaged and civilian fatalities were common. Bombs were also jettisoned over opportunistic targets and residential areas were sometimes struck.

As the threat of invasion lingered over *Britain* during WWII, defensive actions were undertaken. The *British* and *Allied Forces* requisitioned large areas of land for military training and bomb storage (including HE bombs, naval shells, artillery and tank projectiles, explosives, LSA and SAA). Thousands of tonnes of these munitions were used for the *Allied Forces* weapon testing and military training alone. It has been estimated that at least 20 per cent of the *UK*'s land has been used for military training at some point.

The best practice guide for dealing with your UXO risks on land (CIRIA publication C681) suggests that approximately 10 per cent of all munitions deployed failed to function as designed. ERW are therefore, still commonly encountered, especially whist undertaking construction and civil engineering groundwork.

Furthermore, in exceptional circumstances, UXO is discovered unexpectedly and without apparent rational explanation. There are several ways this might occur:

- When *Luftwaffe* aircraft wished to swiftly escape e.g. from an aerial attack, they would jettison some or all of their bombs and flee. This is commonly referred to as *tip and run* and it has resulted in bombs being found in unexpected locations;
- Transportation of aggregate containing munitions to an area that was previously free of UXO, usually related to construction activities employing material dredged from a contaminated offshore borrow site;
- Poor precision during targeting (due to high altitude night bombing and/or poor visibility) resulted in bombs landing off target, but within the surrounding area.
- *British* decoy sites were also constructed to deliberately cause incorrect targeting. For obvious reasons, such sites were often built in remote and uninhabited areas.

Site History

From an analysis of the CS and OS historical mapping associated with the Site, the following Site history can be deduced:

1896 CS Map	The Study Site was labelled as a "*Timber Yard*" with railway lines in the south-western sector and several small structures located in the central and south-eastern sectors, and along the north-western border.
1913 CS Map	Some structures had been demolished and numerous small structures and railway lines were developed on-site.
1920 CS Map	Changes were not recorded at the Study Site.
1934-1936 CS Map	Several small structures were demolished and others developed on-site.
1938 OC Map	A long linear structure was developed on-site in the central sector.
1949 OS Map	Changes were not recorded at the Study Site.
1960 OS Map	Several structures were demolished and others developed on-site.
1966 OS Map	Changes were not recorded at the Study Site.
1988 OS Map	All structures on-site including railway lines were demolished, and two large structures were developed in the central and western sectors with smaller structures developed in the northern, south-eastern and central sectors.
1991 OS Map	Changes were not recorded at the Study Site.
1999 OS Map	All structures on-site were demolished, and a large "*Superstore*" was developed in replacement.
2006 OS Map	Changes were not recorded at the Study Site.
2018 OS Map	Changes were not recorded at the Study Site.

Aerial Photography (1945) (*Figure 4*)

The aerial photography (1945) associated with the Site shows that it is located within a developed urban area, with the Site itself consisting of various industrial facilities. Nonetheless, the resolution of the photograph is insufficient to be able to identify accurately, the precise local features and/or type of structures, then within the curtilage of the Site.

WWII Bombing of *London*

The most intensive period of bombing over *London* was the nine months between October 1940 and May 1941, known as 'The Blitz'. During this period, the *Luftwaffe* attempted to overwhelm *Britain's* air defences, destroy key military and industrial facilities, as well as logistical capabilities, prior to invasion.

A total of 18,000 tons of bombs were dropped on *London* between 1940 and 1945. Many residential, commercial and industrial buildings were targeted during air raids and sustained large scale damage. Public services were also affected, with gas, electricity and water supplies often cut-off following damage to either the installations themselves or to the supply infrastructure. In addition, thousands of civilians were killed and injured, and many were forced to evacuate as their homes were destroyed.

WWII Luftwaffe Bombing Targets

Prior to WWII, the *Luftwaffe* conducted numerous aerial photographic reconnaissance missions over *Britain*, recording key military, industrial and commercial facilities for attack, in the event of war. In addition, logistics infrastructure and public services, such as railways, canals, power stations, reservoirs, water and gas works were also considered viable bombing targets.

Luftwaffe aerial reconnaissance photography associated with the Site did not identify any primary bombing targets located on-site or within 1,000m of the Site boundary.

WWII HE Bomb Strikes (*Figure 5*)

During WWII, ARP wardens compiled detailed logs of bomb strikes across their respective districts. ARP records associated with the Site did not note any HE bomb strikes within it, however six HE bomb strikes were identified 5m to the south, 50m to the north-west, 55m to the north-west, 70m to the south-west, 130m to the north-west and 155m to the east. Furthermore, whilst IBs may have fallen within the Study Site, they fell in such large numbers that accurate record keeping was either non-existent or perfunctory therefore, their prospective presence cannot be either corroborated or discounted.

In addition to IBs and HE bomb strikes, during the latter part of the war when aerial bombing had significantly declined, the main threat came from *V* type weapons. The first recorded *V1* strike on *London* was on the 13th June 1944, with the first recorded *V2* strike on *London* on the 8th September 1944. *V1* and *V2* rockets were thin-skinned, unmanned and inaccurate weapons. Despite this, there is no evidence to suggest that the Site (or its immediate vicinity) was subjected to rockets strikes during WWII.

The potential penetration depth of an UXB was dependent on a number of factors including but not restricted to those prior to striking the ground e.g. velocity and orientation of the UXB which in turn will be influenced on factors such as the release altitude from the aircraft and encounters with infrastructure during its fall; those encountered at the point of impact i.e. was the impact on concrete, grass, water etc and finally, the below ground level conditions which were encountered such as infrastructure e.g. services, basements, foundations, and geology e.g. made ground, clay, sand, etc. Further, as the UXB penetrated the ground, it's velocity naturally slowed where, it either came to an abrupt stop e.g. against foundations or would continue for 10's of feet along a route of least resistance which often resulted in a curving of the trajectory back towards the surface. This is known as the "J Curve" effect and often resulted in a considerable horizontal off-set from the point of entry. This is often the reason why UXBs have been discovered against or under the foundations of buildings, which were present during WWII, or many meters from the point of impact.

WWII Bomb Damage

Official bomb damage mapping was not available. However, an analysis of post-war mapping identified "*Ruins*" 40m to the south and 65m to the south. In addition, photographic evidence and further research identified bomb damage along *Stanmore Gardens* located 180m north-west and *Peldon Avenue* located 345m to the south.

WWII HE Bomb Density (*Figure 6*)

The Study Site was located within the *Richmond Municipal Borough,* which recorded 22 HE bombs per 100 hectares, a low level of bombing.

Abandoned Bombs

An examination of the official abandoned bomb records has not identified any abandoned bombs within 1,000m of the Site boundary.

Records of WWII UXB Disposal Tasks

Civil defence records did not identify any UXB disposal tasks within *Richmond Municipal Borough* from 1940-45. However, it is known that these records are incomplete, some having been destroyed by enemy action during WWII.

Records of Post-WWII UXB Disposal Tasks

An examination of the post-WWII BDO tasks associated with the area has not identified any BDO operations within 1,000m of the Study Site.

WWII Site Use

The CS mapping prior to WWII (1934 - 1936), shows that the Study Site was located within a densely developed urban area, with the Study Site itself consisting of a timber yard and several small structures. Therefore, it is considered possible that an employee at the timber yard may have observed and reported any UXB entry holes which would have been dealt with at the time. However, given the trajectory of incoming weapons this in fact may not have been the case.

Sources of UXO Contamination

The most likely source of UXO contamination is from *German* aerially delivered ordnance, which ranges from small IBs through to large HE bombs (the latter forms the principal threat). Additional residual contamination may be present from *British* AAA projectiles (which were used to defend the UK against *German* bombing raids).

STAGE THREE – DATA ANALYSIS

Variable	Result	Comment
Was the area considered to be a primary bombing target?	✗	No primary targets were identified within 1,000m.
Was the Site or the immediate area bombed during WWII?	✓	Six HE bomb strikes were recorded within 155m of the Site boundary; the closest being 5m south.
Did the Site or the immediate area experience bomb damage?	✓	An analysis of post-war mapping identified "*Ruins*" located 40m south and 65m south.
Was the ground undeveloped during WWII?	✓	The Site consisted of a timber yard and several small structures, however some areas were left undeveloped.
Would the footfall have been high in the area?	✓	Given that a timber yard was located on-site and was situated within a developed urban area, it is likely that footfall would have been high.
Would a UXB entry hole have been observed during WWII?	✓	Given that the footfall would have been high on-site, it is considered likely that a UXB entry hole would have been observed and reported. However, given the trajectory of incoming weapons this in fact may not have been the case.
Have military personnel ever occupied the Site?	✗	No military facilities were identified within 1,000m.
Would munitions have been manufactured, stored and/or fired from the Site?	✗	There is no evidence to suggest munitions were located or fired from this Site.
Would previous intrusive works have removed the potential for UXO to be present?	✗	The Site has undergone significant post-war redevelopment in some areas, therefore it is likely that any UXO within the structural foundations of post-war buildings would have been discovered and removed, whilst the surrounding areas remain extant.
Are proposed intrusive works likely to extend into previously undisturbed ground?	✓	Some small areas of the Site have remained undeveloped since WWII and therefore some proposed works may extend into previously undisturbed ground.
Is there potential for an unplanned encounter with UXO to occur during proposed intrusive works?	✓	Given that the immediate vicinity was subjected to bomb strikes and bomb damage, combined with some areas of the Site not undergoing any significant post-war redevelopment, it is considered possible for an unplanned encounter with UXO to occur.
Does the probability of UXO vary across the Site?	✓	The probability of discovering UXO within the structural foundations of post-war buildings is considered to be remote, however, the probability of UXO discovery within all previously undisturbed areas of the Site is extant.

STAGE FOUR – RISK ASSESSMENT

Threat Items

The most probable UXO threat items are *German* HE bombs, whilst IBs and *British* AAA projectiles pose a residual threat. The consequences of initiating *German* HE bombs are more severe than initiating IBs or AAA projectiles, and thus they pose the greatest prospective risk to intrusive works.

Bomb Penetration Depth

Considering the ground conditions (highlighted in Stage 1), the average BPD for a 250kg *German* HE bomb is assessed to be approximately 5m bgl, with the maximum BPD considered to be approximately 15m bgl. Although it is possible that the *Luftwaffe* deployed larger bombs in the area, their deployment was infrequent, and to use such larger (or the largest) bombs for BPD calculations are not justifiable on either technical or risk management grounds.

WWII *German* bombs have a greater penetration depth when compared to IBs and AAA projectiles, which are unlikely to be encountered at depths greater than 1m bgl. However, due to the "J Curve" and the potential for structures to impede the penetration into the ground, HE bombs have been discovered at much shallower depths than the average.

Risk Pathway

Given the types of UXO that might be present on-site, all types of aggressive intrusive engineering activities (i.e. excavations, trial pits, cable percussive boreholes and piling) may generate a significant risk pathway. Whilst not all UXO encountered aggressively will initiate upon contact, such a discovery could lead to serious impact on the project especially in terms of critical injury to personnel, damage to equipment and project delay.

Prospective Consequences

Consequences of UXO initiation include:

1. Fatally injure personnel;
2. Severe damage to plant and equipment;
3. Deliver blast and fragmentation damage to nearby buildings;
4. Rupture and damage underground utilities/services.

Consequences of UXO discovery include:

1. Delay to the project and blight;
2. Disruption to local community/infrastructure;
3. The expenditure of additional risk mitigation resources and EOD clearance;
4. Incurring additional time and cost.

UXO RISK CALCULATION

Site Activities

Although there is some variation in the probability of encountering and initiating items of UXO when conducting different types of intrusive activities, excavations, trial pits, cable percussive boreholes and piling have been described for analysis at this Site. The consequences of initiating UXO vary greatly, depending upon, *inter alia* the mass of HE in the UXO and how aggressively it might be encountered. For this reason, *6 Alpha* has conducted separate risk rating calculations for each trial pits, cable percussive boreholes and piling.

Risk Rating Calculation

6 Alpha's Semi-Quantitative Risk Assessment assesses and rates the risks posed by the most probable threat items when conducting a number of different activities on the Site. Risk Rating is determined by calculating the probability of encountering UXO and the consequences of initiating it.

UXO Risk Calculation Table – All Areas				
Activity	**Threat Item**	**Probability (SH+EM=P)**	**Consequence (D+PSR=C)**	**Risk Rating (PXC=RR)**
Excavations	HE Bombs	2+2=4	3+3=6	4x6=24
	AAA Projectiles	1+2=3	3+1=4	3x4=12
	IBs	1+2=3	3+1=4	3x4=12
Trial Pits (between 1m and 5m bgl)	HE Bombs	2+2=4	3+3=6	4x6=24
	AAA Projectiles	1+2=3	3+1=4	3x4=12
	IBs	1+2=3	3+1=4	3x4=12
Boreholes (25 m bgl)	HE Bombs	2+3=5	3+2=5	5x5=25
	AAA Projectiles	1+3=4	3+1=4	4x4=16
	IBs	1+3=4	3+1=4	4x4=16
Piling	HE Bombs	2+3=5	3+2=5	5x5=25
	AAA Projectiles	1+3=4	3+1=4	4x4=16
	IBs	1+3=4	3+1=4	4x4=16
Abbreviations – Site History (SH), Engineering Methodology (EM), Probability (P), Depth (D), Consequence (C), Proximity to Sensitive Receptors (PSR) and Risk Rating (RR).				

STAGE FIVE – RECOMMENDED RISK MITIGATION MEASURES

Do the ground conditions support a geophysical UXO survey?

Non-Intrusive Methods of Mitigation – Magnetometer results may be affected by ferro-magnetic contamination due to previous construction activities and made ground within the Site.

Intrusive Methods of Mitigation – Intrusive magnetometry may be effective on this Site, prior to boreholing and piling especially. However, any ferrous metal/red brick contamination in made ground/old foundations may affect the detection capability of the UXB survey equipment, as it passes through the contaminated layer especially. Nonetheless, beyond the contaminated strata such a survey should prove effective.

Mitigation Measures to Reduce Risk to 'ALARP'

Activity	Risk Mitigation Measures	Final Risk Rating
All Activities in All Areas	**1. Operational UXO Emergency Response Plan;** appropriate Site Management documentation should be held on-site to guide and plan for the actions which should be undertaken in the event of a suspected or real UXO discovery (this plan can be supplied by *6 Alpha*); **2. UXO Safety & Awareness Briefings;** the briefings are essential when there is a possibility of explosive ordnance encounter and are a vital part of the general safety requirement. All personnel working on the Site should receive a briefing on the identification of a UXB, what actions they should take to keep people and equipment away from such a hazard and to alert Site management. Information concerning the nature of the UXB threat should be held in the Site office and displayed for general information on notice boards, both for reference and as a reminder for ground workers. The safety awareness briefing is an essential part of the *Health & Safety Plan* for the Site and helps to evidence conformity with the principles laid down in the *CDM* regulations 2015 (this brief can be delivered directly, or in some cases remotely, by *6 Alpha*).	**ALARP**
Excavations and Trial Pits into Previously Undisturbed Ground	**3. EOD Banksman Support;** an EOD Engineer should be on-site, in the EOD Banksman role, to monitor all 'open' intrusive works into previously undisturbed ground as they progress and identify suspicious items which may or may not be UXO / UXB whilst also acting as the first point of contact for all UXO associated matters (this service can be provided by *6 Alpha*).	
Piling and Boreholing into Previously Undisturbed Ground	**4. Intrusive UXO Survey;** Where 'blind' intrusive works into previously undisturbed ground are proposed, an intrusive UXO survey (employing down-hole magnetometer or MagCone techniques) is strongly recommended. Such a survey should extend to the *assessed average bomb penetration depth* or to the maximum depth of the works, whichever is encountered first, or until geology is encountered through which it is assessed a UXB would not penetrate, to identify for signs of sub-surface anomalies which may model as the target UXO in advance of said works. (this service can be provided by *6 Alpha*).	

This assessment has been conducted based on the information provided by the Client, should the proposed works change then *6 Alpha* should be re-engaged to refine this risk assessment

Report Figures

Figure One - Site Location

HOMEBASE LTD, 84, MANOR ROAD, RICHMOND, TW9 1YB

Site Location

PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE
P7115	1	BL	CC	09 January 2019

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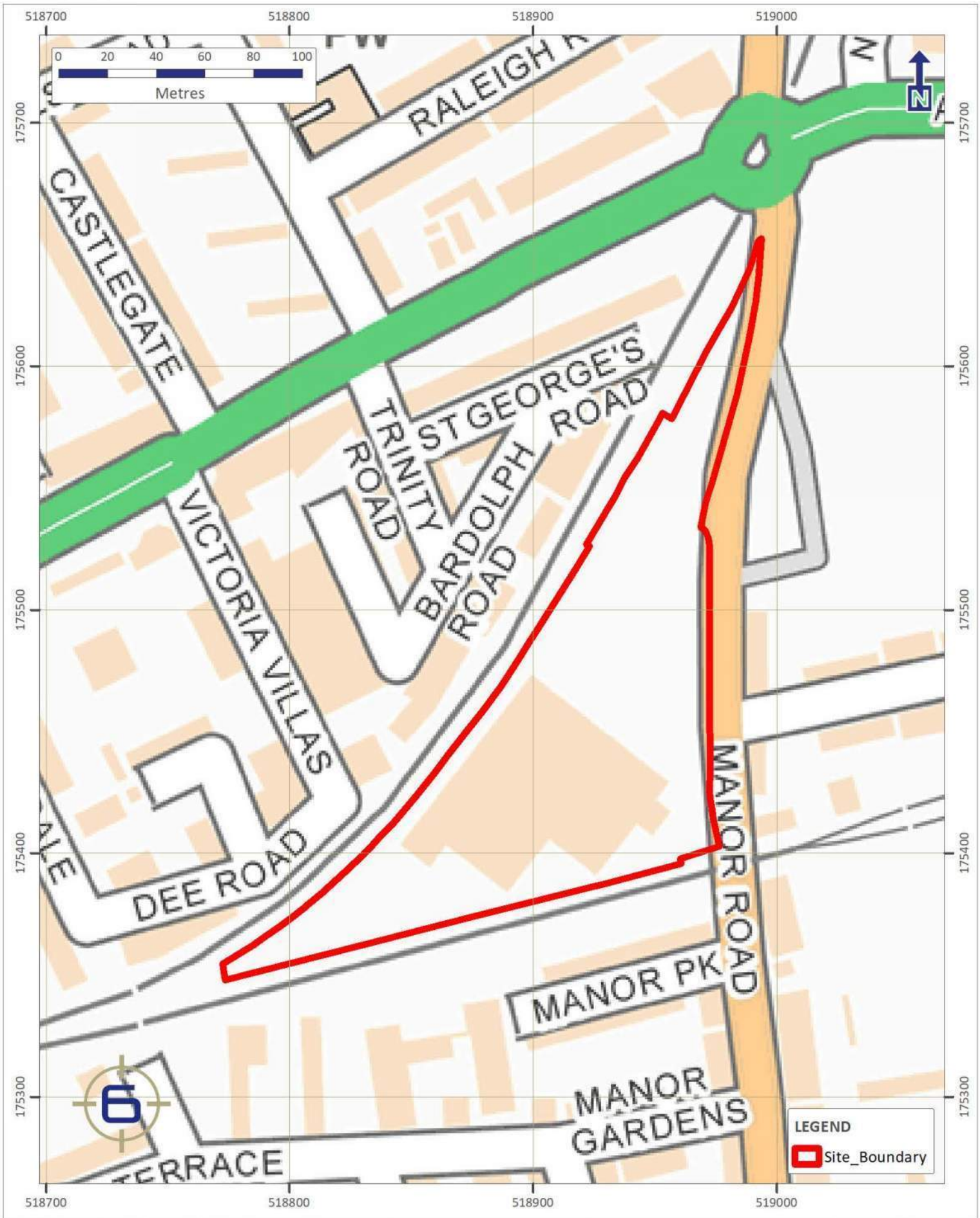
Figure Two - Site Boundary

HOMEBASE LTD, 84, MANOR ROAD, RICHMOND, TW9 1YB

Site Boundary



PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE			
P7115	2	BL	CC	09 January 2019	Contains Ordnance Survey data © Crown copyright and database right 2017	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.	alpha ASSOCIATES

Figure Three - Aerial Photography (2018)

HOMEBASE LTD, 84, MANOR ROAD, RICHMOND, TW9 1YB

Aerial Photography (2018)

BRITISH NATIONAL GRID

BOMB SEARCH
WWW.6ALPHA.COM

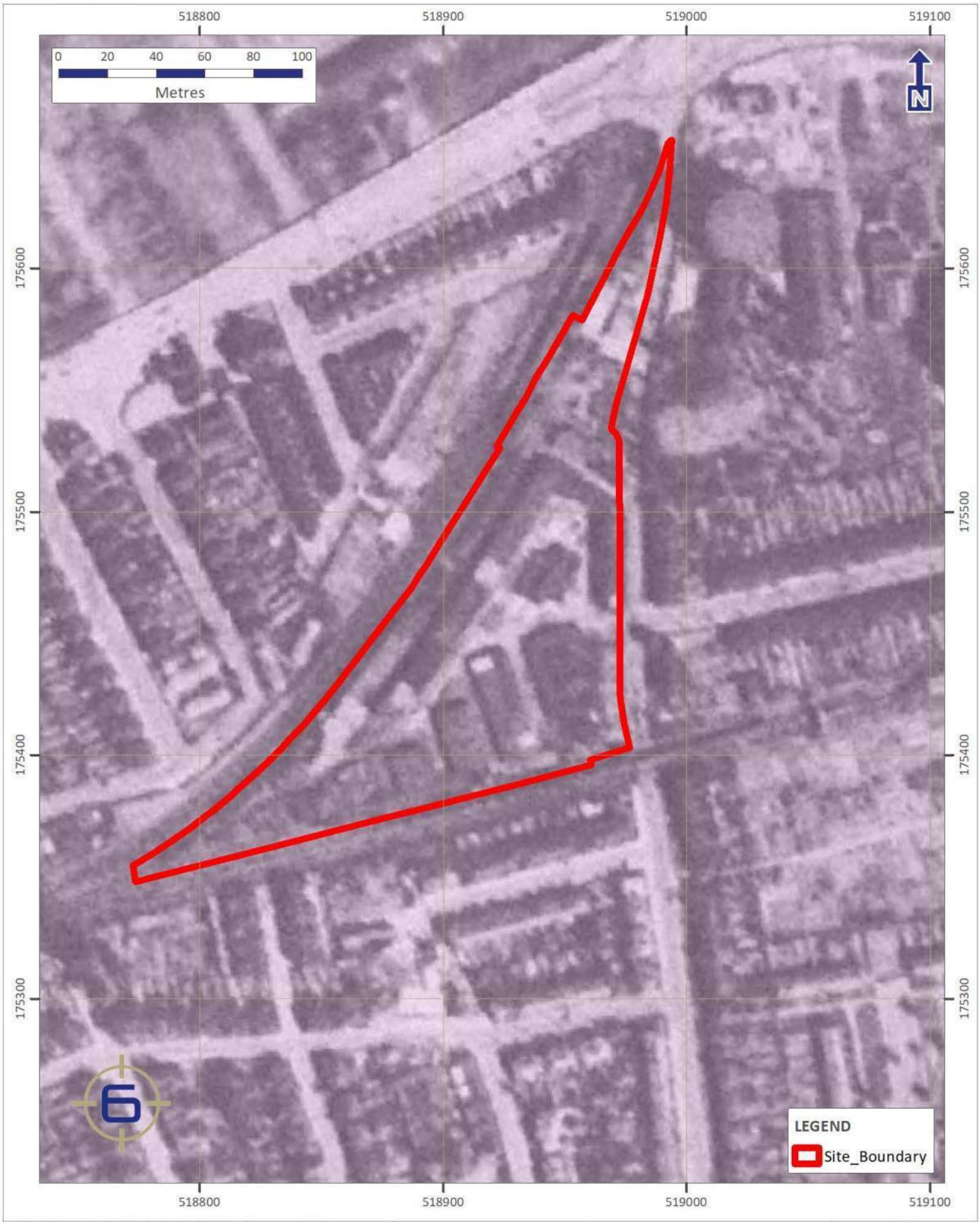
PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE		
P7115	3	BL	CC	09 January 2019	Map data: Google	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.

alpha ASSOCIATES

Figure Four - Aerial Photography (1945)

HOMEBASE LTD, 84, MANOR ROAD, RICHMOND, TW9 1YB

Aerial Photography (1945)



PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE		
P7115	4	BL	CC	09 January 2019	Map data: Google, The GeoInformation Group	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.

BOMB SEARCH WWW.6ALPHA.COM
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Figure Five - WWII High Explosive Bomb Strikes

HOMEBASE LTD, 84, MANOR ROAD, RICHMOND, TW9 1YB

WWII High Explosive Bomb Strikes

BRITISH NATIONAL GRID

BOMB SEARCH
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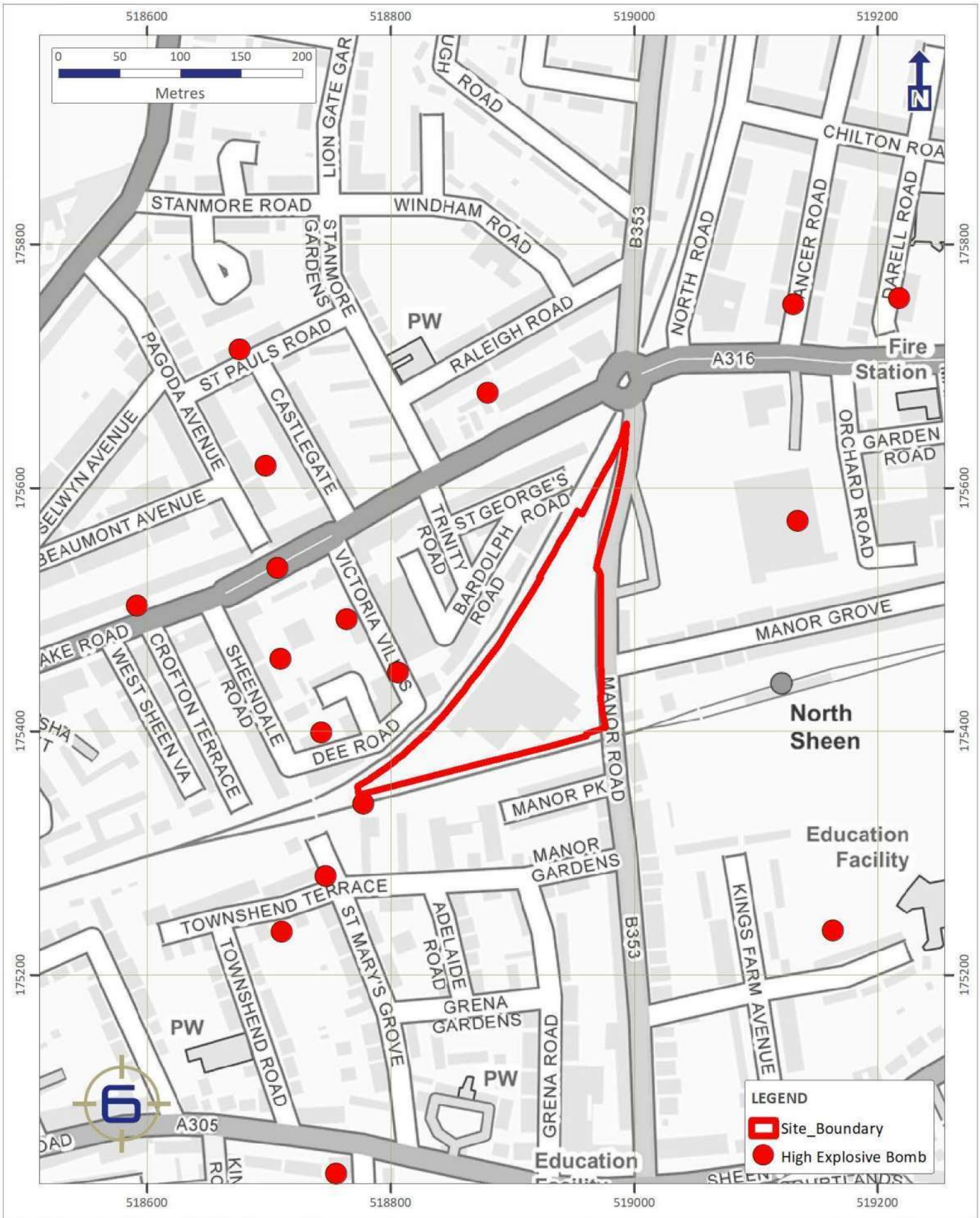

PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE
P7115	5	BL	CC	09 January 2019

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Figure Six - WWII High Explosive Bomb Density

HOMEBASE LTD, 84, MANOR ROAD, RICHMOND, TW9 1YB

WWII High Explosive Bomb Density

BRITISH NATIONAL GRID

BOMB SEARCH WWW.6ALPHA.COM

PROJECT NO.	FIGURE	DRAWN	CHECKED	DATE			
P7115	6	BL	CC	09 January 2019	Contains Ordnance Survey data © Crown copyright and database right 2017	Produced by and Copyright to 6 Alpha Associates Ltd. Users noting any errors please notify 6 Alpha.	alpha ASSOCIATES

APPENDIX D

Regulatory Consultation

Frederick Siemers

From: Simon Makoni <Simon.Makoni@richmond.gov.uk>
Sent: 10 August 2018 11:52
To: Frederick Siemers
Cc: Clare Barber
Subject: RE: Environmental Search Enquiry - Homebase 84 Manor Road
Attachments: 3374-GE001B SITE INVESTIGATION_ALL.pdf

Hi Frederick

Unfortunately I do not have any further information on the Power Station.

I have attached all the information I have on my system with regard to the site investigations. Although not mentioned in the Environmental Enquiry, as the site is more than 50m away from your site, I have also attached a Site Investigation for Orchard Road Dairy.

I trust this is helpful.

Regards,

Simon Makoni
Scientific Officer, Consumer Protection
London Borough of Richmond upon Thames
Tel: 0208 831 6454
Email: Simon.Makoni@richmond.gov.uk

From: Frederick Siemers [mailto:frederick.siemers@fairhurst.co.uk]
Sent: 09 August 2018 16:09
To: Simon Makoni
Cc: Clare Barber
Subject: RE: Environmental Search Enquiry - Homebase 84 Manor Road

Simon,

Thanks for your prompt response. I have a couple of queries on this:
• Do you have any further information on the 'power station' identified on-site in 1974?
• You've identified 2no site investigations adjacent to the site. Are you able to pass on details of these?

Thanks,

Frederick

Frederick Siemers
Environmental Engineer

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135 Park Street
London, SE1 9EA

Tel: 02078 288205
Website: www.fairhurst.co.uk @fairhurstlondon

Why not take a look at our Practice Profile to see the diverse range of skills we can offer. Just click <HERE>

Consider the environment. Please don't print this e-mail unless you really need to.

From: Simon Makoni [mailto:Simon.Makoni@richmond.gov.uk]
Sent: 09 August 2018 13:45
To: Frederick Siemers
Subject: Environmental Search Enquiry - Homebase 84 Manor Road

Dear Frederick

Thank you for your enquiry and payment. Please find attached our response.

I trust that this is satisfactory. Please do not hesitate to contact me should you have any further queries.

Regards,

Simon Makoni
Scientific Officer, Consumer Protection
London Borough of Richmond upon Thames
Tel: 0208 831 6454
Email: Simon.Makoni@richmond.gov.uk

From: Richmond Firmstep forms [mailto:FormsNoReply@richmond.gov.uk]
Sent: 02 August 2018 09:41
To: Simon Makoni
Subject: Make a contaminated land enquiry has been submitted - FS-Case-29807964

An online Make a contaminated land enquiry has been submitted.
The reference for this request is FS-Case-29807964
Property details:
You selected
Homebase 84 Manor Road Richmond TW9 1YB

Site boundary map: 126782 - Manor Road Site Boundary.pdf

Additional information / questions: Hello,

In addition to your information, can you please provide any additional information on:
- if the site is classified as Part 2A under the EPA 1990 or if there are any sites within 250m that are. Furthermore is the site or any within 250m designated for inspection
- any records of tanks on site and their details e.g. construction / materials held / decomissioning / any issues
- any records of ground investigation on-site or adjacent to the site
- any further information on the Richmond gas works adjacent to the north-east of the site and any ground investigation / remediation etc
- any historical uses on / adjacent to the site that could present a potential source of contamination
- any water abstractions within 1km
- any records of landfilling within 500m
- details of any authorised processes within 250m

Kind regards

Additional documents:

Type of search: Standard

Company: Fairhurst

Title: Mr

First name: Frederick

Last name: Siemers

Email: frederick.siemers@fairhurst.co.uk

Telephone: 02078288205

Address:
Postcode
Select the address
SE1 9EA
FIRST FLOOR 135 PARK STREET LONDON SE1 9EA

Total cost: 82.00

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_____

LONDON BOROUGH OF RICHMOND UPON THAMES

CONTAMINATED LAND ENQUIRY

Site Name: Homebase 84 Manor Road
Richmond
TW9 1YB

Date: 09/08/2018

On Behalf of:
Frederick Siemers
Fairhurst
First Floor 135 Park Street
London
SE1 9EA

Frederick Siemers
Fairhurst
First Floor 135 Park Street
London
SE1 9EA

Date: 09 August 2018

Dear Frederick Siemers,

RE: Request for Information – Homebase 84 Manor Road, Richmond, TW9 1YB
Our ref: EE-00234

I refer to your recent contaminated land enquiry for a site at Homebase 84 Manor Road, Richmond, TW9 1YB.

Richmond Council, as a Local Authority, has a duty under Part 2A of the Environmental Protection Act 1990, to investigate its area for the purpose of identifying contaminated land. In fulfilment of this duty we have compiled a database of land that may be potentially contaminated based on the locations of former historical industrial land uses within the borough. The database currently holds close to 1,500 records.

We have searched our database in response to your enquiry. A table showing all the industrial land use records that were identified by the search of our database is given in the appendix to this response.

In response to your enquiry, I can confirm that:

a) The property under search at this time, does not appear on the Contaminated Land Register maintained under Section 78R (1) of the Environmental Protection Act 1990.

b) The Council has not served any notice under Section 78B (3) of the Environmental Protection Act 1990. Section 78B (3) requires notice to be given to specific persons informing them that land is contaminated land.

c) The Council has not consulted or reserved to consult with the owner or occupier of the property under Section 78G (3) of the Environmental Protection Act 1990 in relation to anything to be done on the property as a result of adjoining or adjacent land being contaminated land. Section 78G (3) requires relevant persons to be consulted before serving a remediation notice for contaminated land.

d) In relation to any adjoining or adjacent land, which has been identified as contaminated land because it is in such a condition that harm or pollution of controlled waters might be

caused on the property, a notice has not been served or resolved to be served under Section 78B (3) of the Environmental Protection Act 1990.

Please note that contaminated land, as referred to above, is strictly defined in legislation namely the Environmental Protection Act 1990, section 78A.

I can also confirm that at this time, the property under search has not been identified for detailed inspection (i.e. intrusive site investigation) under Part IIA of the Environmental Protection Act 1990 and that the Council is not considering taking any action on a formal or informal basis.

Please note that the situation may change at any time in the future if additional information is received suggesting that there is significant risk of significant harm occurring on the property.

In response to your specific queries I can answer as follows:

- Is the site classified as Part 2A under the EPA 1990 or if there are there any sites within 250m that are? Furthermore is the site or any within 250m designated for inspection?

  I refer you to the responses above.

- Are there any records of tanks on site and their details e.g. construction / materials held / decommissioning / any issues?

  We do not hold this information.

- Are there any records of ground investigation on-site or adjacent to the site?

  I refer you to the attached appendices.

- Is there any further information on the Richmond gas works adjacent to the north-east of the site and any ground investigation / remediation etc?

  I refer you to the attached appendices.

- Are there any historical uses on / adjacent to the site that could present a potential source of contamination?

  I refer you to the attached appendices.

- Are there any water abstractions within 1km?

  Yes, I refer you to the attached appendices.

- Are there any records of landfilling within 500m?

  I refer you to the attached appendices.

- Are there any details of any authorised processes within 250m?

  I refer you to the attached appendices.

I would like draw your particular attention to the standard disclaimer notice below.
DISCLAIMER NOTICE

The London Borough of Richmond upon Thames has provided the above information based upon data currently available to the Council. This information has been obtained from the Council's own researches as well as from a number of third party sources. This data set is not yet complete and is constantly being updated and reviewed. Therefore, the information given above, including that regarding the inspection priority of sites, may be subject to change at any time in the future upon the receipt of additional information.

All information is supplied on the distinct understanding that the Council does not warrant the accuracy of any of the information and on the basis that neither the Council nor any officer, servant or agent of the Council is legally responsible, either in contract or in tort, for any inaccuracies, or omissions herein contained whether arising from inadvertence or negligence or from any other cause whatsoever.

I hope you find this information useful. Please do not hesitate to contact me should you require any further information or have any further queries.

Yours Faithfully

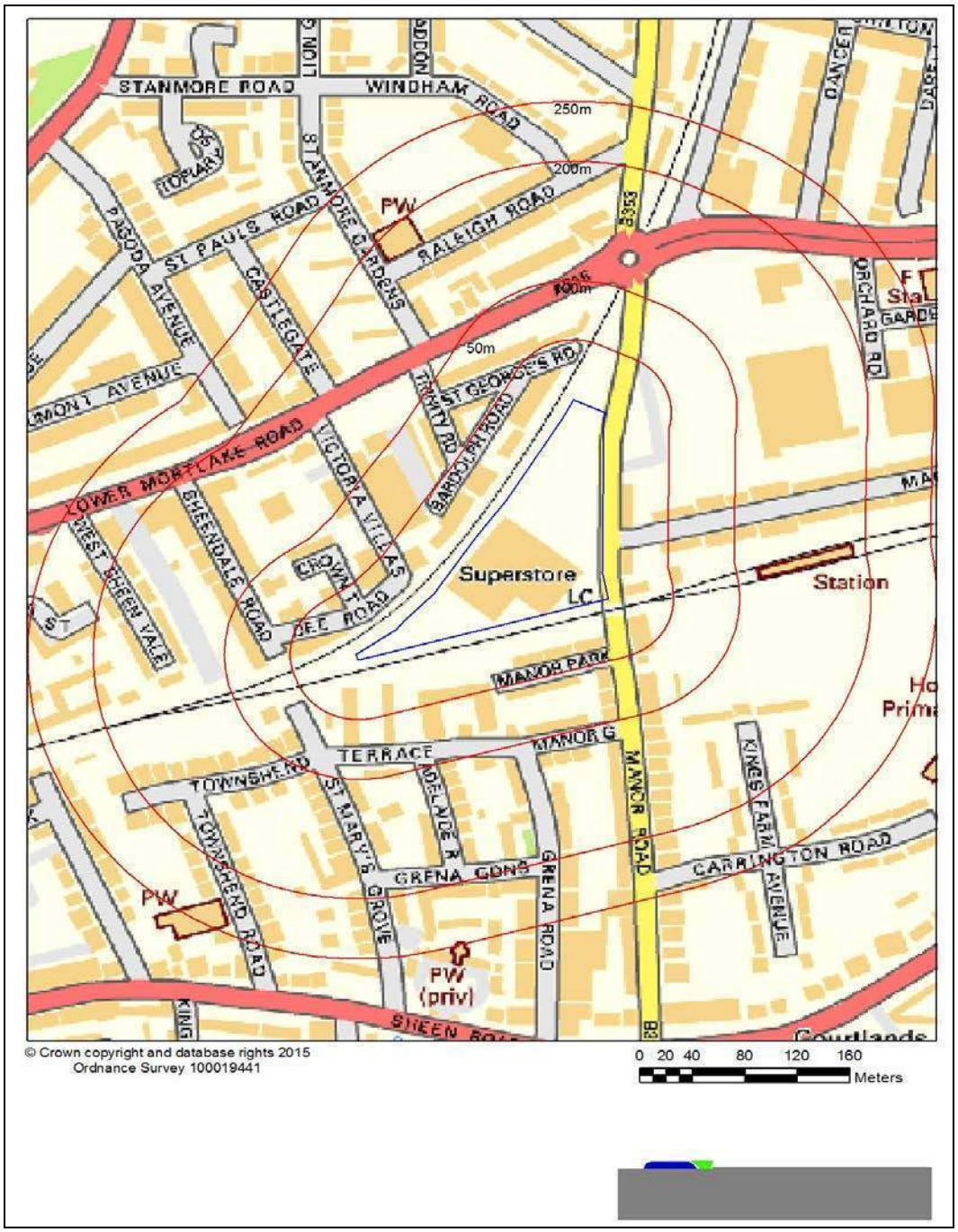
Simon Makoni
Scientific Officer
Direct Tel: **0208 831 6454**
Email: **simon.makoni@richmond.gov.uk**

1. APPENDIX - CONTAMINATED LAND ENQUIRY GIS SEARCH REPORT

DATE: 09 August 2018 TIME: 11:26

Buffer Search Radius: 50, 100, 200, 250, 2000 metres
Search Feature ID: Homebase 84 Manor Road(Name)
Search Feature Layer Name: Environmental Searches
Approx. area of search feature: 15,993m^2
Site Centre Coordinates (British National Grid): 518915, 175448
Selection Summary: A total of 24 features were selected on 5 out of 9 target layers (total includes the search feature).

2. Site Location Map

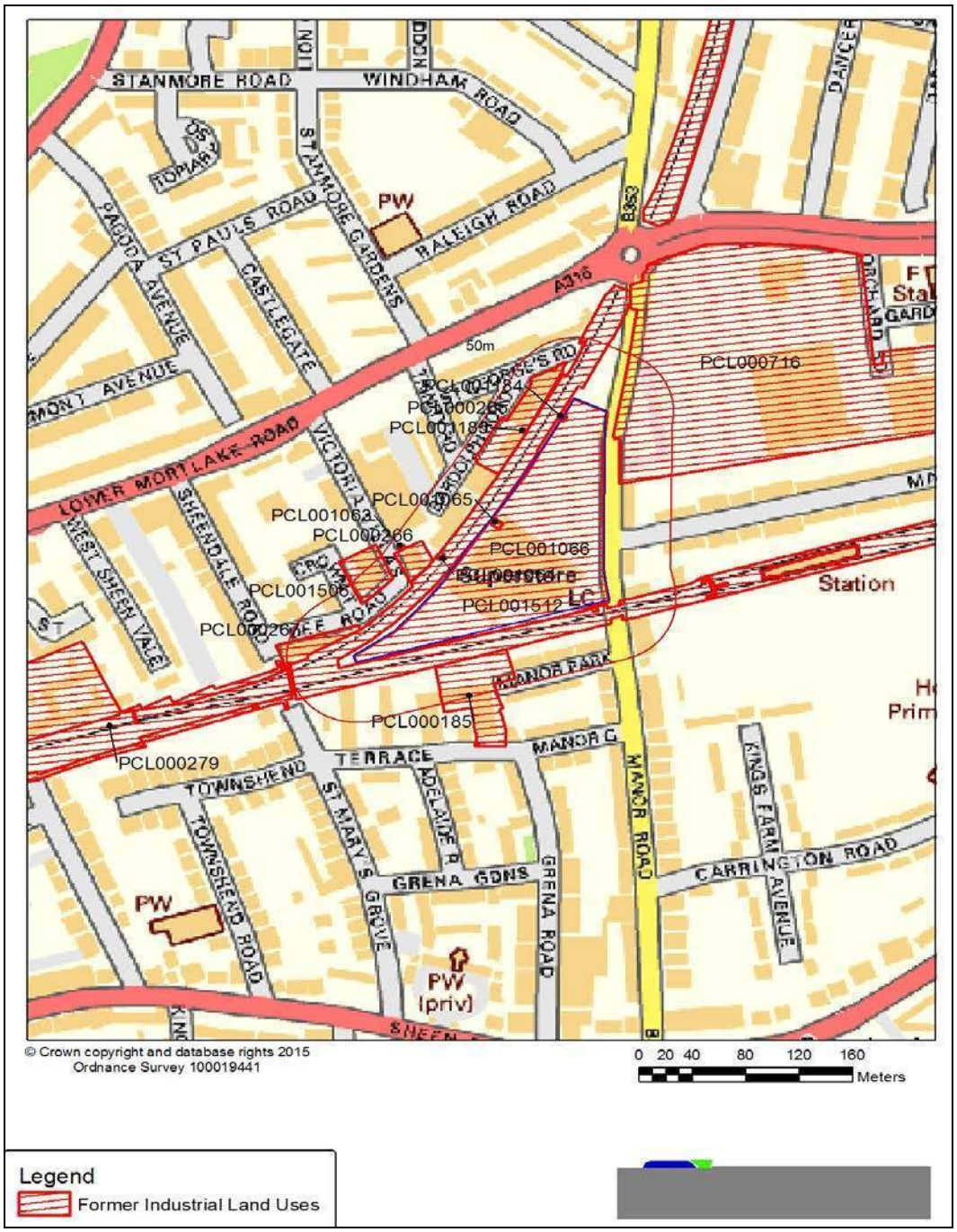


3. Summary Datasheet

Search Layer Name	Search Distance	Data Available	No. of features identified
Former Industrial Land Uses	50 m	Yes	14
Site Investigations	50 m	Yes	2
Private Water Supplies	2000 m	Yes	3
Environmental Permits (LAPPC)	250 m	Yes	2
EA Authorised Landfill Sites	250 m	No	0
EA Historic Landfill Sites	250 m	No	0

4. Former Industrial Land Uses

This layer consists of information that has been collated by the Council as part of its duty to inspect its area for the purposes of identifying contaminated land under Part 2A of the Environmental Protection Act 1990. These records include statutorily determined sites (contaminated land and special sites) and sites where potentially contaminative activities have occurred (former industrial uses).



4.1 GIS Attribute Data for Former Industrial Land Uses

Selection Summary for layer
4 feature(s) identified on site.
10 feature(s) identified off site within 50 metres

ID	Name	Location	Approx. distance (m)	Approx. Area (m2)	Grid Ref.
On Site					
PCL001065	MANOR ROAD TW9 2	MANOR ROAD	0.00	44	518892, 175467
Previous Industrial Uses Industry Profile: Electricity distribution inc large transformer Year Use Established: 1974 Year Use Ended: 1974 Comments: Electrical Sub Station Facilities Note: No Data Area: 44 ***Part 2A Risk Ranking*** PRIORITY: Low Medium					
PCL001066	MANOR ROAD TW9 4	MANOR ROAD	0.00	16258	518914, 175446
Previous Industrial Uses Industry Profile: Power stations (excluding nuclear power stations) Year Use Established: 1974 Year Use Ended: 1974 Comments: Miscellaneous Power Facilities Note: No Data Area: No Data ***Part 2A Risk Ranking*** PRIORITY: Medium					
PCL001184	MANOR ROAD TW9 3	MANOR ROAD	0.00	24	518941, 175554
Previous Industrial Uses Industry Profile: Electricity distribution inc large transformer Year Use Established: 2004 Year Use Ended: 2004 Comments: Electrical Sub Station Facilities Note: No Data Area: 25 ***Part 2A Risk Ranking*** PRIORITY: Medium					
PCL001512	Richmond Railway Line		0.00	675451	516471, 173219
Previous Industrial Uses Industry Profile: Railway land					

ID	Name	Location	Approx. distance (m)	Approx. Area (m2)	Grid Ref.
Year Use Established: No Data Year Use Ended: No Data Comments: No Data Note: No Data Area: No Data ***Part 2A Risk Ranking*** No comment was found in the database					
Identified Off-site - Within 50m					
PCL000185	MANOR PARK 1	MANOR PARK	19.01	2799	518878, 175327
Previous Industrial Uses Industry Profile: Waste recycling, treatment & disposal: Metal recycling sites Year Use Established: 1969 Year Use Ended: 1970 Comments: scrap metal & iron merchants Note: No Data Area: 126 Industry Profile: Waste recycling, treatment & disposal: Metal recycling sites Year Use Established: 1956 Year Use Ended: 1956 Comments: Scrap Iron & Metal Merchants. Manor Park, Richmond Note: Source: Kellys Directory of Richmond, Kew, Petersham etc 1956. Check street directory for position Area: 2800 ***Part 2A Risk Ranking*** PRIORITY: Medium High					
PCL000265	BARDOLPH ROAD 3	BARDOLPH ROAD	16.23	1800	518908, 175550
Previous Industrial Uses Industry Profile: Metal manufacturing: Iron and steelworks Year Use Established: 1971 Year Use Ended: 1976 Comments: current use: industrial Note: Kellys Directory of Richmond 1971 Area: 1800 ***Part 2A Risk Ranking*** PRIORITY: Medium					
PCL000266	VICTORIA VILLAS, CLIVEDEN HOUSE	CLIVEDEN HOUSE, VICTORIA VILLAS	15.74	534	518830, 175437
Previous Industrial Uses Industry Profile: Factory or works - use not specified Year Use Established: 1976 Year Use Ended: 2004 Comments: Industrial. current use: industrial Note: No Data Area: 532 ***Part 2A Risk Ranking*** PRIORITY: Low Medium					

ID	Name	Location	Approx. distance (m)	Approx. Area (m2)	Grid Ref.
PCL000267	DEE ROAD 1	DEE ROAD	15.28	734	518753, 175367

Previous Industrial Uses
Industry Profile: Factory or works - use not specified
Year Use Established: 1976
Year Use Ended: 1994
Comments: Industrial.current use: Industrial
Note: No Data
Area: 760

Part 2A Risk Ranking
PRIORITY: Low Medium

PCL000279	THE QUADRANT 2	THE QUADRANT	49.29	57809	518314, 175219

Previous Industrial Uses
Industry Profile: Railway land
Year Use Established: 1890
Year Use Ended: 1913
Comments: Goods Station. car park
Note: No Data
Area: 57300

Industry Profile: Railway land
Year Use Established: 1870
Year Use Ended: 2004
Comments: LM/0362. LM/0254.LM/0132. LM/0156. LM/0198. LM/0307. Railways
Area: 57300

Industry Profile: Railway land
Year Use Established: 1890
Year Use Ended: 1913
Comments: R/759/02. Railway Land.Salisbury Road,Richmond
Note: Source Map 1894 Surrey 1 verifies the location of the land.
Area: 57300

Industry Profile: Road Vehicles: Transport and haulage centres
Year Use Established: 1980
Year Use Ended: 2004
Comments: LM/0361. Road Haulage.R/1325/03.Road Haulage Contractor.
Note: 1980-1990?s
Yellow Pages 1981
Goods Depot,Cedar Terrace,Richmond
Area: 57300

Part 2A Risk Ranking
PRIORITY: Medium

PCL000716	ORCHARD ROAD 1	ORCHARD ROAD	5.68	36829	519096, 175599

Previous Industrial Uses
Industry Profile: Gas works, coke works, coal carbonisation plants
Year Use Established: 1874
Year Use Ended: 1890
Comments: Gas manufacture & distribution
Note: Producing gas from coal, lignite, oil or other carbonaceous material other than waste
Area: 7651

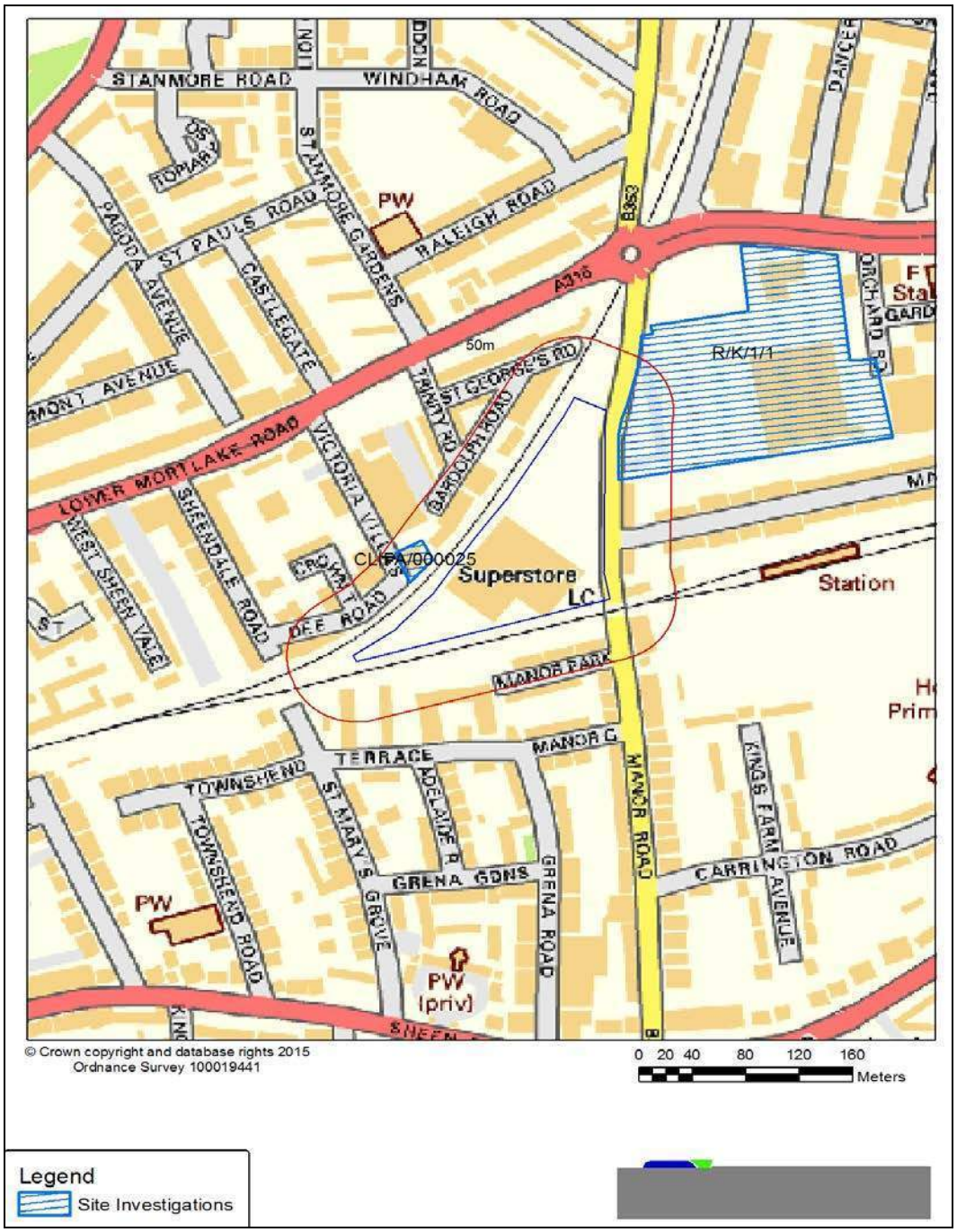
Industry Profile: Gas works, coke works, coal carbonisation plants

ID	Name	Location	Approx. distance (m)	Approx. Area (m2)	Grid Ref.
Year Use Established: 1910 Year Use Ended: 1930 Comments: R/694/02. Gas Works Depot.Orchard Road,North Sheen Note: Map Source: 1910 polygons Area: 19000 Industry Profile: Road Vehicles: Transport and haulage centres Year Use Established: 1980 Year Use Ended: 1990 Comments: LM/0360. Road Haulage Note: 1980-1990?s Dismantling, repairing or maintenance of road transport or road haulage vehicles Area: 36777 Industry Profile: Gas works, coke works, coal carbonisation plants Year Use Established: 1890 Year Use Ended: 1913 Comments: LM/0161.Gas manufacture & distribution Note: 1890?s Area: 19555 Industry Profile: Gas works, coke works, coal carbonisation plants Year Use Established: 1920 Year Use Ended: 1960 Comments: LM/0206.LM/0313. LM/0252.Gas manufacture & distribution Note: 1920?s 1940-1960?s1930?s Area: 34204 Industry Profile: Gas works, coke works, coal carbonisation plants Year Use Established: 1980 Year Use Ended: 2004 Comments: LM/0359 Note: 1980-1990?s Area: 36777 Industry Profile: Gas works, coke works, coal carbonisation plants Year Use Established: 1914 Year Use Ended: 1930 Comments: R/7/02. The Richmond Gas Company.Lower Richmond Road,Richmond Note: Kellys Directory of Richmond 1914 delivery of coke, broken for domestic use. Area: 19555 ***Part 2A Risk Ranking*** PRIORITY: Medium					
PCL001063	VICTORIA VILLAS 2	VICTORIA VILLAS	38.20	16	518821, 175447
Previous Industrial Uses Industry Profile: Oil refineries & bulk storage of crude oil and pet.products Year Use Established: 1974 Year Use Ended: 1974 Comments: Tanks Note: No Data Area: 16 ***Part 2A Risk Ranking*** PRIORITY: Low Medium					
PCL001064	BARDOLPH ROAD 1	BARDOLPH ROAD	11.24	21	518850, 175441

ID	Name	Location	Approx. distance (m)	Approx. Area (m2)	Grid Ref.
Previous Industrial Uses Industry Profile: Electricity distribution inc large transformer Year Use Established: 1974 Year Use Ended: 1974 Comments: Electrical Sub Station Facilities Note: No Data Area: 20 ***Part 2A Risk Ranking*** PRIORITY: Low Medium					
PCL001185	BARDOLPH ROAD 2	BARDOLPH ROAD	16.83	7	518913, 175544
Previous Industrial Uses Industry Profile: Electricity distribution inc large transformer Year Use Established: 2004 Year Use Ended: 2004 Comments: Electrical Sub Station Facilities Note: No Data Area: 10 ***Part 2A Risk Ranking*** PRIORITY: Low Medium					
PCL001506	VICTORIA VILLAS 1	VICTORIA VILLAS	30.36	1068	518795, 175427
Previous Industrial Uses Industry Profile: Warehouse Year Use Established: c. 1978 Year Use Ended: post 2002 Comments: Info source - environmental enquiry Note: No Data Area: No Data Industry Profile: Light Industrial: engines, building & general industrial Year Use Established: 1983 Year Use Ended: No Data Comments: light industrial to manufacture component parts for electrical and motor industries Note: Planning app 82/0276 - 1983 Change of use to light industrial to manufacture component parts for electrical and motor industrie... Area: No Data ***Part 2A Risk Ranking*** PRIORITY: Medium					

5. Site Investigations

This section consists of information on site investigation reports that have been collated by the Contaminated Land Team.

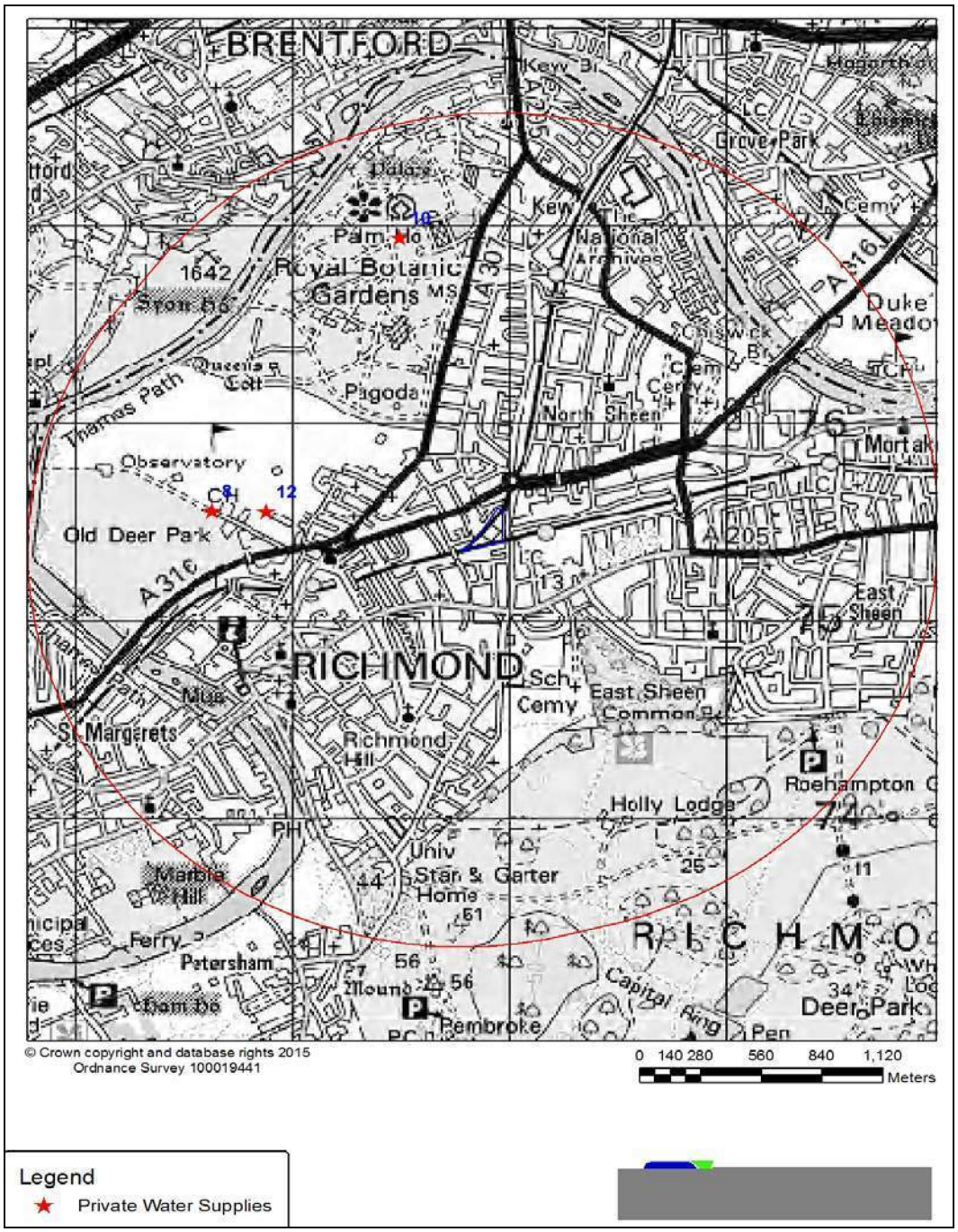


5.1 GIS Attribute Data for Site Investigations

Selection Summary for layer
0 feature(s) identified on site.
2 feature(s) identified off site within 50 metres

ID	name	address	type	Approx. distance (m)	Approx. Area (m2)	Grid Ref.
On Site						
None						
Identified Off-site - Within 50m						
R/K/1/1	Manor Road Gas Works	North Richmond	Planning/Redevelopment	10.11	25075	519085, 175588
CLIPA/000025	Victoria Villas	VICTORIA VILLAS	Planning/Redevelopment	15.73	528	518830, 175437

6. Private Water Supplies



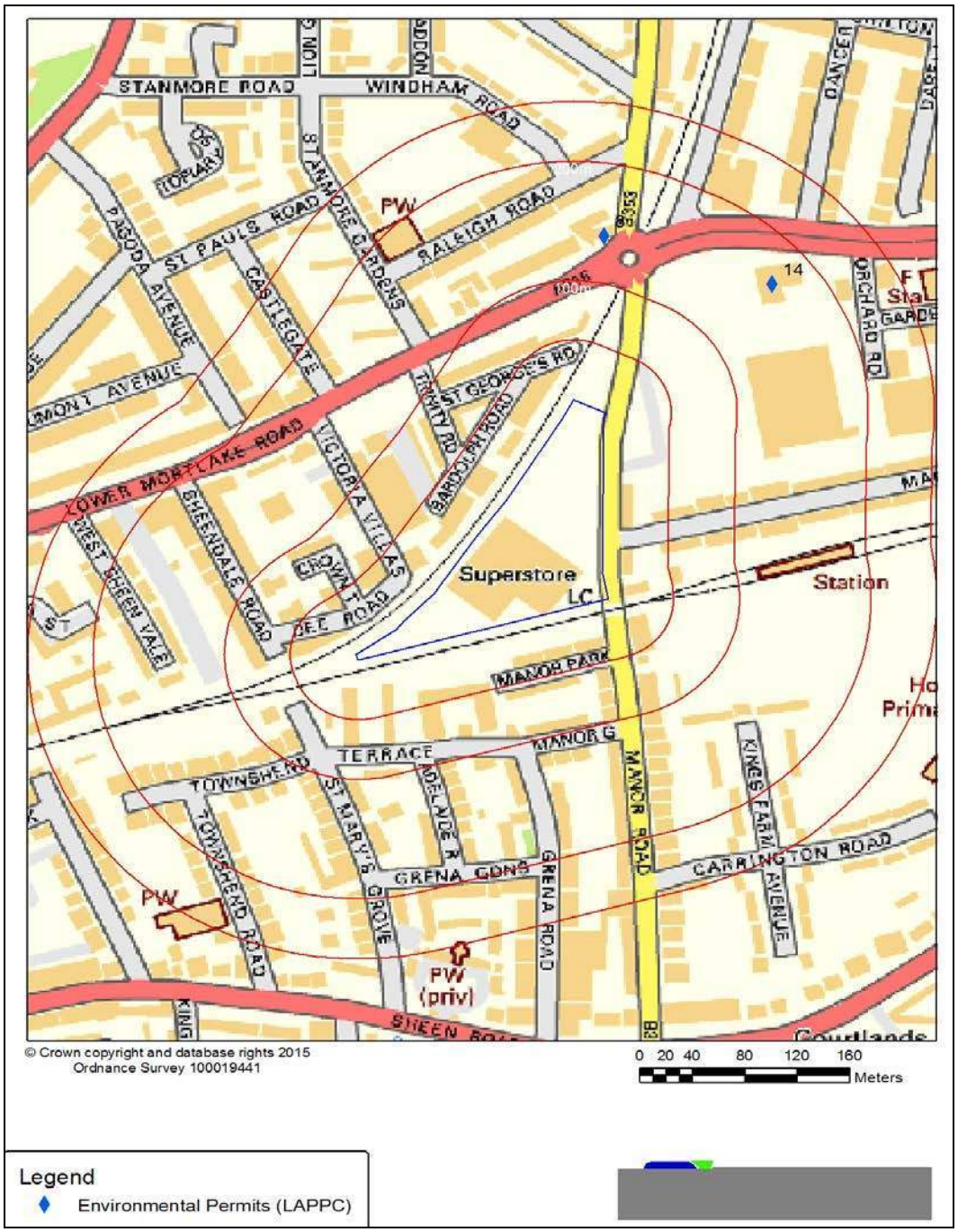
6.1 GIS Attribute Data for Private Water Supplies

Selection Summary for layer
0 feature(s) identified on site.
3 feature(s) identified off site within 2000 metres

Id	Name	Approx. distance (m)	Grid Ref.
On Site			
None			
Identified Off-site - Within 0-2000m			
8	Royal Mid Surrey Golf Club	1165.33	517637, 175561
10	Royal Botanic Gardens	1441.78	518504, 176941
12	Richmond Athletic Association	919.32	517887, 175557

All supplies are used for irrigation of land or garden centres etc. None are used for human consumption.

7. Environmental Permits (LAPPC)



7.1 GIS Attribute Data for Environmental Permits (LAPPC)

Selection Summary for layer
0 feature(s) identified on site.
0 feature(s) identified off site within 50 metres
0 feature(s) identified off site within 50 - 100 metres
2 feature(s) identified off site within 100 - 200 metres
0 feature(s) identified off site within 200 - 250 metres

Id	Address	Issue_Date	Process	Approx. distance (m)	Grid Ref.
On Site					
None					
Identified Off-site - Within 50m					
None					
Identified Off-site - Within 50-100m					
None					
Identified Off-site - Within 100-200m					
8	Lower Mortlake Road, Richmond TW9 2LL	13/03/2006	Installation for the unloading of petrol into stationary storage tanks and filling of vehicle petrol tanks	138.91	518974, 175707
14	Manor Road, Richmond TW9 1YB	06/03/2006	Installation for the unloading of petrol into stationary storage tanks and filling of vehicle petrol tanks	166.41	519102, 175667
Identified Off-site - Within 200-250m					
None					

Please note that the data contained in this report may be incomplete and is provided to you "as is" and you agree to use it at your own risk. The Council or its agent(s) make no guarantees, representations or warranties of any kind, express or implied, arising by law or otherwise, including but not limited to, content, quality, accuracy, completeness, effectiveness, reliability, fitness for a particular purpose.

End of Detailed Report

Transport for London
London Underground

London Underground
Infrastructure Protection

3rd Floor
Albany House
55 Broadway
London SW1H 0BD

www.tfl.gov.uk/tube

Your ref: 126782
Our ref: 24211-SI-12-100718

Edward Young
Fairhurst
edward.young@fairhurst.co.uk

10 July 2018

Dear Edward,

Manor Road Richmond TW9 1YB

Thank you for your communication of 6th July 2018.

I can confirm that London Underground assets will not be affected by works at the above location.

However, there are Network Rail assets close to this site.

Please contact the following to query what affect if any your proposals will have on the railway:

Asset Protection Anglia Route
Network Rail
Floor 11
One Stratford Place
Stratford
London
E20 1EJ

Email: TownPlanningSE@networkrail.co.uk

If I can be of further assistance, please contact me.

Yours sincerely

Shahina Inayathusein
Information Manager
Email: locationenquiries@tube.tfl.gov.uk
Direct line: 020 3054 1365

London Underground Limited
trading as London Underground
whose registered office is
55 Broadway
London SW1H 0BD

Registered in England and Wales
Company number 1900907

VAT number 238 7244 46

London Underground Limited is a company controlled by a local authority within the meaning of Part V Local Government and Housing Act 1989. The controlling authority is Transport for London.

MAYOR OF LONDON

Frederick Siemers

From: Sultan Amjad <AmjadSultan@tfl.gov.uk>
Sent: 06 August 2018 18:12
To: Clare Barber; LOIP; Edward Young
Cc: Frederick Siemers; James Robert
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Hi Clare,

The address relates to the LU team that has written to you confirming they have no assets.

Kind regards

Amjad Sultan
Mobile: +44 (0) 7772 001 129

From: Clare Barber [mailto:clare.barber@fairhurst.co.uk]
Sent: 06 August 2018 10:42
To: Sultan Amjad; LOIP; Edward Young
Cc: Frederick Siemers; James Robert
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Amjad,

At the moment, we have nobody saying they have assets north of the site, though clearly there is a District Line/Overground line. Can you confirm what the following address relates to? lulcedip@tube.tfl.gov.uk

If it is under TFL ownership and operation, presumably there are TFL asset protection guidelines we are to follow?

Thanks,

Clare

Clare Barber
Project Geotechnical & Environmental Engineer

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London, SE1 9EA
Tel: 020 7828 8205

Website: www.fairhurst.co.uk @fairhurstlondon

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From: Sultan Amjad [mailto:AmjadSultan@tfl.gov.uk]
Sent: 06 August 2018 10:30
To: Clare Barber; LOIP; Edward Young
Cc: Frederick Siemers; James Robert
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Hi Clare,

LUL response takes precedence.

The below links discusses the various NR asset protection teams based on region.

https://www.networkrail.co.uk/communities/lineside-neighbours/working-by-the-railway/contact-asset-protection-team/

Kind regards

Amjad Sultan
Mobile: +44 (0) 7772 001 129

From: Clare Barber [mailto:clare.barber@fairhurst.co.uk]
Sent: 06 August 2018 10:12
To: LOIP; Edward Young
Cc: Frederick Siemers; James Robert; Sultan Amjad
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Thanks Amjad,

We are already in contact with Network Rail regarding the site.

From the below, can you confirm we are required to pass on our query to lulcedip@tube.tfl.gov.uk also?

LUL have responded (copy attached) confirming there are no LUL assets at this location.

Thanks,

Clare

Clare Barber
Project Geotechnical & Environmental Engineer

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From: LOIP [mailto:LOIP@tfl.gov.uk]
Sent: 06 August 2018 10:10
To: Clare Barber; LOIP; Edward Young
Cc: Frederick Siemers; James Robert; Sultan Amjad
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Hi Clare,

The Overground Route at this location is owned and managed by Network Rail. TfL only has running rights on this route. AssetProtectionSussex@networkrail.co.uk / AssetProtectionWessex@networkrail.co.uk

The District line is under TfL/LU ownership/ management. lulcedip@tube.tfl.gov.uk

Kind regards

Amjad Sultan
Mobile: +44 (0) 7772 001 129

From: Clare Barber [mailto:clare.barber@fairhurst.co.uk]
Sent: 06 August 2018 09:34
To: LOIP; Edward Young
Cc: Frederick Siemers
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

To whom it may concern/Robert,

I believe my colleague may have already responded to the below, but he has been on annual leave, so just wanted to check in with you.

The line along the north western boundary of our site is a District and Overground Line – which I believe would be under TFL control? Could you confirm?

We are looking to ascertain any restrictions in respect to construction/development on site (and indeed ground investigation). Our Client would also be keen to start a dialogue with a meeting to discuss the scheme etc., and any impacts/restrictions there would be around the TFL assets.

Kind Regards,

Clare

Clare Barber
Project Geotechnical & Environmental Engineer

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From: LOIP [mailto:LOIP@tfl.gov.uk]
Sent: 18 July 2018 16:59
To: Edward Young
Cc: Clare Barber
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Edward,

I can confirm there are no LO assets within close proximity of your site.

Kind Regards

Robert James
Assistant Surveyor
Infrastructure Protection
London Overground Infrastructure Management
5 Endeavour Square I Stratford I London E20 1JN
RobertJames@tfl.gov.uk| Mob:07717 646218

From: Edward Young [mailto:edward.young@fairhurst.co.uk]
Sent: 18 July 2018 16:47
To: LOIP
Cc: Clare Barber
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Thank you for your response. We understand that the line to the north-west is an Overground line (between Richmond and Kew Gardens).

Please can you confirm that this is not under your control / no further action is needed prior to work being conducted?

We are in contact with Network Rail.

Ed

Ed Young
Environmental Engineer

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From: LOIP [mailto:LOIP@tfl.gov.uk]
Sent: 18 July 2018 16:43
To: Edward Young
Subject: RE: 126782 Manor Road, Richmond, TW9 1YB

Good Afternoon,

Thank you for your enquiry.

There are no LO assets within close proximity of your site.

Please can you ensure you receive a response from Network Rail.

Kind Regards

Robert James
Assistant Surveyor
Infrastructure Protection
London Overground Infrastructure Management
5 Endeavour Square I Stratford I London E20 1JN
RobertJames@tfl.gov.uk| Mob:07717 646218

From: Edward Young [mailto:edward.young@fairhurst.co.uk]
Sent: 17 July 2018 14:41
To: LOIP
Cc: Clare Barber
Subject: 126782 Manor Road, Richmond, TW9 1YB

Good afternoon,

RE Manor Road, Richmond, TW9 1YB

We are currently undertaking work at the above site. Please could you confirm any information you hold in relation to any assets, utilities, train lines at, underneath and within 20m laterally of the site as well as details relating to any easements or access rights? A location plan is provided below.

It is possible that ground investigation works will be undertaken at this location (e.g. trial pit / borehole excavations). Can you please confirm the liaison process with yourselves prior to undertaking this?

If you have any queries with the above, please let me know. If there are any charges relating to the above searches, please could you let me know prior to conducting any work?

Thank you,

Ed

Ed Young
Environmental Engineer

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APPENDIX E

Photographic Record

Photo 1: Car parking in the northern portion of the site

Photo 2: Soft landscaping along site's eastern boundary

Photo 3: Looking west from site access towards electrical substation

Photo 4: Area of paving and possible interceptors at assumed location of former car park

Photo 5: Vent pipe assumed to be associated with possibly identified interceptors

Photo 6: Access road along the western boundary of the site

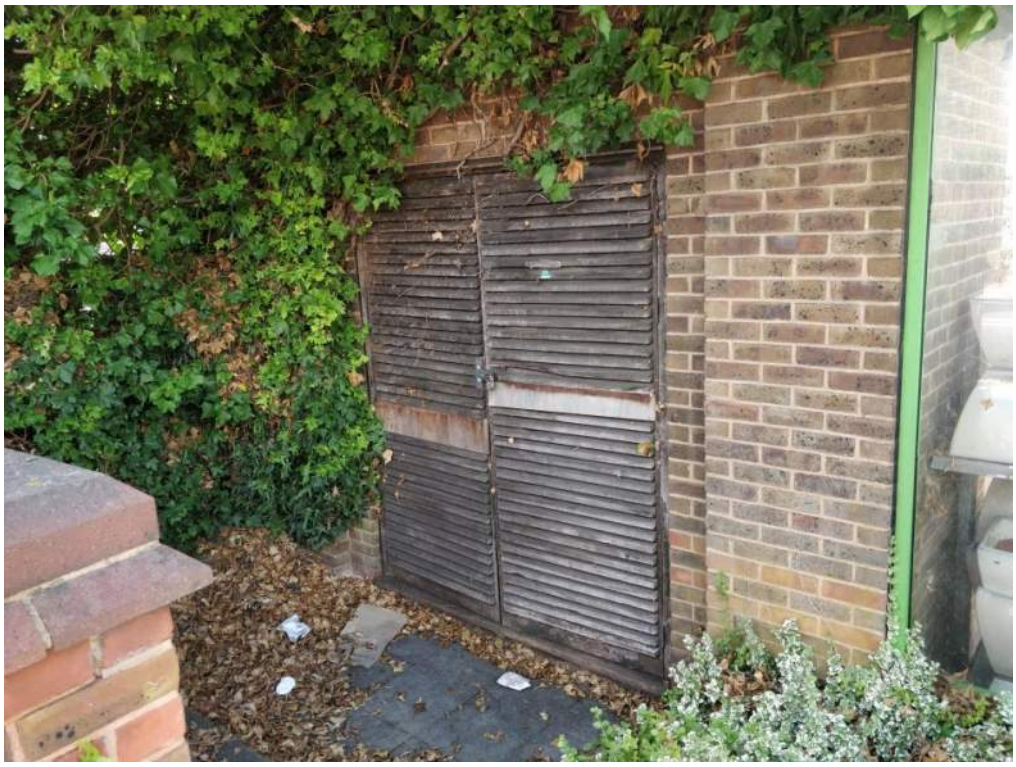


Photo 7: Brick structure assumed to be occupied by Southern Gas Network

Photo 8: Delivery yard in the south-western portion of the site

Photo 9: Homebase delivery yard

Photo 10: Gas canister storage in Homebase delivery yard

Photo 11: Waste paint storage within Homebase delivery yard

Photo 12: Homebase bin and container storage

Photo 13: Fly tipping in the south-western portion of the site

Photo 14: Manor Road ramping up towards the roundabout to the north of the site

Photo 15: Allotment gardens

Photo 16: Bus terminal to the north of the site

Photo 17: Railway line bounding the site to the south

Photo 18: Footbridge adjacent to the south-east of the site

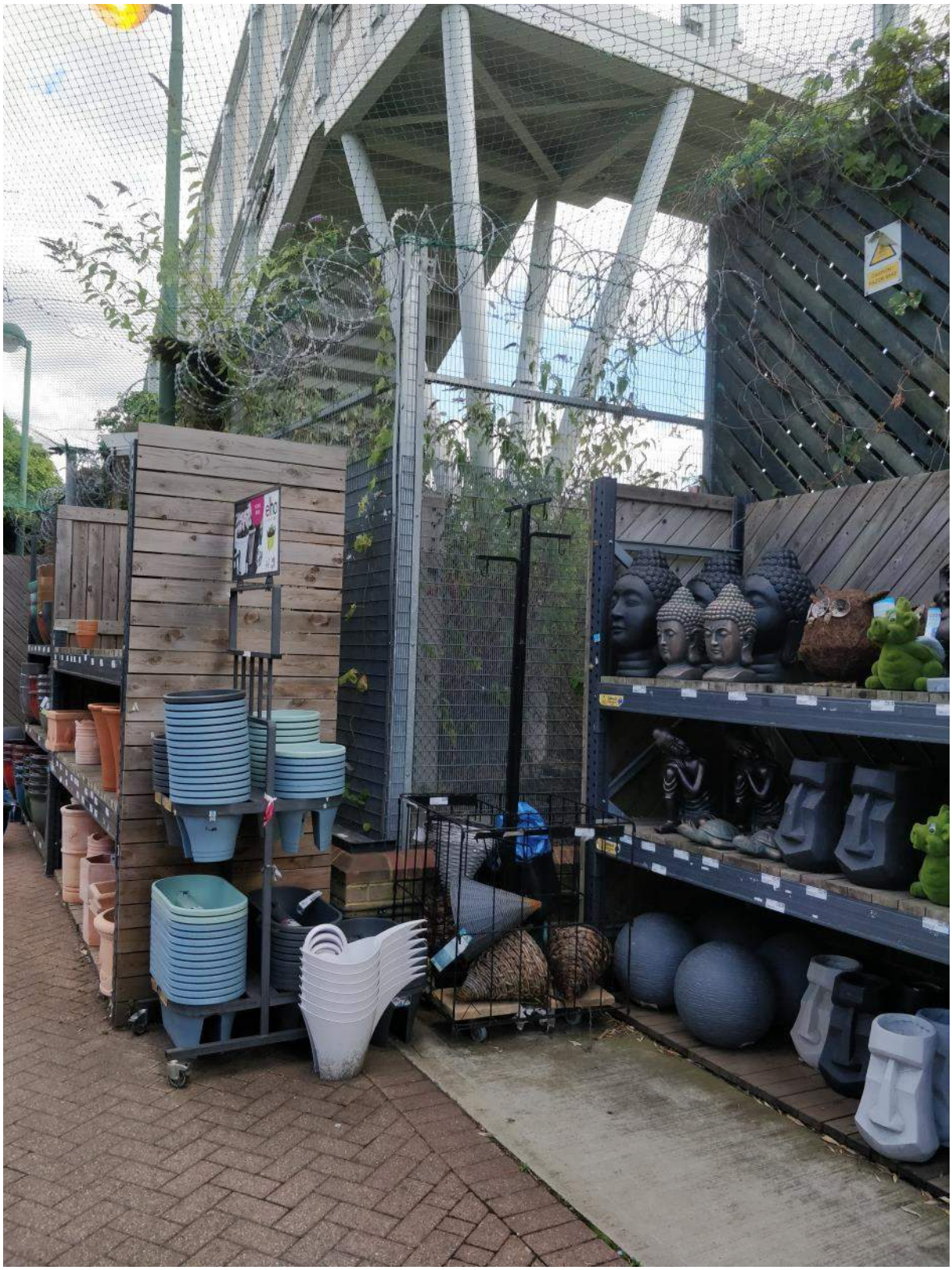


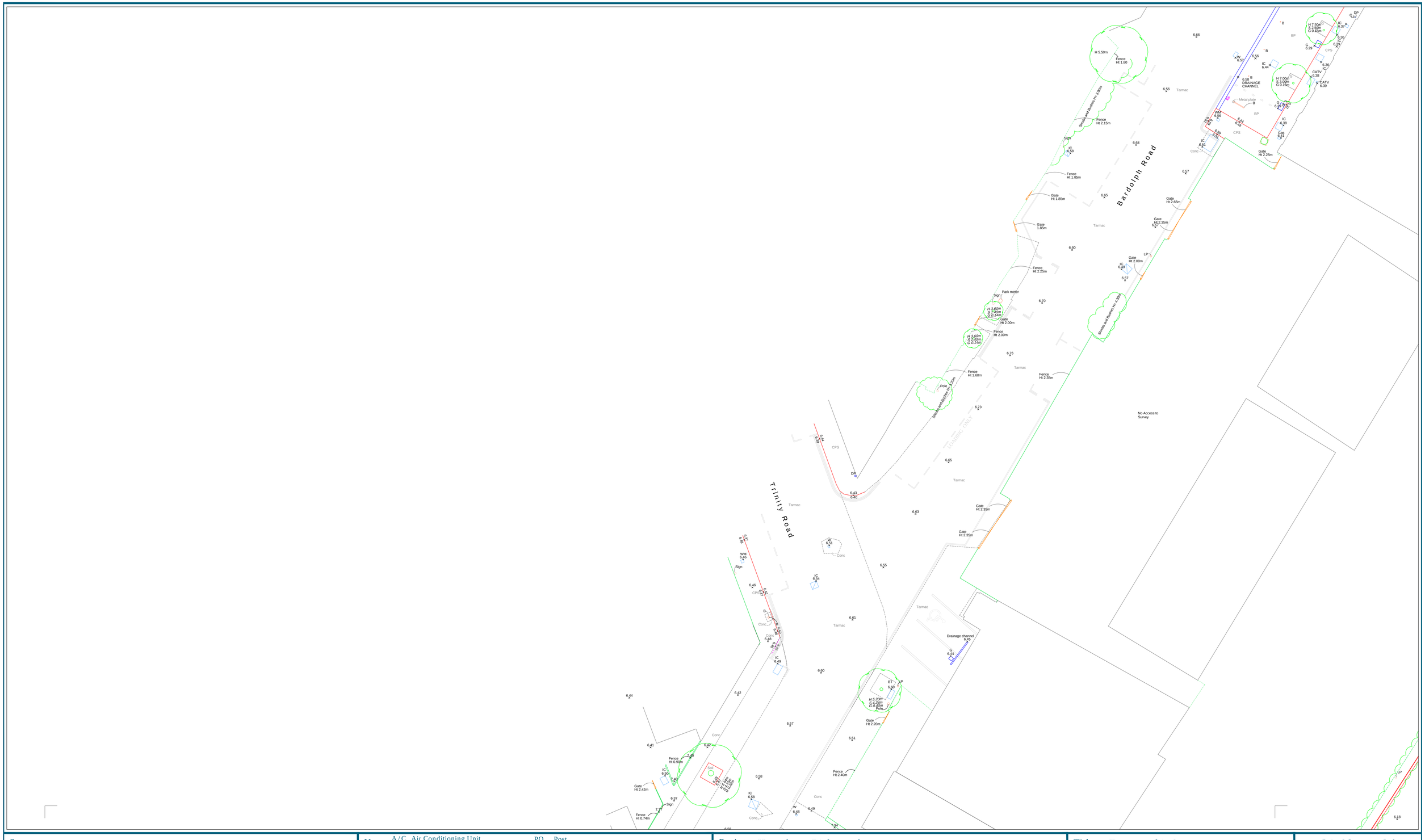
Photo 19: Railway footbridge cutting into Homebase garden centre

A

Photo 20: National Rail infrastructure

APPENDIX F

Topographical Survey



Sources:

Levels are related to Ordnance Survey Datum via GPS Observations

Survey location is related to Ordnance Survey Grid via GPS Observations.

All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Stations:

STN01 - 518899.719, 175472.891, 6.147
STN02 - 518970.579, 175484.687, 6.586
STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit
B	Bollard
BP	Brick Paving
BT	BT Inspection Cover
CATV	Cable Television Inspection Cover
CPS	Concrete Paving Slab
DK	Dropped Kerb
DP	Down Pipe
EL	Eaves Level
FH	Fire Hydrant
G	Gully
GP	Gate Post
IC	Inspection Cover
ILB	Illuminated Bollard
IRS	Illuminated Road Sign
JB	Junction Box
LP	Lamp Post
MH	Man Hole Cover
PB	Post Box
PL	Pavement Light
PO	Post
RL	Ridge Level
SRFC	Surface Change
S/O	Smoke Outlet
SV	Stop Valve
TCB	Telephone Call Box
TP	TacCPS Paving
W	Water Inspection Cover
WM	Water Meter

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 1

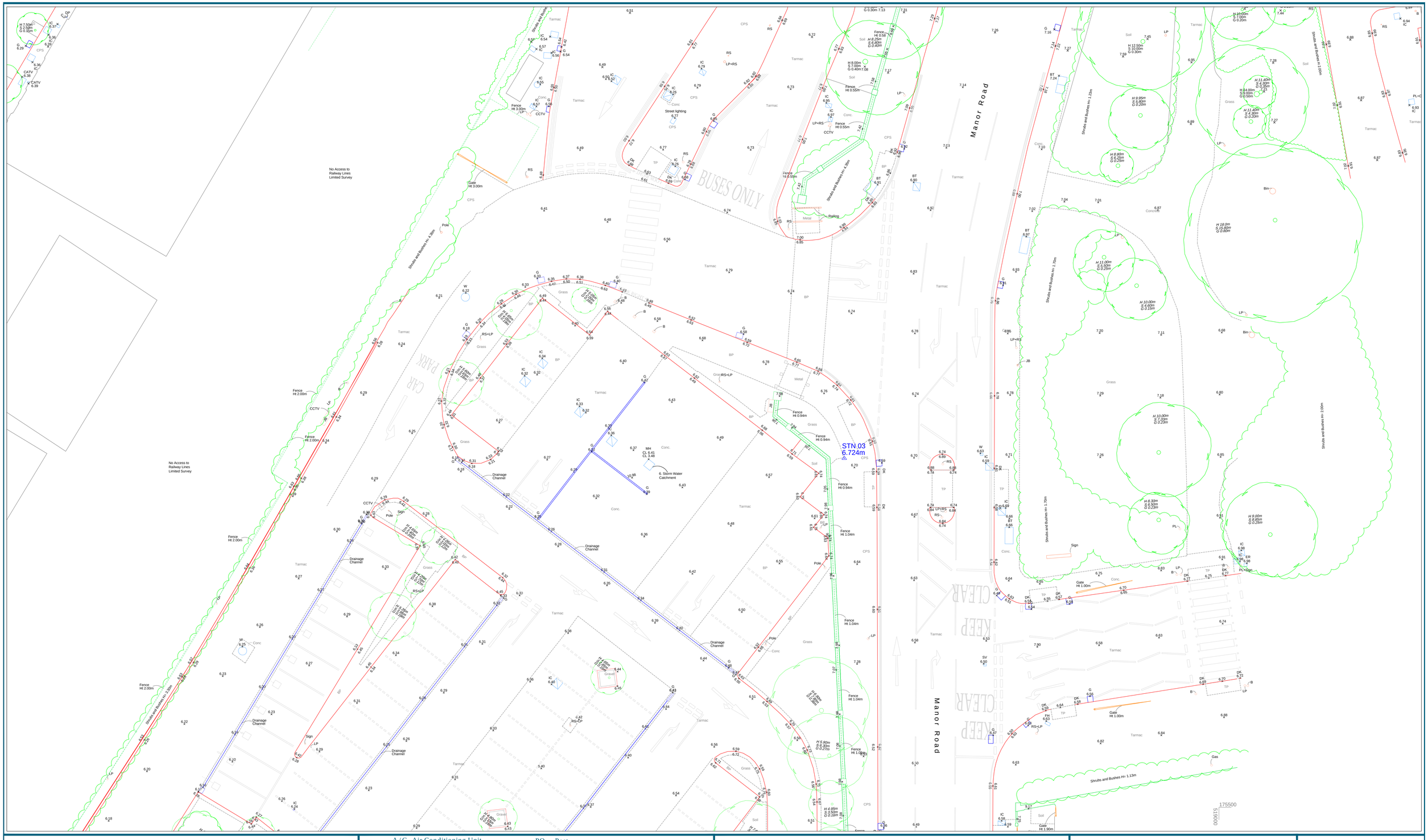
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/01RevA**



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	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 2

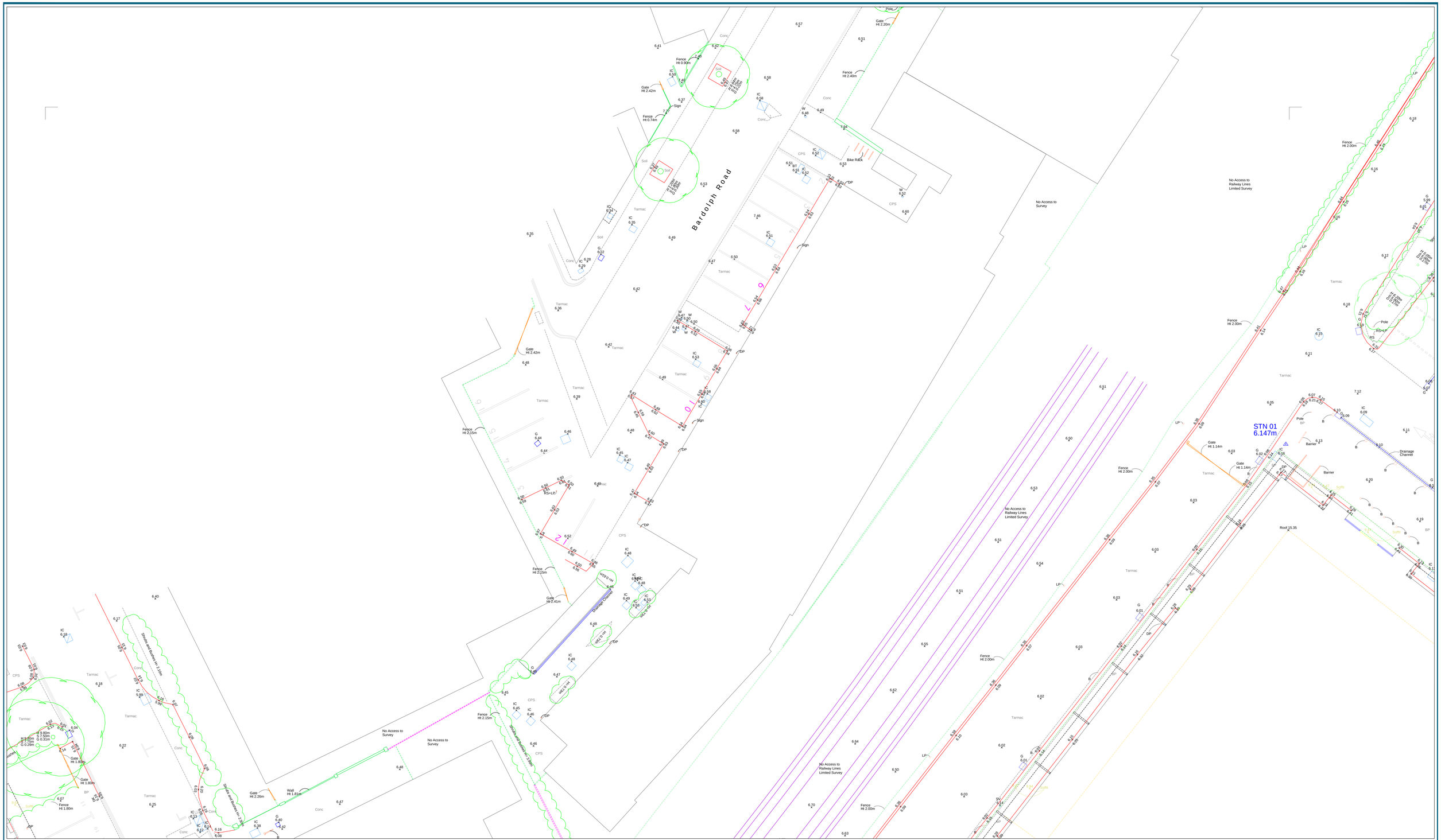
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/02RevA**



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	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 3

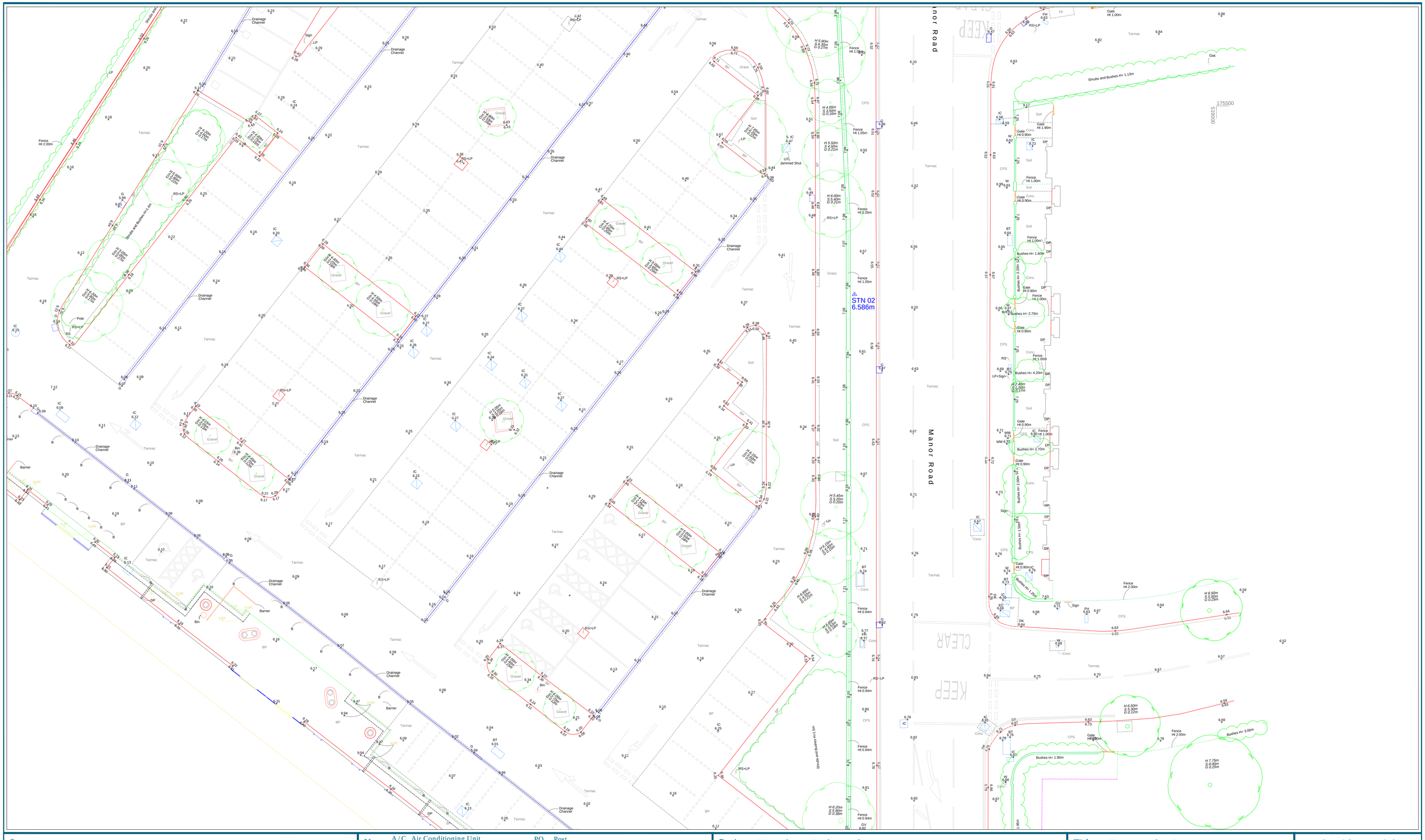
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/03RevA**



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	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 4

Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: LS2024/T/04RevA

Sources:

Levels are related to Ordnance Survey Datum via GPS Observations

Survey location is related to Ordnance Survey Grid via GPS Observations.

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Indicative

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 5

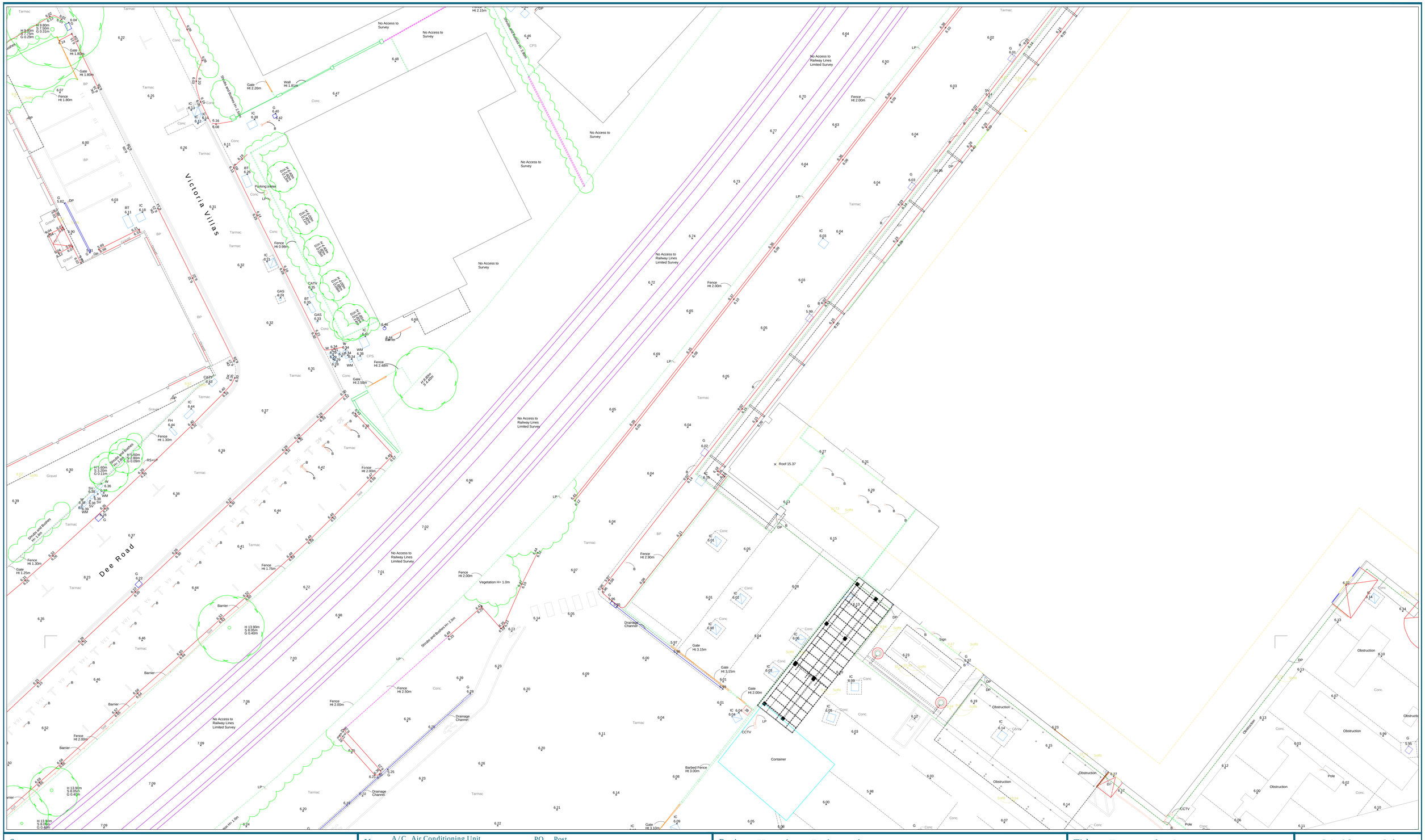
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/05RevA**


Victoria Villas
Dee Road
No Access to Survey
No Access to Railway Lines Limited Survey
Tarmac
Conc
Gravel
BP
LP
Fence Ht 2.15m
Fence Ht 2.00m
Fence Ht 1.80m
Fence Ht 1.30m
Fence Ht 1.75m
Fence Ht 0.98m
Fence Ht 2.48m
Fence Ht 2.50m
Fence Ht 1.25m
Gate Ht 1.80m
Gate Ht 2.26m
Gate Ht 2.50m
Gate Ht 3.15m
Gate Ht 2.00m
Gate Ht 3.10m
Wall Ht 1.81m
Shrubs and Bushes Hr= 2.5m
Shrubs and Bushes Hr= 3.0m
Vegetation H= 1.0m
Parking meter
Barrier
Drainage Channel
CCTV
Container
Barbed Fence Ht 3.00m
Roof 15.37
Sign
Obstruction
Pole
Soffit 4.94
Soffit 5.27
Soffit 5.23
Soffit 5.03
Soffit 5.04
Soffit 5.07
Soffit 5.08
Soffit 5.09
Soffit 5.10
Soffit 5.11
Soffit 5.12
Soffit 5.13
Soffit 5.14
Soffit 5.15
Soffit 5.16
Soffit 5.17
Soffit 5.18
Soffit 5.19
Soffit 5.20
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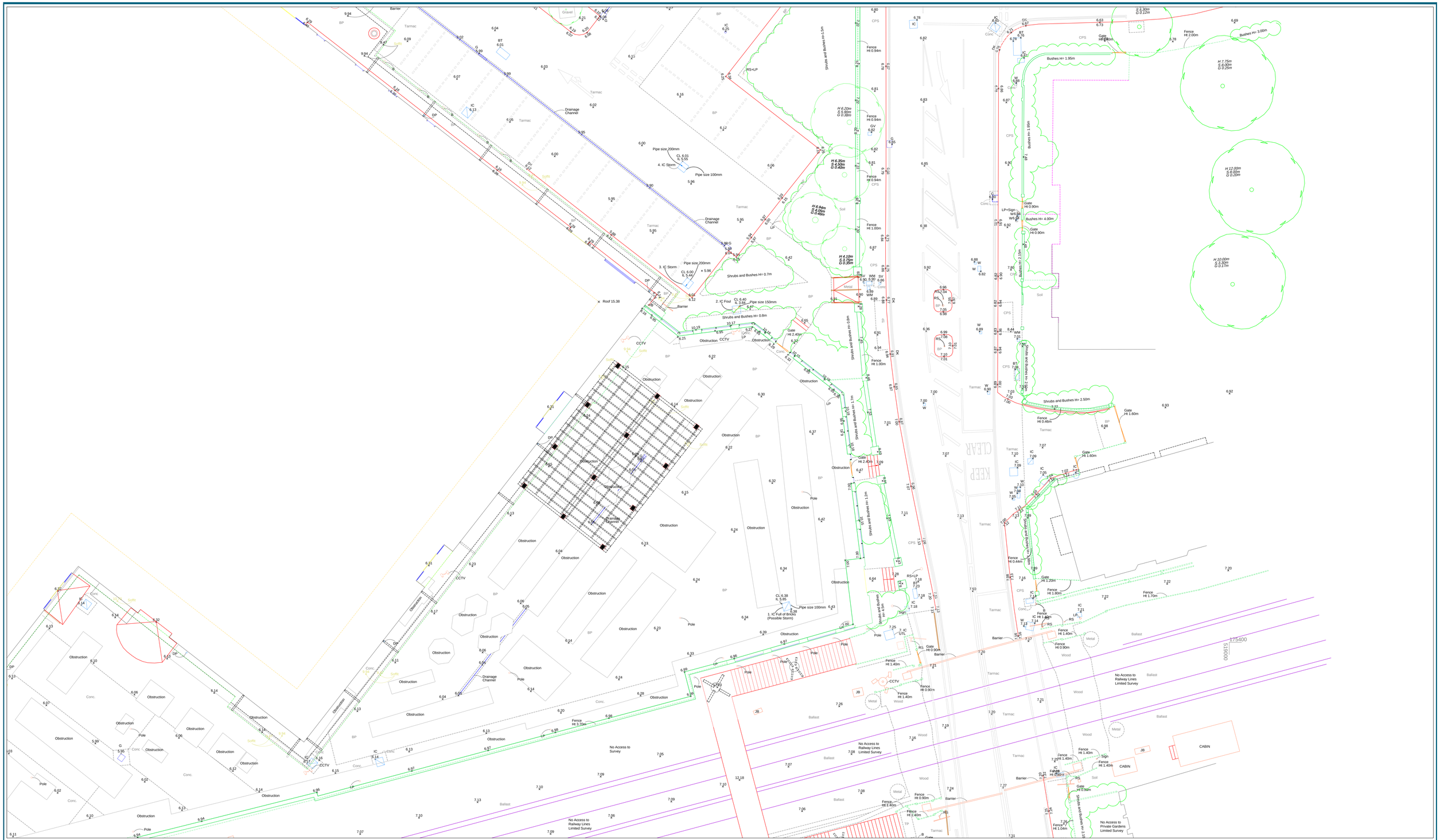
Soffit 5.26
Soffit



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W	Water Inspection Cover
WM	Water Meter

Indicative

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 7

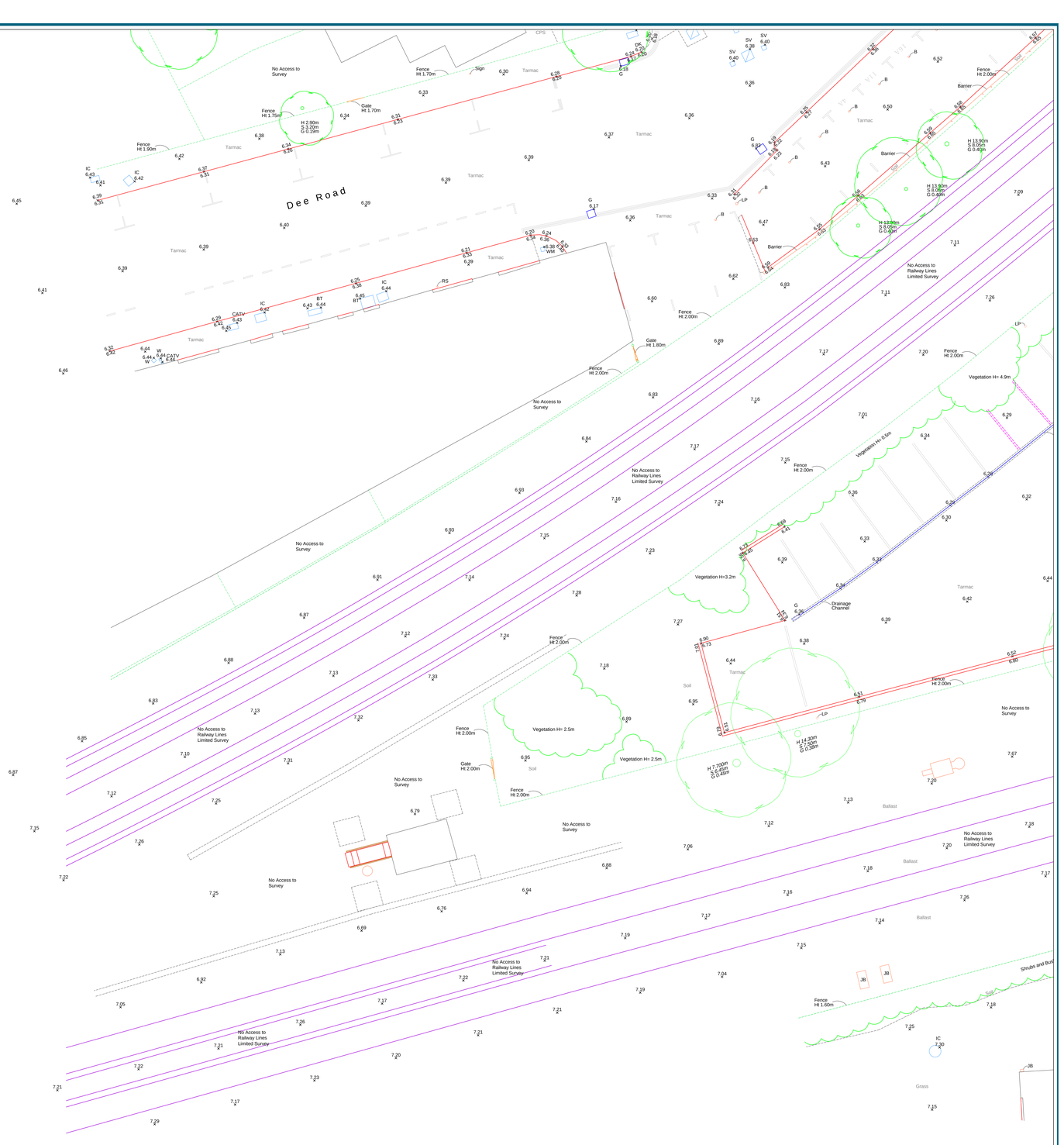
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/07RevA**



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STN03 - 518969.606, 175528.346, 6.724

Key:

A / C	Air Conditioning Unit	PO	Post
B	Bollard	RL	Ridge Level
BP	Brick Paving	SRFC	Surface Change
BT	BT Inspection Cover	S / O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
CPS	Concrete Paving Slab	TCB	Telephone Call Box
DK	Dropped Kerb	TP	TacCPS Paving
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PB	Post Box		
PL	Pavement Light		

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 8

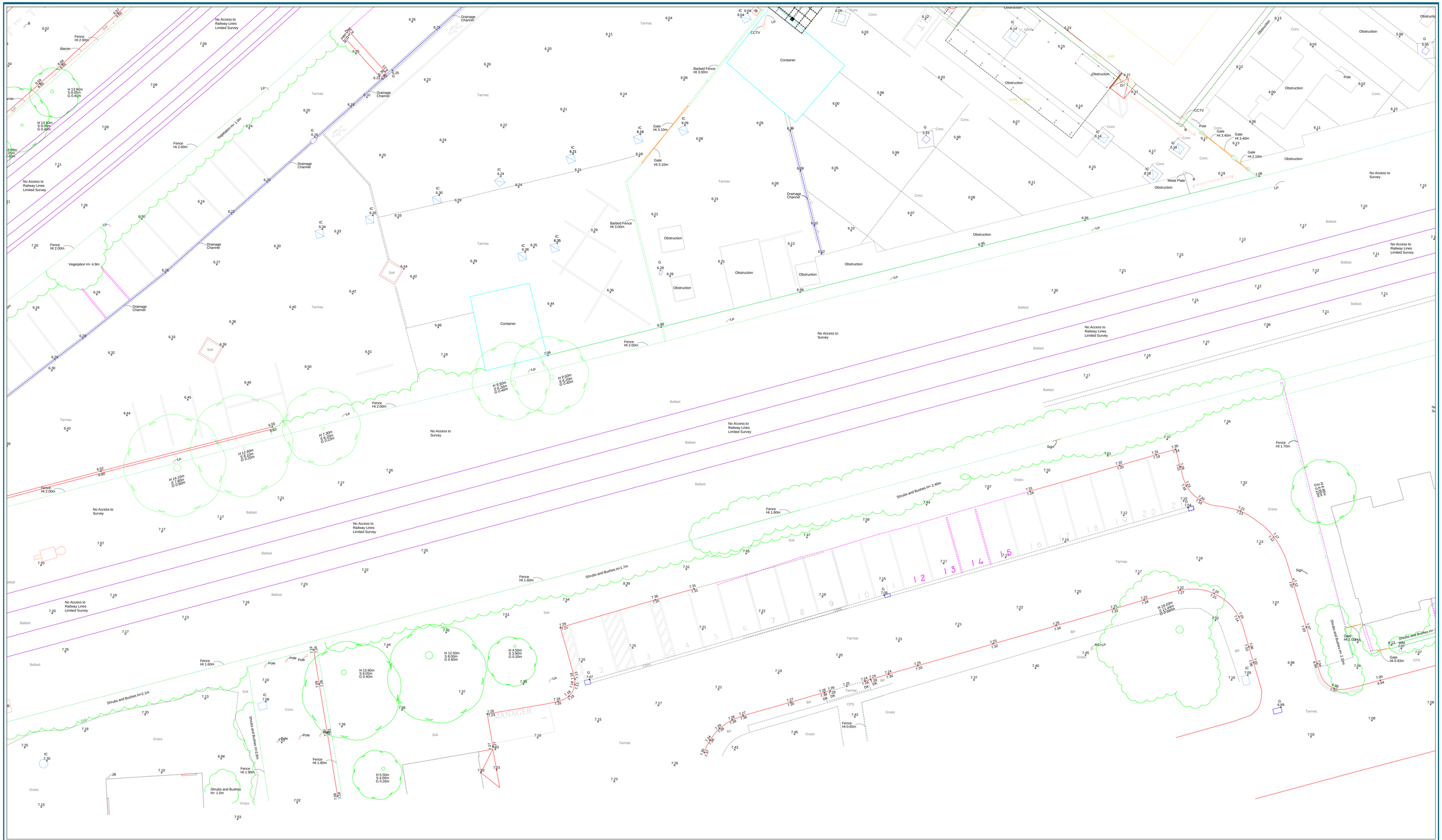
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/08RevA**



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	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 9

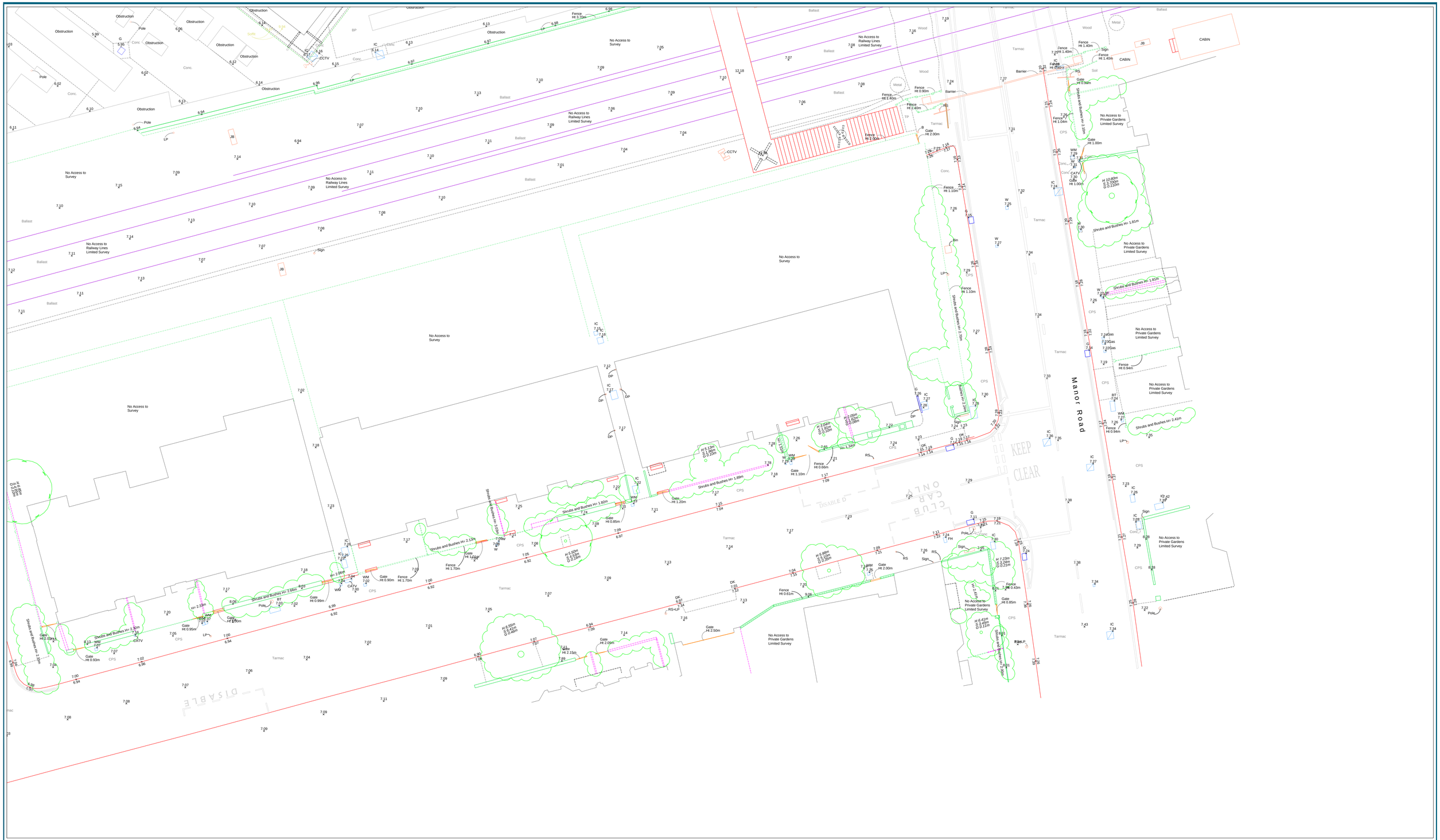
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/09RevA**



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W	Water Inspection Cover
WM	Water Meter

Indicates North

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 10

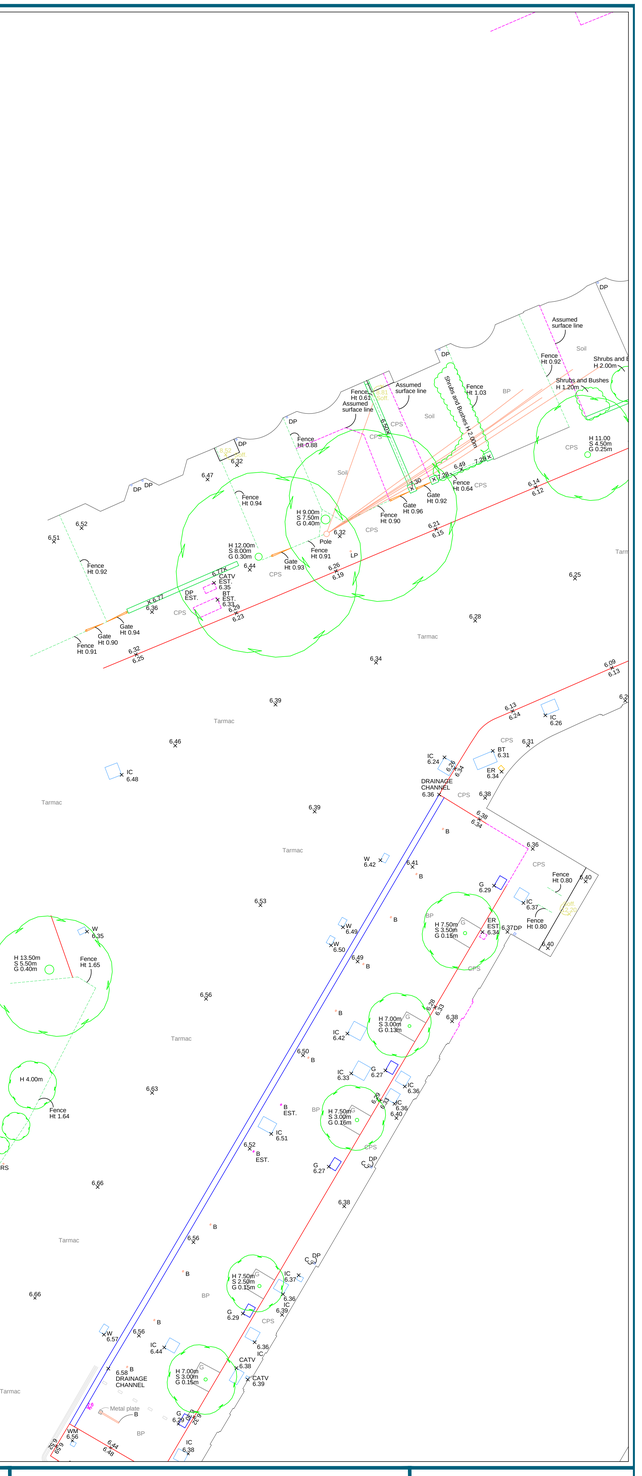
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/10RevA**



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		S13
	S11	S12
	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 11

RevB: Additional Area Added to Plan

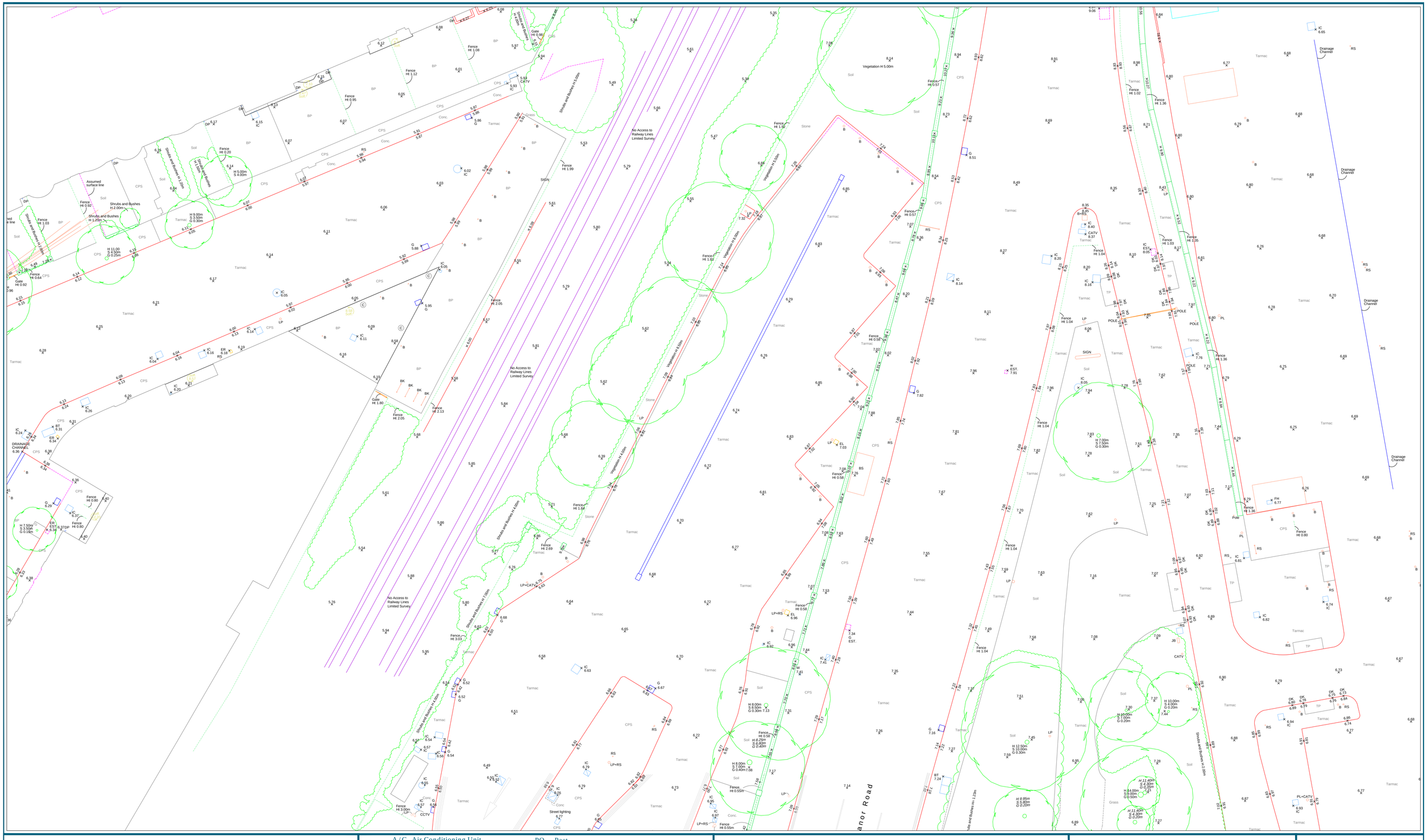
Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: LS2024/T/11RevA



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		S13
S11	S12	
S1	S2	
S3	S4	
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey
Sheet 12

RevB: Additional Area Added to Plan

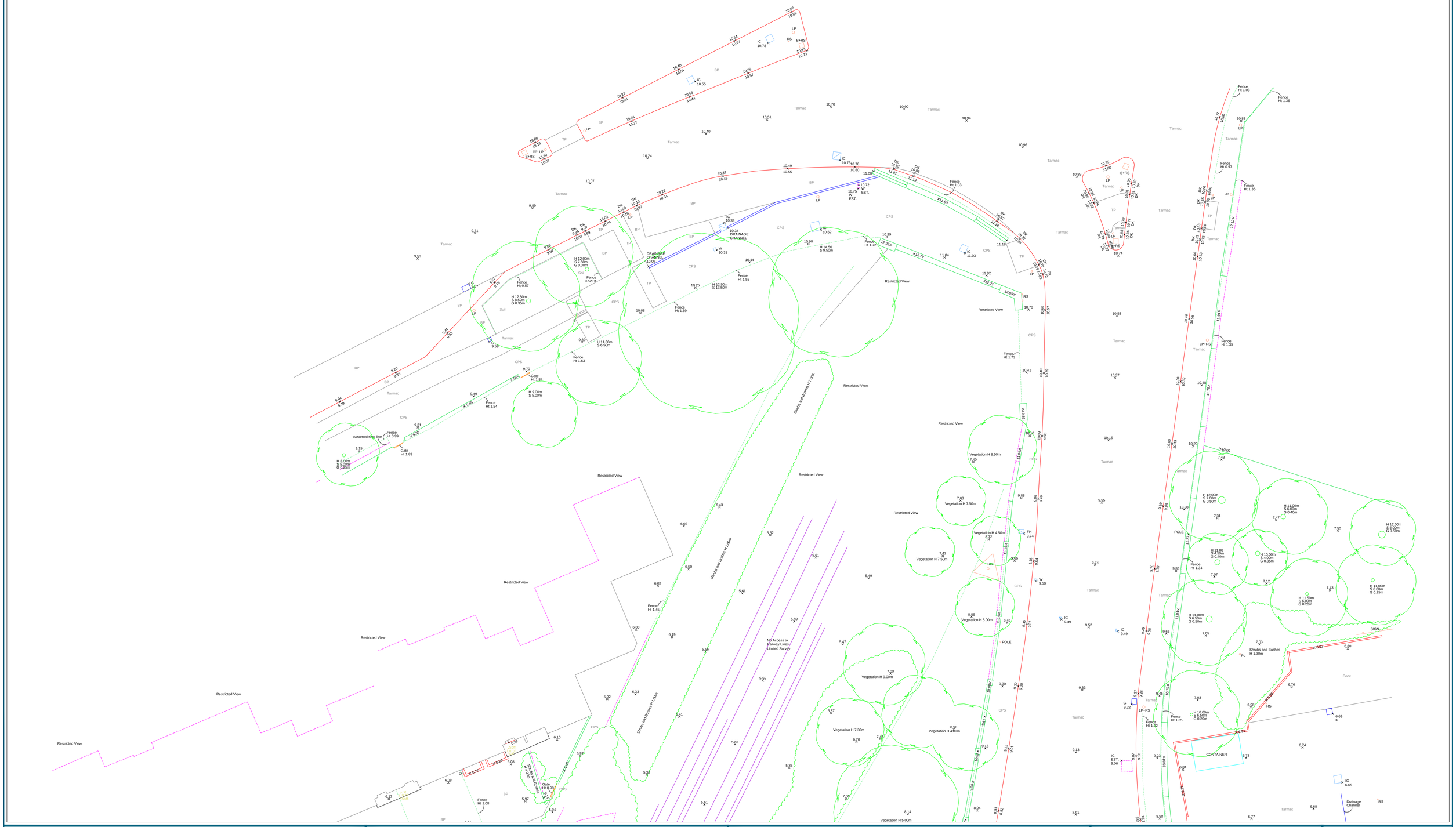
Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/12RevA**

Point 2 Surveyors Ltd,
3rd Floor,
17 Slingsby Place,
London WC2E 9AB,
0207 836 5828
www.point2surveyors.com


Tarmac
CPS
BP
TP
LP
Soil
Restricted View
Restricted View
Restricted View

APPENDIX G

Principles of Geo-Environmental Risk Assessment

Principles of Environmental Risk Assessment

The Environmental Protection Act 1990, Part II A Contaminated Land (Section 57 of the Environment Act 1995) and the Contaminated Land Regulations 2006 (and 2012 amendments) provide a basis on which to determine the risks and liabilities presented by a contaminated site. Contaminated Land is defined within Section 78A(2) of the Environmental Protection Act 1990, Part II A Contaminated Land (by commencement of Section 86 of The Water Act 2003 [Commencement Order No. 11] Order 2012) as:

"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that-

(a) Significant harm is being caused or there is significant possibility of such harm being caused; or

(b) Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused."

Section 57 of the Environment Act 1995 requires that any site identified as being "contaminated" by the Local Authority will be registered by them and remediation will be required to render the site fit for use.

The presence of contamination is not the sole factor for deciding whether a site is contaminated. Relevant parties should identify site-specific risks and provide objective, cost-effective methods to manage the contamination in a manner which satisfies the proposed end-use.

A risk-based approach, which takes both technical and non-technical aspects into consideration when making decisions on contamination resulting from past, present or future human activities, is advocated. The assessment of environmental risks generally relies on the identification of three principal elements forming a 'pollutant or contaminant linkage':

Source: the contaminant

Pathway: the route through which the contaminant can migrate, and

Receptor: all human, animal, plant, controlled water or property that may be adversely affected (harmed) by the contaminant

In the absence of one of these elements, on a given site, there is no risk. Where all three elements are present, risk assessment is required to determine the significance of the harm or pollution that is being or may be caused. As outlined above, the terms of the Contaminated Land regime specify that remediation need only be implemented where a site is causing, or there is a significant possibility that it will cause, significant harm, or that pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused.

Development of contaminated land is usually addressed through the application of planning and development legislation and guidance (i.e. NPPF). The suitable for use approach is regarded as the most appropriate basis to deal with contaminated land, taking account of environmental, social and economic objectives. The assessment is made in the context of the proposed land use.

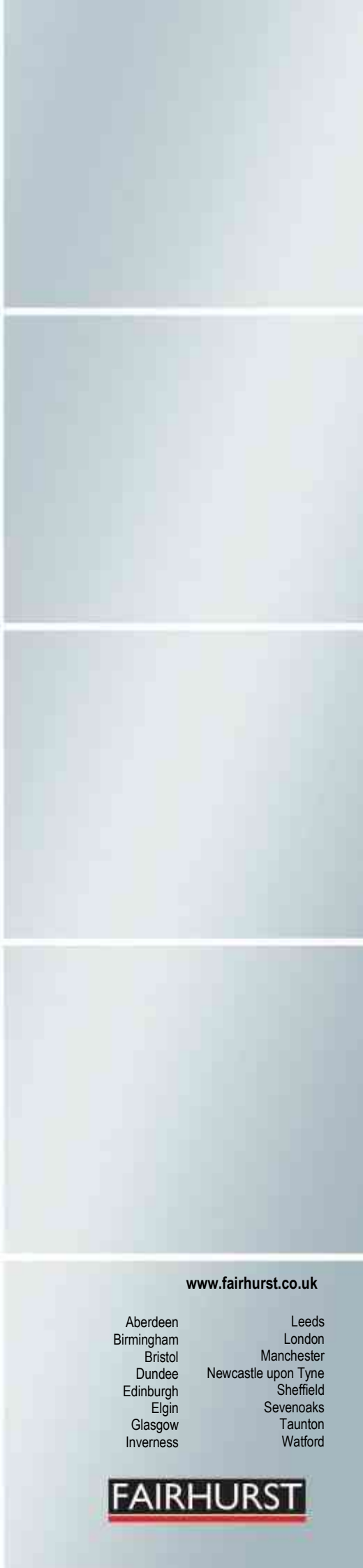
Risk Classification Matrix

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High (Hi)	Very high risk	High Risk	Moderate Risk	Moderate/low risk
	Likely (Li)	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood (Lw)	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely (Ul)	Moderate/low risk	Low risk	Very low risk	Very low risk

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Classification of Consequence

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of such ecosystem (note: the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health ("significant harm" as defined in DETR, 2000). Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem or organism forming part of such ecosystem, (note: the definitions of ecological systems within Draft Circular on Contaminated Land, DETR, 2000).	Concentration of a contaminant from site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve. Lesser toxic and asphyxiate effects of carbon dioxide
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ("significant harm" as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discoloration of concrete.



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A.3 Thames Water Correspondence

- Sewer asset records
- Surface water flooding property history
- Preplanning enquiry (foul water)

Asset location search

Property Searches

Fairhurst GGA
Fairhurst GGA Fairhurst GGA

LONDON
SE1 9EA

Search address supplied Manor Road
Richmond
TW9 1YB

Your reference 126782

Our reference ALS/ALS Standard/2018_3818642

Search date 19 June 2018

Keeping you up-to-date

Knowledge of features below the surface is essential in every development. The benefits of this not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility for any commercial or residential project.

An asset location search provides information on the location of known Thames Water clean and/or wastewater assets, including details of pipe sizes, direction of flow and depth. Please note that information on cover and invert levels will only be provided where the data is available.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

searchcode

Asset location search

Property Searches

Search address supplied: Manor Road, Richmond, TW9 1YB

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

The following quartiles have been printed as they fall within Thames' sewerage area:

TQ1875SE
TQ1975NW
TQ1975SW
TQ1875NE

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

The following quartiles have been printed as they fall within Thames' water area:

TQ1875SE
TQ1975NW

Asset location search

Thames Water Property Searches

TQ1975SW
TQ1875NE

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

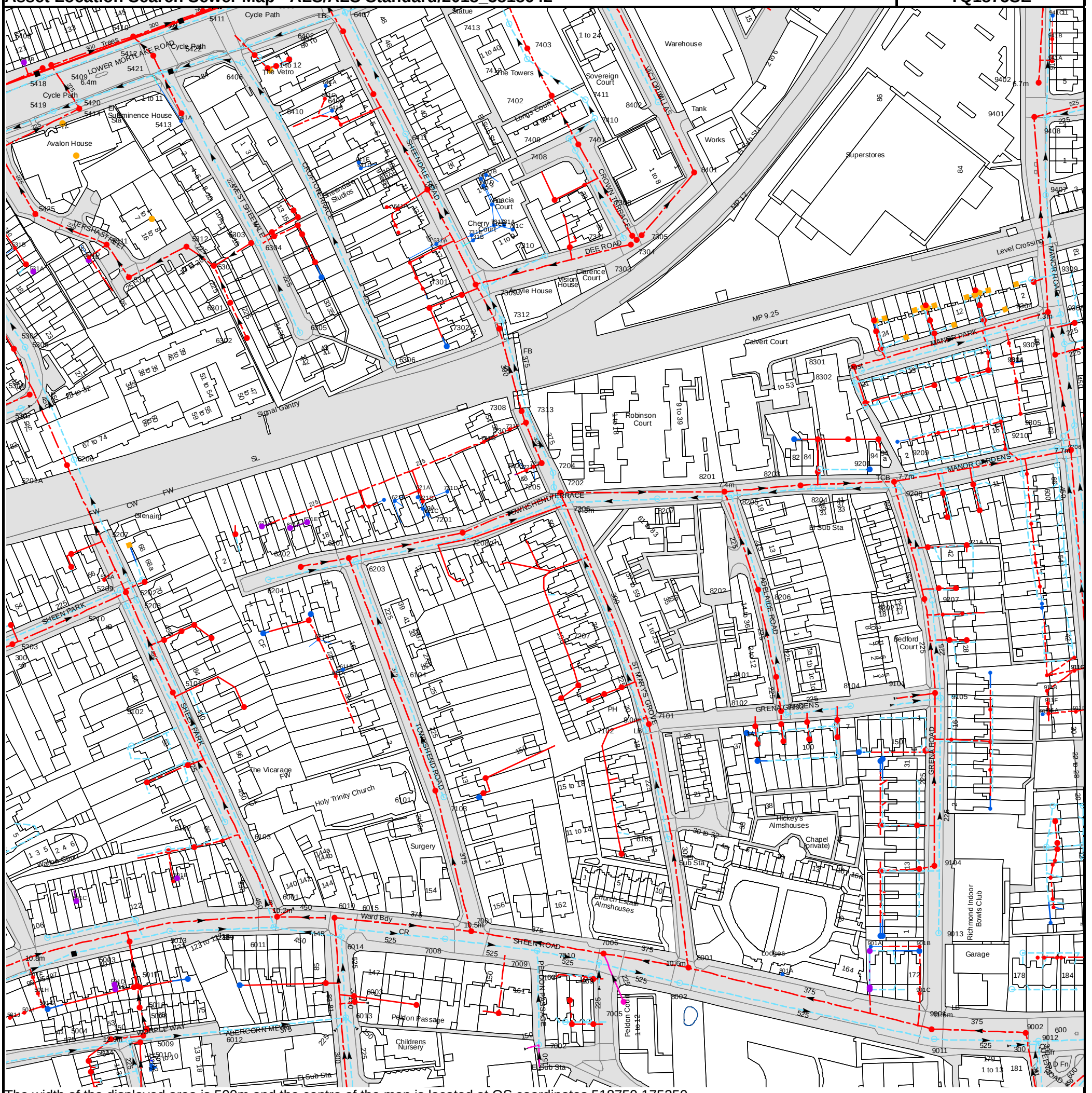
Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2018_3818642

TQ1875SE



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 518750,175250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
90YQ	n/a	n/a
91QS	n/a	n/a
91SP	n/a	n/a
91QZ	n/a	n/a
93RT	n/a	n/a
93YZ	n/a	n/a
93ZT	n/a	n/a
92ZQ	n/a	n/a
93GY	n/a	n/a
93FZ	n/a	n/a
92EV	n/a	n/a
92PV	n/a	n/a
92PW	n/a	n/a
92PX	n/a	n/a
92PY	n/a	n/a
92RS	n/a	n/a
92PZ	n/a	n/a
9210	7.62	6.45
92AA	n/a	n/a
9305	n/a	n/a
9206	7.8	3.86
9306	7.68	6.33
9012	12.07	7.88
9011	11.61	8.09
9002	12.05	8.99
9001	11.58	8.1
90XT	n/a	n/a
90TR	n/a	n/a
90ZW	n/a	n/a
90YS	n/a	n/a
n/a	n/a	n/a
90YR	n/a	n/a
90TZ	n/a	n/a
91XV	n/a	n/a
90ZT	n/a	n/a
91VT	n/a	n/a
91WX	n/a	n/a
90ZY	n/a	n/a
91ZL	n/a	n/a
91VS	n/a	n/a
91XT	n/a	n/a
90VQ	n/a	n/a
9104	9.95	7.31
9013	10.38	8.72
91ZR	n/a	n/a
90YP	n/a	n/a
91SQ	n/a	n/a
90WT	n/a	n/a
90WV	n/a	n/a
91RV	n/a	n/a
90WW	n/a	n/a
91SV	n/a	n/a
91ST	n/a	n/a
91RY	n/a	n/a
91SS	n/a	n/a
91RX	n/a	n/a
8301	6.98	5.31
931A	n/a	n/a
9301	7.4	3.79
93SW	n/a	n/a
93XY	n/a	n/a
93YR	n/a	n/a
93RR	n/a	n/a
9307	7.25	n/a
93IW	n/a	n/a
93XS	n/a	n/a
93WZ	n/a	n/a
93XZ	n/a	n/a
93AB	n/a	n/a
93TY	n/a	n/a
93XP	n/a	n/a
93VW	n/a	n/a
93YP	n/a	n/a
9308	n/a	n/a
9304	7.34	3.71
93XQ	n/a	n/a
93TZ	n/a	n/a
93VP	n/a	n/a
93TP	n/a	n/a
93TR	n/a	n/a
81WX	n/a	n/a
8104	8.59	6.27
81ZX	n/a	n/a
91VY	n/a	n/a
91WZ	n/a	n/a
91SZ	n/a	n/a
91TX	n/a	n/a
9101	8.82	7.07
9105	8.77	6.72
92WS	n/a	n/a
92WY	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
91ZT	n/a	n/a
92WT	n/a	n/a
92XQ	n/a	n/a
91ZY	n/a	n/a
91ZP	n/a	n/a
91ZN	n/a	n/a
91ZW	n/a	n/a
91YY	n/a	n/a
91PS	n/a	n/a
9309	7.25	5.5
9407	6.58	5.23
9408	6.75	5.17
9401	6.65	1.26
9402	6.5	4.15
941A	n/a	n/a
941B	n/a	n/a
941C	n/a	n/a
901C	n/a	n/a
901A	n/a	n/a
901B	n/a	n/a
90WX	n/a	n/a
911E	n/a	n/a
911A	n/a	n/a
911D	n/a	n/a
911F	n/a	n/a
911B	n/a	n/a
91PW	n/a	n/a
911G	n/a	n/a
911C	n/a	n/a
9207	8.19	6.23
9202	8.11	6.9
92VZ	n/a	n/a
92VY	n/a	n/a
92VT	n/a	n/a
92VV	n/a	n/a
921A	n/a	n/a
92SY	n/a	n/a
92TQ	n/a	n/a
92SX	n/a	n/a
9208	7.63	5.59
83ZY	n/a	n/a
83ZQ	n/a	n/a
8302	6.98	6.13
83ZT	n/a	n/a
83ZR	n/a	n/a
92ZS	n/a	n/a
93ZY	n/a	n/a
9201	7.65	4.2
92ZR	n/a	n/a
9209	7.61	6.79
93ST	n/a	n/a
93ZW	n/a	n/a
93SY	n/a	n/a
92TP	n/a	n/a
93ZV	n/a	n/a
93SX	n/a	n/a
801A	n/a	n/a
7102	8.1	5.94
7101	8.06	6.31
8207	7.26	4.06
8201	7.33	4.33
8205	7.35	5.09
81ZP	n/a	n/a
81XW	n/a	n/a
81ZV	n/a	n/a
81XX	n/a	n/a
8202	7.81	5.73
8206	7.92	5.95
8101	8.18	6.12
81XS	n/a	n/a
8102	8.38	6.69
81XT	n/a	n/a
8103	8.4	6.27
83ZW	n/a	n/a
8203	n/a	n/a
81XP	n/a	n/a
81XQ	n/a	n/a
8204	7.37	5.41
83ZX	n/a	n/a
82ZT	n/a	n/a
82ZQ	n/a	n/a
81ZR	n/a	n/a
81WY	n/a	n/a
81ZS	n/a	n/a
7303	6.33	5.06
7306	6.32	5.05
7304	6.34	5.12
7305	6.32	5.14
8402	6.16	4.54
8401	6.19	4.82
73ZS	n/a	n/a
73ZQ	n/a	n/a
721D	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
73YZ	n/a	n/a
731E	n/a	n/a
731B	n/a	n/a
7301	6.57	4.66
731G	n/a	n/a
7309	7.97	4.49
731D	n/a	n/a
7302	7.21	4.81
7312	6.76	4.49
731A	n/a	n/a
731F	n/a	n/a
731C	n/a	n/a
7308	6.81	5.23
7307	6.86	5.28
721A	n/a	n/a
7313	6.78	4.55
721C	n/a	n/a
7203	7	5.51
7310	6.25	5
7204	6.91	4.72
7205	7.05	4.74
7202	7.11	4.54
73ZY	n/a	n/a
7311	6.26	4.79
60ZT	n/a	n/a
6101	8.29	5.62
7103	8.41	6.79
7008	10.51	n/a
7001	10.5	6.01
71YW	n/a	n/a
71YV	n/a	n/a
71YS	n/a	n/a
70ZX	n/a	n/a
7009	10.69	8.29
7002	12.35	10.89
70ZR	n/a	n/a
70YY	n/a	n/a
70YX	n/a	n/a
70ZP	n/a	n/a
70XX	n/a	n/a
70YW	n/a	n/a
70YQ	n/a	n/a
7010	10.61	8.25
7006	10.55	7.05
71ZQ	n/a	n/a
7005	11.32	10.06
8105	9.01	6.71
8002	10.6	8.11
8001	10.53	7.38
62ZX	n/a	n/a
62ZS	n/a	n/a
62ZQ	n/a	n/a
621B	n/a	n/a
6104	7.42	5.69
621D	n/a	n/a
6205	n/a	n/a
621C	n/a	n/a
7201	7.11	4.12
7208	7.17	5.04
7206	7.19	4.18
71ZY	n/a	n/a
71ZX	n/a	n/a
71ZV	n/a	n/a
71ZT	n/a	n/a
7207	7.62	5.66
71ZS	n/a	n/a
64ZX	n/a	n/a
6402	6.3	5.98
6407	6.44	3.95
641E	n/a	n/a
641D	n/a	n/a
64ZW	n/a	n/a
6404	6.34	4.16
6411	6.41	4.28
6405	6.46	4.41
741A	n/a	n/a
741D	n/a	n/a
741B	n/a	n/a
741E	n/a	n/a
7413	6.35	4.24
7412	6.3	4.39
7403	6.3	4.55
7402	6.25	4.75
74ZX	n/a	n/a
7409	6.32	4.57
7408	6.19	4.59
7401	6.18	4.83
74ZW	n/a	n/a
7411	6.52	4.48
7410	6.49	4.53
5301	6.94	4.35
6301	6.9	4.77
6302	6.87	5.04

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6303	6.9	4.48
6304	6.85	4.84
63ZT	n/a	n/a
63YY	n/a	n/a
64WP	n/a	n/a
63YZ	n/a	n/a
64VZ	n/a	n/a
6305	6.96	5.44
63ZP	n/a	n/a
63ZQ	n/a	n/a
63ZR	n/a	n/a
62ZV	n/a	n/a
6412	n/a	n/a
6306	6.73	5.53
6308	n/a	n/a
641F	n/a	n/a
6307	n/a	n/a
63ZW	n/a	n/a
63ZX	n/a	n/a
62YP	n/a	n/a
621A	n/a	n/a
63ZY	n/a	n/a
63ZV	n/a	n/a
631A	n/a	n/a
61ZV	n/a	n/a
611A	n/a	n/a
611B	n/a	n/a
621H	n/a	n/a
52YV	n/a	n/a
62XZ	n/a	n/a
62XX	n/a	n/a
62XW	n/a	n/a
6204	7.06	5.53
6202	7.01	5.19
6203	7.19	5.26
6201	7.09	4.95
62YZ	n/a	n/a
621F	n/a	n/a
621G	n/a	n/a
621E	n/a	n/a
501E	n/a	n/a
50XY	n/a	n/a
50YS	n/a	n/a
5011	n/a	n/a
60ZY	n/a	n/a
501D	n/a	n/a
60ZW	n/a	n/a
50YP	n/a	n/a
5003	10.32	7.93
6014	10.31	8.48
5013	12.92	10.65
6015	10.24	8.31
6011	10.03	6.45
50XP	n/a	n/a
6010	10.15	6.49
6001	10	5.98
501C	n/a	n/a
501A	n/a	n/a
501B	n/a	n/a
51ZR	n/a	n/a
51YY	n/a	n/a
51YX	n/a	n/a
51ZQ	n/a	n/a
6103	8.74	6.16
61ZP	n/a	n/a
6102	8.41	6.97
51WV	n/a	n/a
50ZR	n/a	n/a
50ZW	n/a	n/a
5004	12.81	11.72
5014	12.82	10.69
5012	n/a	n/a
5010	n/a	n/a
5009	12.8	11.73
5008	12.77	11.49
6012	12.95	10.65
6013	12.27	10.34
60ZS	n/a	n/a
6003	11.8	8.93
531B	n/a	n/a
541B	n/a	n/a
53ZY	n/a	n/a
5425	6.57	3.675

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Asset Location Search Sewer Map - ALS/ALS Standard/2018_3818642

TQ1975NW

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 519250,175750

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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
4705	6.05	4.6
4711	5.98	3.8
48ZY	n/a	n/a
4905	6.12	4.77
4901	6.16	5.37
4803	6.22	5.28
4902	6.14	5.12
491D	n/a	n/a
481E	n/a	n/a
491B	n/a	n/a
481F	n/a	n/a
491C	n/a	n/a
491A	n/a	n/a
4807	6.13	5.16
4802	6.11	5.02
4805	6.19	4.67
4804	6.33	4.73
4801	6.33	5.37
4903	6.12	4.83
4904	6.11	4.46
3703	6.1	5.26
3708	6.28	2.93
3704	6.41	3.08
3706	6.11	4.9
37ZX	n/a	n/a
47ZX	n/a	n/a
47ZV	n/a	n/a
4703	6	4.38
47YZ	n/a	n/a
4708	6.02	4.18
4701	n/a	-4.66
47YY	n/a	n/a
47YX	n/a	n/a
4707	5.77	n/a
4706	5.95	3.86
2506	6.38	5.16
2514	6.41	2.59
3501	6.37	3.84
35YQ	n/a	n/a
35YX	n/a	n/a
35YR	n/a	n/a
35YY	n/a	n/a
35YZ	n/a	n/a
35YS	n/a	n/a
35ZP	n/a	n/a
35YT	n/a	n/a
35ZQ	n/a	n/a
35ZY	n/a	n/a
35YP	n/a	n/a
35XZ	n/a	n/a
35ZX	n/a	n/a
35XY	n/a	n/a
35ZW	n/a	n/a
35ZV	n/a	n/a
35ZT	n/a	n/a
35XX	n/a	n/a
35XW	n/a	n/a
2516	n/a	n/a
2511	6.26	4.43
0507	n/a	5.09
2515	n/a	n/a
2512	6.31	4.34
0508	n/a	5.04
39WP	n/a	n/a
0901A	6.45	4.59
39VX	n/a	n/a
39YX	n/a	n/a
39ZS	n/a	n/a
39YR	n/a	n/a
391A	n/a	n/a
39YZ	n/a	n/a
39YV	n/a	n/a
39XP	n/a	n/a
39YT	n/a	n/a
39XV	n/a	n/a
39WQ	n/a	n/a
39ZQ	n/a	n/a
39XR	n/a	n/a
39ZP	n/a	n/a
39XS	n/a	n/a
39WS	n/a	n/a
3801	6.27	5.33
3806	6.22	4.88
481A	n/a	n/a
481D	n/a	n/a
4806	6.2	4.98
481C	n/a	n/a
481B	n/a	n/a
0805	6.37	3.53
0903	6.28	4.76

Manhole Reference	Manhole Cover Level	Manhole Invert Level
0902	6.33	4.8
0906	6.35	3.61
08ZY	n/a	n/a
08WV	n/a	n/a
0907	6.41	3.72
09ZY	n/a	n/a
09ZW	n/a	n/a
08ZW	n/a	n/a
18WP	n/a	n/a
191D	n/a	n/a
18VW	n/a	n/a
191C	n/a	n/a
18VR	n/a	n/a
19ZX	n/a	n/a
18QX	n/a	n/a
18TY	n/a	n/a
19ZR	n/a	n/a
18RY	n/a	n/a
18YV	n/a	n/a
19WZ	n/a	n/a
19ZY	n/a	n/a
18TW	n/a	n/a
18VT	n/a	n/a
191G	n/a	n/a
1806	6.36	4.05
18WV	n/a	n/a
18WX	n/a	n/a
18ZP	n/a	n/a
181A	n/a	n/a
18YY	n/a	n/a
18ZS	n/a	n/a
18ZR	n/a	n/a
1803	6.33	4.65
1801	n/a	-5.11
1805	6.36	3.83
1804	6.33	4.96
19YS	n/a	n/a
19YQ	n/a	n/a
1906	6.4	3.97
19YP	n/a	n/a
19XT	n/a	n/a
19XS	n/a	n/a
19WX	n/a	n/a
19ZV	n/a	n/a
19VV	n/a	n/a
19VT	n/a	n/a
19VW	n/a	n/a
191F	n/a	n/a
191E	n/a	n/a
19VX	n/a	n/a
1904	6.88	4.85
1901	n/a	-5.16
1903	6.72	5.39
2801	6.23	5.26
28YY	n/a	n/a
28QS	n/a	n/a
38XY	n/a	n/a
38XW	n/a	n/a
38YQ	n/a	n/a
38XQ	n/a	n/a
38XS	n/a	n/a
38ZV	n/a	n/a
38YS	n/a	n/a
381A	n/a	n/a
38ZP	n/a	n/a
38ZY	n/a	n/a
3902	6.38	5.11
3901	6.42	4.67
3803	6.49	5.4
3807	6.47	4.51
39YQ	n/a	n/a
3802	6.48	4.86
3804	6.46	4.83
3805	6.35	4.95
391B	n/a	n/a
39WZ	n/a	n/a
39XY	n/a	n/a
39VT	n/a	n/a
39WW	n/a	n/a
38VV	n/a	n/a
19VZ	n/a	n/a
28ZX	n/a	n/a
28SW	n/a	n/a
29ZX	n/a	n/a
29SS	n/a	n/a
28SV	n/a	n/a
28ZW	n/a	n/a
29ZW	n/a	n/a
28TQ	n/a	n/a
28ZR	n/a	n/a
29ZS	n/a	n/a
29ZV	n/a	n/a
2805	6.34	4.51

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2804	6.32	5.16
2809	6.35	4.19
291A	n/a	n/a
2810	6.29	4.28
281B	n/a	n/a
2901	6.58	5.47
2902	6.65	5.07
2803	6.38	4.34
2802	6.33	5.23
28XZ	n/a	n/a
2807	6.33	4.96
28YP	n/a	n/a
28YW	n/a	n/a
28QR	n/a	n/a
17WZ	n/a	n/a
17WP	n/a	n/a
17XP	n/a	n/a
17VS	n/a	n/a
07ZX	n/a	n/a
07ZP	n/a	n/a
07ZW	n/a	n/a
07YZ	n/a	n/a
0706	6.89	3.18
17VV	n/a	n/a
17WX	n/a	n/a
07ZS	n/a	n/a
07ZY	n/a	n/a
18RV	n/a	n/a
081E	n/a	n/a
08YP	n/a	n/a
18SR	n/a	n/a
08ZQ	n/a	n/a
18SQ	n/a	n/a
18RR	n/a	n/a
08ZS	n/a	n/a
08YW	n/a	n/a
081B	n/a	n/a
0801	6.52	5.51
08YV	n/a	n/a
18RW	n/a	n/a
0804	6.52	3.37
08ZT	n/a	n/a
1703	6.62	4.51
18RQ	n/a	n/a
18SP	n/a	n/a
1802	6.36	5.24
1701	n/a	-5.05
1807	6.37	4.23
18PS	n/a	n/a
18CX	n/a	n/a
17SW	n/a	n/a
17RS	n/a	n/a
17QQ	n/a	n/a
17SS	n/a	n/a
18PT	n/a	n/a
18BZ	n/a	n/a
18PR	n/a	n/a
18DS	n/a	n/a
17XZ	n/a	n/a
17YP	n/a	n/a
17ZV	n/a	n/a
17YR	n/a	n/a
17XX	n/a	n/a
17XV	n/a	n/a
18YQ	n/a	n/a
18XZ	n/a	n/a
18XY	n/a	n/a
18YP	n/a	n/a
18XV	n/a	n/a
0807	6.78	n/a
0802	6.41	5.07
0806	6.65	3.4
08WQ	n/a	n/a
081D	n/a	n/a
08VZ	n/a	n/a
071A	n/a	n/a
0705	7.14	3.1
0702	7.15	5.72
3707	6.12	5.21
371A	n/a	n/a
37YT	n/a	n/a
37ZV	n/a	n/a
37ZW	n/a	n/a
37ZT	n/a	n/a
37ZQ	n/a	n/a
27TZ	n/a	n/a
37YV	n/a	n/a
37YY	n/a	n/a
37YZ	n/a	n/a
37YQ	n/a	n/a
37YX	n/a	n/a
38VQ	n/a	n/a
38WW	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
38WZ	n/a	n/a
38WY	n/a	n/a
3808	6.25	4.88
38VZ	n/a	n/a
28RP	n/a	n/a
38WT	n/a	n/a
38WR	n/a	n/a
38WS	n/a	n/a
28QX	n/a	n/a
28TZ	n/a	n/a
28QV	n/a	n/a
38ZW	n/a	n/a
38ZQ	n/a	n/a
18XS	n/a	n/a
18XR	n/a	n/a
18XW	n/a	n/a
17ZY	n/a	n/a
28TY	n/a	n/a
28WQ	n/a	n/a
2702	6.52	5.45
28WS	n/a	n/a
28WZ	n/a	n/a
28TX	n/a	n/a
28WP	n/a	n/a
2806	6.39	5.27
2811	6.44	4.43
27WW	n/a	n/a
27XW	n/a	n/a
27XY	n/a	n/a
27XQ	n/a	n/a
27VW	n/a	n/a
27WR	n/a	n/a
27WP	n/a	n/a
281A	n/a	n/a
27VQ	n/a	n/a
2703	6.28	4.07
2808	6.35	4.42
28QZ	n/a	n/a
28PZ	n/a	n/a
27TX	n/a	n/a
3705	6.01	3.14
3602	5.84	3.53
3601	5.81	3.37
361C	n/a	n/a
3709	6.12	4.65
361D	n/a	n/a
361B	n/a	n/a
461I	n/a	n/a
4704	6.11	4.76
4709	6.13	4.75
461H	n/a	n/a
461J	n/a	n/a
4601	5.69	3.93
4602	5.69	3.45
461L	n/a	n/a
461K	n/a	n/a
461B	n/a	n/a
461C	n/a	n/a
4710	6.07	4.45
2608	6.07	2.36
2605	6.08	4.51
361A	n/a	n/a
2602	6.27	4.06
2606	6.2	4.43
261A	n/a	n/a
261B	n/a	n/a
2603	6.39	3.84
2607	6.42	2.79
2604	6.43	3.61
2601	n/a	-4.42
3701	n/a	-4.54
2707	n/a	n/a
2704	n/a	n/a
2701	n/a	n/a
27WY	n/a	n/a
27XS	n/a	n/a
2705	n/a	n/a
27WZ	n/a	n/a
27XT	n/a	n/a
27WT	n/a	n/a
27VT	n/a	n/a
27VZ	n/a	n/a
27VS	n/a	n/a
27VY	n/a	n/a

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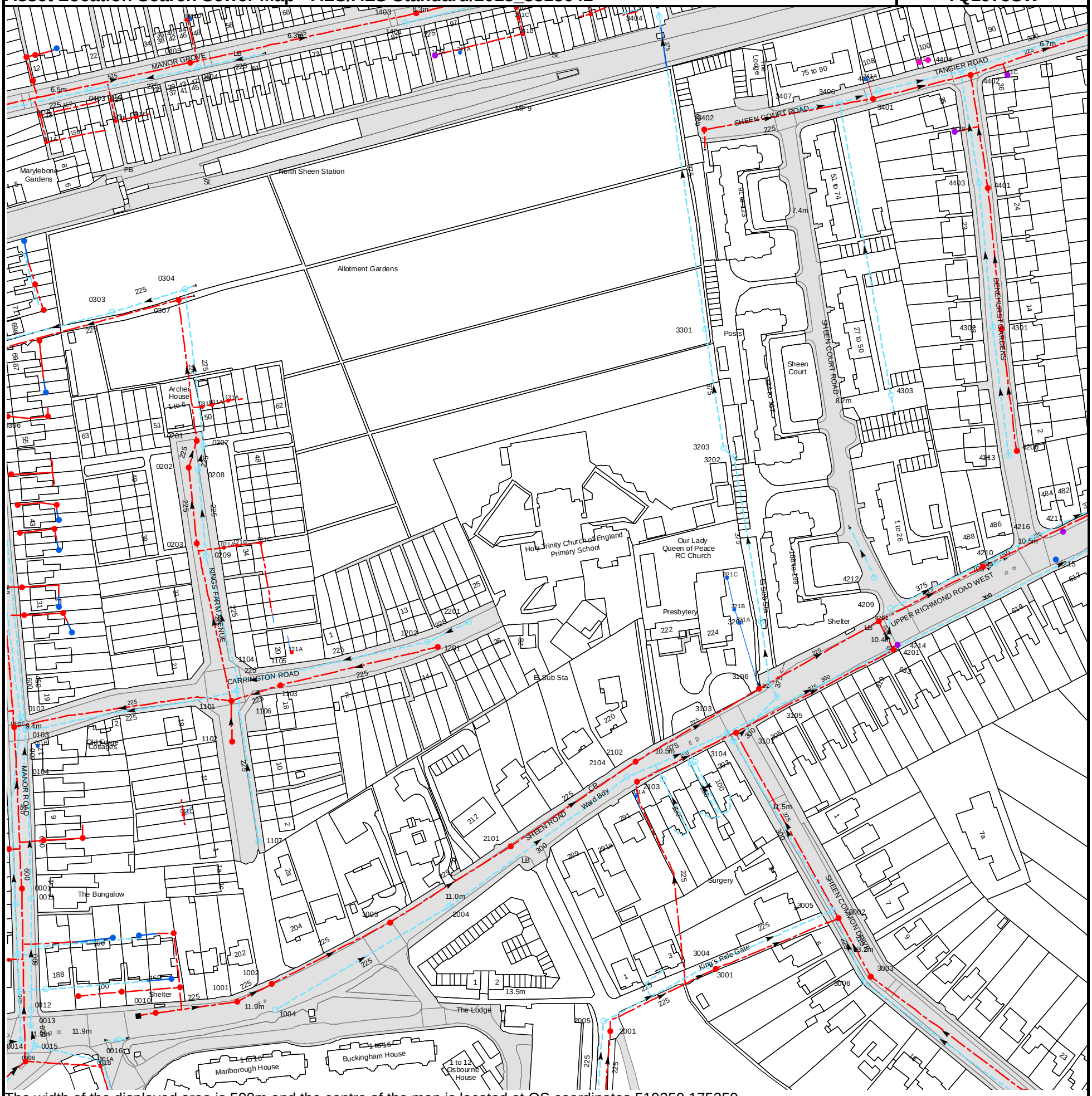
Asset Location Search Sewer Map - ALS/ALS Standard/2018_3818642

TQ1975SW



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 519250,175250

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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3005	12.69	9.59
3002	12.7	9.4
3006	13.66	11.73
3003	13.63	11.09
3106	10.44	7.55
3105	10.35	7.82
4212	9.74	7.91
4202	10.35	8.04
4208	10.46	8.53
4209	10.35	7.57
4303	n/a	n/a
4201	10.47	8.11
4214	n/a	n/a
4203	10.36	7.94
4210	10.25	8.91
4213	8.2	6.43
4206	8.14	6.56
4216	n/a	n/a
4215	n/a	n/a
4217	n/a	n/a
3404	n/a	n/a
3402	6.57	5.35
3301	n/a	n/a
3203	n/a	n/a
3202	n/a	n/a
0010	11.99	8.94
00YS	n/a	n/a
00XT	n/a	n/a
00XS	n/a	n/a
011C	n/a	n/a
1001	12.01	8.44
1107	n/a	n/a
1002	11.76	8.81
1004	12.14	11.15
1003	9.51	8.95
2004	10.89	9.51
2101	10.72	8.43
2005	12.94	10.22
2001	12.98	10.16
2104	10.34	8.95
211A	n/a	n/a
2103	10.53	9.36
31LL	n/a	n/a
3004	11.09	9.9
3001	11.85	9.82
02ZP	n/a	n/a
0208	7.76	6.19
0202	7.79	5.83
0207	7.66	6.15
0201	7.66	5.69
031B	n/a	n/a
031A	n/a	n/a
131A	n/a	n/a
0303	7.2	5.91
0307	7.22	4.17
0304	7.24	5.92
0403	6.38	5.47
0404	6.39	5.55
0405	6.38	3.24
141A	n/a	n/a
241A	n/a	n/a
241B	n/a	n/a
1401	6.26	5.49
041C	n/a	n/a
041D	n/a	n/a
241C	n/a	n/a
2401	n/a	n/a
1403	6.31	2.91
241D	n/a	n/a
02YV	n/a	n/a
02XZ	n/a	n/a
02XR	n/a	n/a
02XT	n/a	n/a
0203	8.18	5.95
0209	8.26	6.37
021A	n/a	n/a
1101	8.76	6.55
1102	9.11	7.17
121B	n/a	n/a
1106	8.73	7.22
1104	8.73	6.63
121C	n/a	n/a
1105	8.62	6.83
1103	8.56	6.79
121A	n/a	n/a
1202	8.36	7.05
1201	8.34	7.04
2201	8.44	7.17
2102	8.57	8.27
31ME	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
31ML	n/a	n/a
321C	n/a	n/a
3103	10.43	9.23
3104	10.51	9.24
321B	n/a	n/a
3101	10.44	8.69
321A	n/a	n/a
3102	10.37	8.09
3201	n/a	n/a
01ZY	n/a	n/a
00ZY	n/a	n/a
00ZP	n/a	n/a
00ZW	n/a	n/a
00ZT	n/a	n/a
0014	12.07	7.86
0001	10.68	7.2
0006	12.05	7.89
0013	11.91	10.16
0011	10.6	9.25
0012	11.76	10.1
0015	12.04	10.61
00YV	n/a	n/a
01YV	n/a	n/a
00YQ	n/a	n/a
00XQ	n/a	n/a
01YW	n/a	n/a
001B	n/a	n/a
001A	n/a	n/a
00XZ	n/a	n/a
0016	12.07	10.52
00XP	n/a	n/a
00XW	n/a	n/a
03YP	n/a	n/a
02ZT	n/a	n/a
02YW	n/a	n/a
02YR	n/a	n/a
02XW	n/a	n/a
03YX	n/a	n/a
03YR	n/a	n/a
02YS	n/a	n/a
02YY	n/a	n/a
03YV	n/a	n/a
03ZV	n/a	n/a
03ZW	n/a	n/a
0101	9.3	5.94
0102	9.21	7
0104	9.96	7.26
02XQ	n/a	n/a
0103	9.22	7.57
011B	n/a	n/a
041G	n/a	n/a
041F	n/a	n/a
041E	n/a	n/a
4301	7.06	5.48
4302	7.28	5.86
4401	6.77	5.15
4403	6.79	5.75
441B	n/a	n/a
3407	6.95	5.81
3406	6.82	5.68
3401	6.84	5.01
4405	6.82	5.68
341A	n/a	n/a
441C	n/a	n/a
4402	6.76	4.83
4404	6.78	5.48
441A	n/a	n/a
4406	n/a	n/a
03ZY	n/a	n/a
041A	n/a	n/a
041B	n/a	n/a
04ZT	n/a	n/a
04ZV	n/a	n/a
04ZW	n/a	n/a
04ZY	n/a	n/a

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Asset Location Search Sewer Map - ALS/ALS Standard/2018_3818642

TQ1875NE

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 518750,175750

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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
881C	n/a	n/a
881A	n/a	n/a
8801	6.71	5.05
8806	6.66	5.13
8807	6.57	4.89
981F	n/a	n/a
97ZX	n/a	n/a
9704	6.52	5.33
981B	n/a	n/a
9703	n/a	n/a
9709	n/a	n/a
97YX	n/a	n/a
97YV	n/a	n/a
981C	n/a	n/a
97YY	n/a	n/a
981A	n/a	n/a
981M	n/a	n/a
97YZ	n/a	n/a
9706	n/a	n/a
9705	n/a	n/a
9802	6.66	5.26
9501	6.02	4.95
9610	n/a	n/a
9607	6.03	4.81
96ZS	n/a	n/a
96ZW	n/a	n/a
96ZY	n/a	n/a
9608	8.22	3.2
96ZV	n/a	n/a
96ZT	n/a	n/a
96ZP	n/a	n/a
96ZQ	n/a	n/a
9609	10.29	2.77
9606	9.45	7.31
9601	n/a	-4.18
9605	9.74	9.04
9604	10.77	9.73
97XV	n/a	n/a
9701	6.03	5.37
97XW	n/a	n/a
97XT	n/a	n/a
9708	n/a	n/a
97XX	n/a	n/a
9707	n/a	n/a
97XZ	n/a	n/a
9702	n/a	n/a
85YP	n/a	n/a
8506	6.49	4.77
85XY	n/a	n/a
851B	n/a	n/a
851A	n/a	n/a
851D	n/a	n/a
851C	n/a	n/a
8507	6.41	4.81
8511	6.47	4.47
9506	n/a	n/a
9503	6.52	3.7
9504	6.09	5.1
0505	6.58	5.11
9502	6.58	5.12
8502	6.38	5.16
85ZX	n/a	n/a
85YY	n/a	n/a
85ZW	n/a	n/a
8504	6.44	5
8512	6.48	4.89
8513	6.54	4.66
851E	n/a	n/a
9505	n/a	n/a
651C	n/a	n/a
651E	n/a	n/a
6509	6.68	2.65
6504	6.65	4
7503	6.8	4.84
6902	6.59	5.3
7904	6.44	4.38
8901	6.88	5.89
88ZX	n/a	n/a
89ZX	n/a	n/a
891A	n/a	n/a
891B	n/a	n/a
981J	n/a	n/a
991E	n/a	n/a
9902	6.66	4.73
981G	n/a	n/a
9903	6.63	5.26
9801	6.97	5.52
9803	6.96	3.38
991D	n/a	n/a
991C	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
981K	n/a	n/a
771A	n/a	n/a
771B	n/a	n/a
671A	n/a	n/a
6701	5.91	4.81
6808	5.96	4.28
681A	n/a	n/a
781B	n/a	n/a
781A	n/a	n/a
781C	n/a	n/a
6809	5.74	4.04
6805	5.68	4.62
6807	5.99	4.39
6806	5.95	4.48
6804	n/a	n/a
6802	6.05	4.5
6810	5.94	3.04
6811	n/a	n/a
5802	6.32	2.84
6803	n/a	n/a
6801	6.5	4.52
681C	n/a	n/a
681B	n/a	n/a
6906	6.62	3.09
6901	6.58	4.75
6905	6.7	3.29
6903	6.64	5.26
6904	6.68	5.46
7706	6.24	5.04
7702A	6.26	3.95
771D	n/a	n/a
771C	n/a	n/a
7804	n/a	n/a
7801	6.29	4.59
8802	6.57	4.98
7803	6.23	3.39
8805	6.65	5.46
8804	6.73	5.46
78XX	n/a	n/a
881B	n/a	n/a
8803	6.75	5.2
78YS	n/a	n/a
78YR	n/a	n/a
78YX	n/a	n/a
7805	7.02	4.42
7903	7.02	4.78
79WX	n/a	n/a
79WW	n/a	n/a
79WZ	n/a	n/a
79XV	n/a	n/a
79XT	n/a	n/a
79XZ	n/a	n/a
79YV	n/a	n/a
79YT	n/a	n/a
8902	6.7	3.77
7905	6.65	3.96
7902	6.65	4.95
7901	6.44	5.01
57TX	n/a	n/a
57VQ	n/a	n/a
57TY	n/a	n/a
57TT	n/a	n/a
57VR	n/a	n/a
57TW	n/a	n/a
57VZ	n/a	n/a
57WS	n/a	n/a
57TZ	n/a	n/a
57VP	n/a	n/a
57VT	n/a	n/a
57VX	n/a	n/a
57WY	n/a	n/a
57XR	n/a	n/a
5701	6.35	4.54
5704	6.33	2.65
57WW	n/a	n/a
57WQ	n/a	n/a
57VW	n/a	n/a
5702	6.44	5.09
571B	n/a	n/a
57WV	n/a	n/a
57XP	n/a	n/a
571C	n/a	n/a
571A	n/a	n/a
5703	6.52	5.06
5801	6.27	4.34
76RX	n/a	n/a
77WQ	n/a	n/a
6707	6.59	4.96
77WR	n/a	n/a
77VZ	n/a	n/a
6703	6.61	4.68
6709	6.58	4.59
67WZ	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
67XS	n/a	n/a
67WS	n/a	n/a
67XV	n/a	n/a
67XQ	n/a	n/a
67YX	n/a	n/a
77XQ	n/a	n/a
77WX	n/a	n/a
67YV	n/a	n/a
77XR	n/a	n/a
77WY	n/a	n/a
57XZ	n/a	n/a
6704	6.5	4.82
57XX	n/a	n/a
57YP	n/a	n/a
6705	6.51	4.59
6702	6.31	5.16
67ZP	n/a	n/a
671C	n/a	n/a
671B	n/a	n/a
66SV	n/a	n/a
66XR	n/a	n/a
66ZT	n/a	n/a
66SQ	n/a	n/a
66ZW	n/a	n/a
66XP	n/a	n/a
76ZS	n/a	n/a
76VT	n/a	n/a
761A	n/a	n/a
76TS	n/a	n/a
76SV	n/a	n/a
76SP	n/a	n/a
76VP	n/a	n/a
76TX	n/a	n/a
76TZ	n/a	n/a
76VQ	n/a	n/a
76VS	n/a	n/a
76YP	n/a	n/a
76TP	n/a	n/a
76ZY	n/a	n/a
76YZ	n/a	n/a
76ZT	n/a	n/a
76YW	n/a	n/a
76ZW	n/a	n/a
76XW	n/a	n/a
76ZV	n/a	n/a
76YX	n/a	n/a
56VR	n/a	n/a
56YZ	n/a	n/a
56ZQ	n/a	n/a
56WX	n/a	n/a
56YX	n/a	n/a
56WW	n/a	n/a
56WV	n/a	n/a
5603	6.81	4.16
561A	n/a	n/a
561B	n/a	n/a
5602	6.81	3.96
5601	6.83	5.2
5604	n/a	n/a
561D	n/a	n/a
56YV	n/a	n/a
56YW	n/a	n/a
56YT	n/a	n/a
56ZV	n/a	n/a
56ZT	n/a	n/a
561C	n/a	n/a
56ZY	n/a	n/a
56YQ	n/a	n/a
56ZS	n/a	n/a
56YR	n/a	n/a
56ZX	n/a	n/a
66RR	n/a	n/a
66VX	n/a	n/a
66WQ	n/a	n/a
66ZY	n/a	n/a
66VZ	n/a	n/a
6601	6.8	4.94
6606	6.76	3.66
66VW	n/a	n/a
66VQ	n/a	n/a
66YY	n/a	n/a
66YZ	n/a	n/a
66YP	n/a	n/a
66SZ	n/a	n/a
66TQ	n/a	n/a
6602	6.64	5.1
66ZQ	n/a	n/a
6502	6.82	4.58
6604	6.83	3.32
66YS	n/a	n/a
66SX	n/a	n/a
66SS	n/a	n/a
66XQ	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
66YQ	n/a	n/a
66XV	n/a	n/a
66RX	n/a	n/a
66XS	n/a	n/a
66RW	n/a	n/a
66ZX	n/a	n/a
661A	n/a	n/a
851F	n/a	n/a
8615	6.54	4.48
8613	6.67	3.16
8601	n/a	-4.02
861D	n/a	n/a
86XZ	n/a	n/a
8611	n/a	n/a
8610	n/a	n/a
8603	6.42	5.36
8609	6.63	4.37
86ZS	n/a	n/a
86ZT	n/a	n/a
86ZV	n/a	n/a
8605	6.36	4.61
8604	6.02	4.27
86ZP	n/a	n/a
86ZY	n/a	n/a
861C	n/a	n/a
861A	n/a	n/a
8607	6.21	4.96
861B	n/a	n/a
871A	n/a	n/a
8703	6.04	3.96
8702	n/a	n/a
8701	6.07	4.32
87ZW	n/a	n/a
87ZS	n/a	n/a
87ZV	n/a	n/a
87ZT	n/a	n/a
87ZQ	n/a	n/a
76YS	n/a	n/a
76WP	n/a	n/a
76ZR	n/a	n/a
7701B	6.31	4.98
76XQ	n/a	n/a
76WS	n/a	n/a
76WY	n/a	n/a
76WW	n/a	n/a
76XP	n/a	n/a
7703	6.29	3.88
76WT	n/a	n/a
76WZ	n/a	n/a
77YR	n/a	n/a
77YV	n/a	n/a
75ZV	n/a	n/a
77YY	n/a	n/a
77ZQ	n/a	n/a
7704	6.37	3.77
77YS	n/a	n/a
77YW	n/a	n/a
77ZT	n/a	n/a
77ZX	n/a	n/a
77ZR	n/a	n/a
77ZY	n/a	n/a
8606	6.3	4.87
8608	6.3	3.61
8602	6.68	5.27
7518	6.69	4.41
7505	6.74	4.06
7504	6.58	5.06
7516	6.82	2.8
6508	6.78	2.84
75XW	n/a	n/a
65YQ	n/a	n/a
65XX	n/a	n/a
7506	6.9	4.01
651B	n/a	n/a
7507	6.83	4.05
7515	6.77	2.93
65XZ	n/a	n/a
7508	6.76	4.08
65XT	n/a	n/a
651A	n/a	n/a
65VW	n/a	n/a
7513	6.82	4.33
7510	6.69	5.08
751A	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plans are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole level indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2018_3818642

TQ1875SE

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 518750,175250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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Asset Location Search Water Map - ALS/ALS Standard/2018_3818642

TQ1975NW

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 519250,175750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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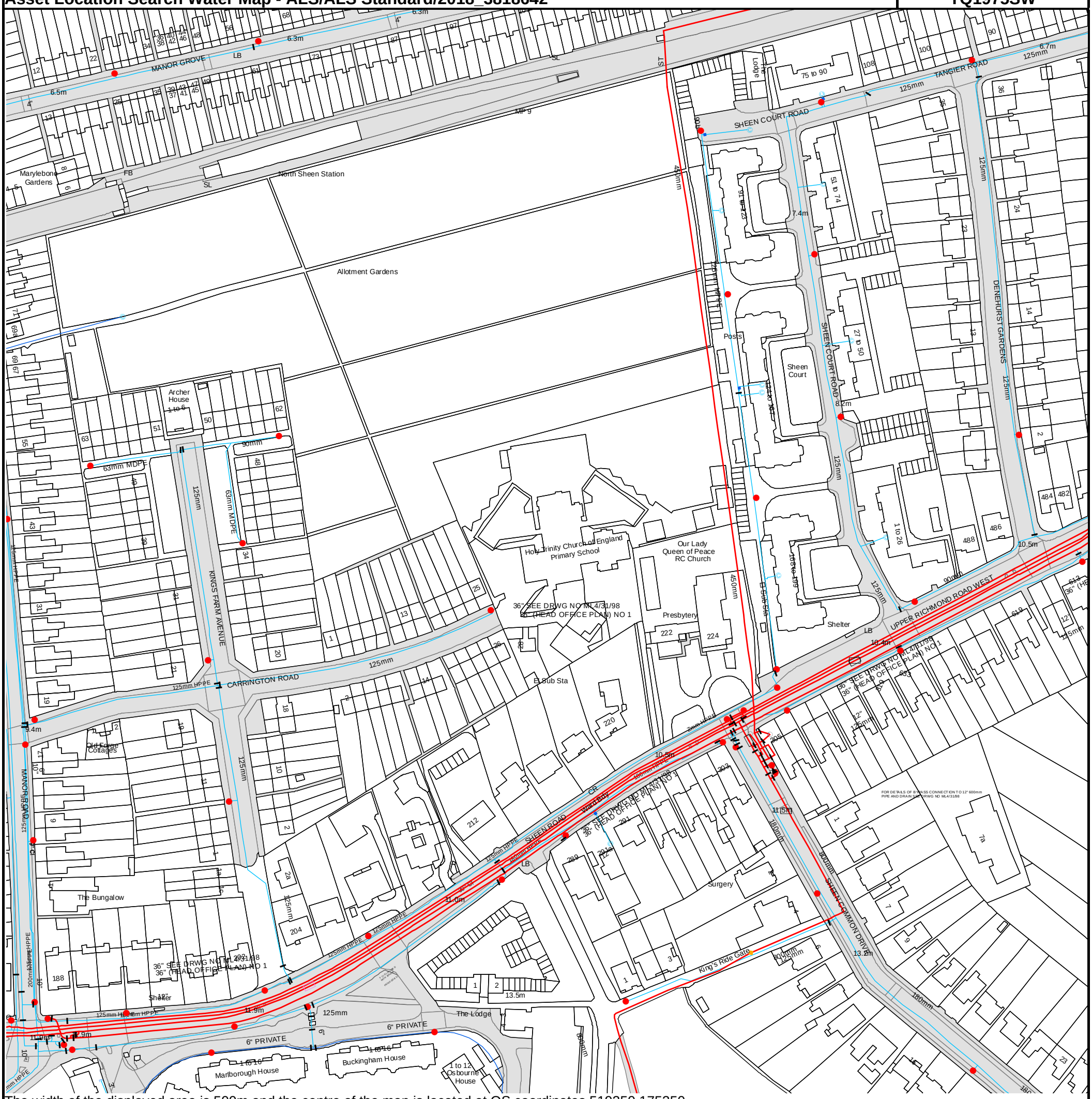
Asset Location Search Water Map - ALS/ALS Standard/2018_3818642

TQ1975SW



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 519250,175250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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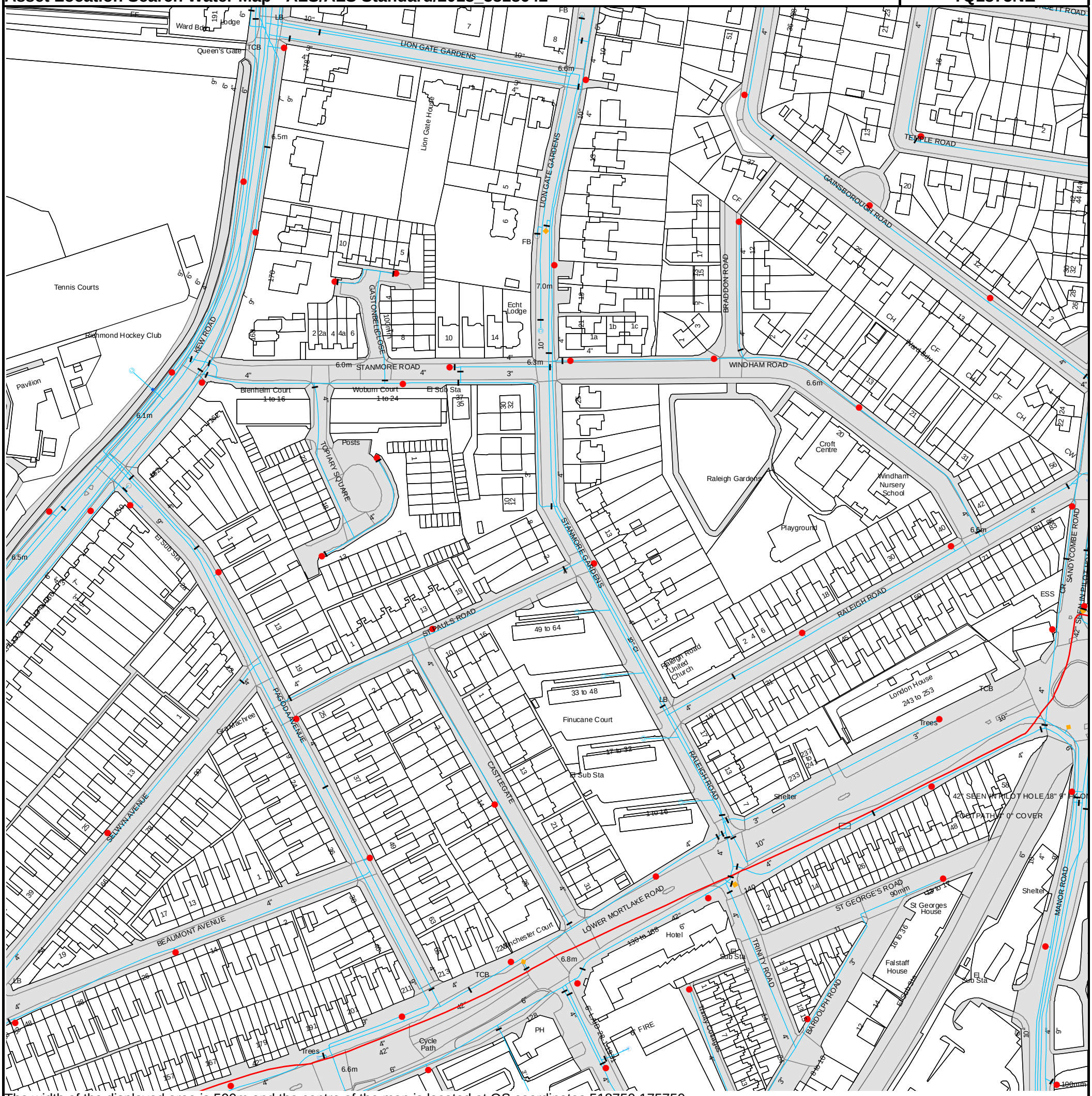
Asset Location Search Water Map - ALS/ALS Standard/2018_3818642

TQ1875NE



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 518750,175750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0845 070 9148** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

Sewer Flooding
History Enquiry

Property Searches

Fairhurst GGA

Search address supplied	Manor Road Richmond TW9 1YB
Your reference	126782
Our reference	SFH/SFH Standard/2018_3821103
Received date	**22 June 2018**
Search date	**25 June 2018**

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

Sewer Flooding
History Enquiry

Property Searches

Search address supplied: Manor Road,Richmond,TW9 1YB

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

(i) any negligent or incorrect entry in the records searched;

(ii) any negligent or incorrect interpretation of the records searched;

(iii) and any negligent or incorrect recording of that interpretation in the search report

(iv) compensation payments

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

Sewer Flooding
History Enquiry

Thames Water Property Searches

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

126782

Pre-planning enquiry

Application form

Please complete this form and return it to us at
developer.services@thameswater.co.uk or
Thames Water, Developer Services, Clearwater Court,
Vastern Road, Reading, RG1 8DB.

Thames Water

Application for a pre-planning enquiry

Please complete all sections of this form in BLOCK CAPITALS

If you're using this form to request a budget estimate, please note that you should be able to calculate the likely charges involved in your scheme by consulting our guide, 'Charging arrangements for new connection services', on our website.

Are you a: Developer (Consultant) Land promoter (Please tick one.)

Is your application for: Water (Wastewater) Both (Please tick one.)

Would you like a water budget estimate? Yes (No)

(We can only offer a wastewater budget estimate after modelling, if required).

A - About the person applying

Company name FAIRHURST

Title (Mr) Mrs Ms Miss Dr Other

First name(s) ADAM

Last name PRAS

Preferred contact number 0207 828 8205

Alternative number —

Email address ADAM.PRAS@FAIRHURST.CO.UK

Full postal address

Address line 1 135 PARK ST

Address line 2

Town LONDON

County

Postcode SE1 9EA

B - Nominated contact

Who should we contact to process your application? (Applicant) Someone else

(Please tick one.)

If someone else:

Company name

Title Mr Mrs Ms Miss Dr Other

First name(s)

Last name

Preferred contact number

Alternative number

Email address

Full postal address Address line 1

Address line 2

Town

County Postcode

C - Where the work is taking place

What is the address of the property being connected? Same as applicant Same as nominated contact

Somewhere else (Please tick one.)

If somewhere else: HOMEBASE, MANOR ROAD

Site name

Full postal address Address line 1 HOMEBASE

Address line 2 MANOR ROAD

Town RICHMOND

County Postcode TW9 1YB

D - About the site

What is the local authority? RICHMOND UPON THAMES

Ordnance Survey grid ref 518901, 175426

Type of site Greenfield Brownfield Mixed

How big is the site? 1.65 hectares

When do you intend to have first occupancy? 12 2019 (Approximate date if necessary)

E - Planning status (if you've already started the planning process)

Is the development identified in the local plan? Yes No Don't know If Yes, reference number

Does it have outline planning permission? Yes No Don't know If Yes, reference number

Does it have full planning permission? Yes No Don't know If Yes, reference number

Does the development have building regulations permission? Yes No Don't know

When do you intend to start on site? MM 04 YYYY 2019

F - About the water supply

If you're proposing a water storage tank, what is its capacity? m^3

When will you want your first domestic connection laid on? MM YYYY N/A

For water supplies, what is the estimated flow rate required for your site? litres/sec (Not required if applying only for wastewater.)

G - Existing sewerage connections (Not required if applying only for water.)

	Foul water	Surface water
Does the site have the following sewerage connections?	Yes	no
What is the type of discharge method?	Gravity (circled)	Gravity
	Pumped	Pumped
If sewage is pumped, what is the pump rate?	litres/sec	litres/sec
Amount of existing impermeable area per connection	N/A	
What are the existing connection points? (For example, 'X' number of domestic and commercial properties drain into manhole 'Y' / sewer with diameter of 'Z'.)	U/S MH 9401 VIA MANHOLE (CONNECTION MH NOT ON THAMES WATER RECORDS)	

H - Proposed sewerage connections (Not required if applying only for water.)

	Foul water	Surface water
Does the site have the following sewerage connections?	Yes	~~TBC~~ Yes
What is the type of discharge method?	(Gravity)	Gravity
	Pumped	Pumped
If sewage is pumped, what is the pump rate?	litres/sec	litres/sec
What is your proposed approach to surface water drainage?	N/A	✓ Traditional piped system
		Sustainable drainage system (SuDS)
Do you propose using separate highway and surface water drainage systems?	N/A	Yes ✓ No
If the surface water rate is attenuated, to what rate is it attenuated?	N/A	25.2 litres/sec
Amount of proposed impermeable area per connection	N/A	~~TBC~~ [redacted] 1.65ha
What are the proposed connection points? (For example, 'X' number of domestic and commercial properties drain into manhole 'Y' / sewer with diameter of 'Z'.)	REUSE EXISTING	CLOSE TO MH 9407

Please note: The developer is expected to follow the local authority's drainage strategy and be able to demonstrate how the proposed (attenuated) discharge rate of any surface water flows has been calculated. For developments in Greater London, please refer to the London Plan Drainage Hierarchy (Policy 5.13). We will challenge the rates provided if they are not in line with those based on the local drainage strategies.

I - Additional information (where available)

When we're assessing your development needs, it's important that we know what buildings (if any) currently exist on the site. It may be, for example, that the infrastructure serving those properties is already sufficient to cater for your proposed development.

We realise it may be too early in your process to complete this table, but any information you can provide at this stage will help improve the accuracy of our assessment and could prevent us from requesting data in the future.

Property type	Existing site	Proposed site
General housing (units 3 person+)		233
Flat (units up to 2 person)		151
Primary school (max. pupil capacity)		
Senior school (max. pupil capacity)		
Boarding school (max. pupil capacity)		
Assembly hall (max. capacity)		
Cinema (max. capacity)		
Theatre (max. capacity)		
Sports hall (max. capacity)		
Hotel (total bedrooms)		
Guest house (total bedrooms)		
Motel (total bedrooms)		
Holiday apartment (capacity)		
Leisure park (capacity)		
Caravan park standard (per space)		
Caravan site standard (per space)		
Camping site standard (per space)		
Camping site serviced (per space)		
Public house (max. capacity)		
Restaurant / Day care centre (max. capacity)		
Drive in restaurant (max. capacity)		
Hospital (per bed)		
Nursing / Care home (per bed)		
Offices (gross internal area in m^2)		
Shopping centre (gross internal area in m^2)	3,522	
Warehouse (gross internal area in m^2)		
Commercial premises (gross internal area in m^2)		475
Manufacturing unit (gross internal area in m^2)		
Other (please state units and description)		

J - Enclose your documents

Please make sure any attachments are in PDF format and don't exceed a total of 20MB in size per email.

All drawings must be of suitable detail and have a drawing reference number on them.

What we need from you to process your application:

Site location plan	This should show the site with nearby buildings, roads and any sewers.
Scaled site layout	This should show existing and proposed layouts.
Site drainage strategy plan (if available at this stage)	This should show all proposed sewers, pipe sizes and gradients. (Not required if applying only for water.)

Please also let us know if you have a **schedule of planned works** showing how you might phase your development.

Please note, without this information we may need to make assumptions about your requirements when calculating your budget estimate (if requested).

K - How we'll use this information

We'll use the information you give on this application form, and potentially share it with our delivery partners, to provide the service you've requested.

This could include contacting you to discuss your application and/or provide more details, visiting the site where work needs to be carried out, and invoicing you when appropriate. Your feedback is important to us, so we may also use the information to ask for your feedback on how we can improve our performance.

We won't use this information for marketing purposes without contacting you to seek your consent.

You can find Thames Water's privacy policy at thameswater.co.uk/Legal/Privacy.

L - Declaration

I confirm to the best of my knowledge that the information in this application is complete and correct.

Print name ADAM ORAL

Position within company CIVIL ENGINEER

Company FAIRHURST

Date 14/12/2018

Signature

Submitting your application

Please email your completed form to developer.services@thameswater.co.uk or send it to Thames Water Developer Services, Clearwater Court, Vastern Road, Reading RG1 8DB.

Once we've assessed your application, we'll write to tell you the result within 21 calendar days.

Where we know there's sufficient capacity we'll tell you, but if we're concerned there may not be, we'll advise you of the next steps. We'll also let you know if we need further information from you.

Getting in touch

For enquiries regarding this application or any other questions relating to your building or development work please contact us on:

thameswater.co.uk/developerservices

developer.services@thameswater.co.uk

0800 009 3921
Monday – Friday, 8am – 5pm

Thames Water, Developer Services, Clearwater Court,
Vastern Road, Reading, Berkshire RG1 8DB

This leaflet can be supplied in braille or audio-tape upon request.

Thames Water

Adam Prais

From: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sent: 04 January 2019 09:46
To: Adam Prais
Cc: siva.rajaratnam@thameswater.co.uk
Subject: RE: RE: RE: RE: DS6056467 - TW9 1YB Manor Road, Richmond

Dear Adam

Further to your previous communication with Siva, please see the feedback from our Asset Planning Team below:

Thames Water have noted that there is not yet a defined surface water drainage strategy for this site, for this reason we have been unable to identify the potential impact that this development proposes. We would request evidence of the existing surface water disposal method for the site, from this we can establish how the proposed strategy affects the public network. We would recommend that the surface water drainage strategy for this development should follow policy 5.13 of the London Plan. Typically greenfield run off rates of 5l/s/ha should be aimed for using the drainage hierarchy. The hierarchy lists the preference for surface water disposal as follows; Store Rainwater for later use > Use infiltration techniques, such as porous surfaces in non-clay areas > Attenuate rainwater in ponds or open water features for gradual release > Discharge rainwater direct to a watercourse > Discharge rainwater direct to a surface water sewer/drain > Discharge rainwater to the combined sewer.

With regards to the foul water proposals for this site we would request more details on how the split of flows relates to residential dwellings and commercial metereage per connection point. We request this in order to be able to assess the potential impact upon the public network. The proposal to connect 100% of the foul water flows from this site to Manhole TQ18759401 is acceptable and can be accommodated.

Should you have any further queries, please do not hesitate to contact me again.

Kind Regards

Artur Jaroma
Developer Services – Sewer Adoptions Engineer
Office: 0203 577 8082
artur.jaroma@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB
Find us online at developers.thameswater.co.uk

Original Text

From: "DEVELOPER.SERVICES@THAMESWATER.CO.U" <DEVELOPER.SERVICES@THAMESWATER.CO.UK>
To: adam.prais@fairhurst.co.uk
CC: siva.rajaratnam@thameswater.co.uk <siva.rajaratnam@thameswater.co.uk>
Sent: 21.12.18 16:15:00
Subject: RE: RE: RE: DS6056467 - TW9 1YB Manor Road, Richmond

Dear Adam,

I have consulted with our Asset Planners to confirm whether capacity exists for the foul water and as soon as I have a response I will update you.

Due to the festive period this will be in the New Year.

In regards to the surface water I have stated this will be discharged to a soakaway. If infiltration is not possible we would consider a restricted discharge of 5 litres per second per hectare or limited to the equivalent Greenfield run-off rate. This would need to be discussed with the Lead Local Flood Authority whose responsibility it is to manage risk from surface water flooding.

Regards

Siva Rajaratnam

Developer Services – Adoptions Engineer

Mobile 07747 640477 Landline 0203 577 9811

siva.rajaratnam@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB

Find us online at developers.thameswater.co.uk

Original Text

From: Adam Prais <adam.prais@fairhurst.co.uk>
To: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>
CC: siva.rajaratnam@thameswater.co.uk <siva.rajaratnam@thameswater.co.uk>
Sent: 20.12.18 12:23:08
Subject: RE: RE: DS6056467 - TW9 1YB Manor Road, Richmond

Dear Siva,

Thank you for your comments. We do not currently have possession of the site to complete the tests so are planning alternatives to understand the cost and project implications if infiltration is not possible.

To assist this, would it be possible for you to provide an advisory rate of what capacity is available / allowable if required. We can then prepare contingency plans. Following receipt of infiltration tests, we would consult with you again with the additional information for a formal response, but if you could provide an indicative rate, it would be much appreciated.

Are you able to progress the foul water checks separately in the meantime too?

Kind regards,

Adam

Adam Prais
Civil Engineer

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135 Park Street
London, SE1 9EA
Tel: 020 7828 8205

Website: www.fairhurst.co.uk @fairhurstlondon

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From: DEVELOPER.SERVICES@THAMESWATER.CO.U [mailto:DEVELOPER.SERVICES@THAMESWATER.CO.UK]
Sent: 20 December 2018 12:16
To: Adam Prais
Cc: siva.rajaratnam@thameswater.co.uk
Subject: RE: RE: DS6056467 - TW9 1YB Manor Road, Richmond

Dear Adam,

Thank you for the additional information. Once you have the results from the infiltration tests I will be able to complete the capacity assessment.

If infiltration is not possible I will require a surface water drainage strategy to show how the flows will be attenuated. The proposed flow rate is currently too high and we would require this to be reduced further.

Regards

Siva Rajaratnam

Developer Services – Adoptions Engineer

Mobile 07747 640477 Landline 0203 577 9811

siva.rajaratnam@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB

Find us online at developers.thameswater.co.uk

Original Text

From: Adam Prais <adam.prais@fairhurst.co.uk>
To: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>
CC: siva.rajaratnam@thameswater.co.uk <siva.rajaratnam@thameswater.co.uk>
Sent: 20.12.18 09:40:06
Subject: RE: DS6056467 - TW9 1YB Manor Road, Richmond

Dear Siva,

Thank you for your email. Please see attached the draft FRA which answers most of your questions. I have also summarised the responses below;

1. <![if !supportLists]><![endif]><![if !supportLists]><![endif]>Surface water is currently discharging to soakaways however the proposed development requires the removal of these. We are investigating the infiltration rates of the ground however preliminary desk studies indicate this may not be feasible due to ground water levels. We are investigating options for in case infiltration is not possible.
2. <![if !supportLists]><![endif]><![if !supportLists]><![endif]>Discharge via gravity
3. <![if !supportLists]><![endif]><![if !supportLists]><![endif]>(1) Infiltration – under investigation, see FRA (2) Watercourse – non on site, not possible (3) Sewer – required if infiltration not feasible
4. <![if !supportLists]><![endif]><![if !supportLists]><![endif]>Please see table for runoff rates. The site is currently 100% impermeable. The proposed development will include some soft landscaping however the extent of this is to be confirmed. As such the current design is based on the site remaining 100% impermeable and the proposed brownfield rates will therefore be the same. In line with your comments below and local requirements, we would limit the site to the equivalent greenfield rate including climate change allowances.

	Existing		Proposed
Return Period	Greenfield Rates	Brownfield Rates	Brownfield Rates
	Runoff (site) (l/s)	Runoff (site) (l/s)	Runoff (site) (l/s)
1yr	6.7	252.5	
30yr	18.2	594.7	
100yr	25.2	753.6	
100yr + climate change			25.2

Kind regards,

Adam

Adam Prais
Civil Engineer

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135 Park Street
London, SE1 9EA
Tel: 020 7828 8205

Website: www.fairhurst.co.uk @fairhurstlondon

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From: DEVELOPER.SERVICES@THAMESWATER.CO.U [mailto:DEVELOPER.SERVICES@THAMESWATER.CO.UK]
Sent: 19 December 2018 15:09
To: Adam Prais
Cc: siva.rajaratnam@thameswater.co.uk
Subject: DS6056467 - TW9 1YB Manor Road, Richmond

Dear Adam,

Thank you for your Pre-Planning application. In order for me to process this further can you confirm the following details to complete the capacity assessment;

1 – How is the surface water currently discharged from the site?

2 – What is the proposed surface discharge method (gravity or pumped)?

3 - Have all surface water disposal routes been explored and has the London Plan Drainage Hierarchy (Policy 5.13) been followed. Only when it has been proven that infiltration to the ground or a connection into a watercourse is not possible would we consider a restricted discharge into the public surface water sewer network of **5 litres per second per hectare** or limited to the equivalent Greenfield run-off rate.

4- The surface water run-off rates for the existing and proposed site for the range of storms (1:1, 1:10, 1:30 and 1:100).

Should you have any queries please feel free to contact me on 0203 577 9811.

Regards

Siva Rajaratnam

Developer Services – Adoptions Engineer

Mobile 07747 640477 Landline 0203 577 9811

siva.rajaratnam@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB

Find us online at developers.thameswater.co.uk

Thames Water

Seen our developer newsletter?
Click to subscribe.

Join our premier developer event.
Our next Developer Day is in London on 7 Feb 2019.
We'll discuss our 2019/20 charges, changes to sewer adoptions, new performance measures and more...
Click to email us to register or request further info.

Original Text

From: Adam Prais <adam.prais@fairhurst.co.uk>

To: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

CC:

Sent: 14.12.18 15:06:19

Subject: 126782 - Manor Road, Richmond

Dear Sir or Madam,

Please find attached a preplanning enquiry and supporting documents for a proposed development at Manor Road, Richmond. The site is currently preplanning stage and we are writing to you at this time to confirm capacity in the network alongside the development of our drainage strategy.

Kind regards,

Adam

Adam Prais
Civil Engineer

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135 Park Street
London, SE1 9EA
Tel: 020 7828 8205

Website: www.fairhurst.co.uk @fairhurstlondon

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SensationALL are a small charity based in Westhill, Aberdeenshire for children and adults with additional support needs.

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Mr Adam Prais
Fairhurst
135 Park Street
London
SE1 9EA

Wastewater pre-planning
Our ref DS6056467

11 Jan. 19

Pre-planning enquiry: Confirmation of sufficient capacity

Dear Mr Prais

Thank you for providing information on your development **at Homebase, Manor Road, Richmond, TW9 1YB.**

Construction of 384 residential units and 475m2 of commercial premises. Foul water discharging by gravity into existing connection at MH9401.

Foul Water

From the information you have provided, we can confirm that the existing foul sewer network does have sufficient capacity to accommodate the proposed foul water discharge from the proposed development.

Surface Water

Please note that discharging surface water to the public sewer network should only be considered after all other methods of disposal have been investigated and proven to not be viable. In accordance with the Building Act 2000 Clause H3.3, positive connection to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. The disposal hierarchy being: 1st Soakaways; 2nd Watercourses; 3rd Sewers.

Only when it can be proven that soakage into the ground or a connection into the adjacent watercourse is not possible would we consider a restricted discharge into the public surface water sewer network.

We would encourage techniques such as green roofs and/or permeable paving that restricts surface water discharge from your site.

When redeveloping an existing site, policy 5.13 of the London Plan and Policy 3.4 of the Supplementary Planning Guidance (Sustainable Design And Construction) states that every attempt should be made to use flow attenuation and SUDS/storage to reduce the surface water discharge from the site as much as possible.

If they are consulted as part of any planning application, Thames Water Planning team would ask to see why it is not practicable to attenuate the flows to Greenfield run-off rates i.e.

5l/s/hectare of the total site area or if the site is less than hectare in size then the flows should be reduced by 95% of existing flows. Should the policy above be followed, we would envisage no capacity concerns with regards to surface water for this site.

Please note that the Local Planning authority may comment on surface water discharge under the planning process.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you've any further questions, please contact me on 0203 577 8082.

Yours sincerely

Artur Jaroma

Thames Water

A.4 Development Proposal Plans

0m 5m 10m 25m 50m

N

General notes

All setting out must be checked on site
All levels must be checked on site and refer to Ordnance Datum Newlyn unless alternative Datum given
All fixings and weatherings must be checked on site
All dimensions must be checked on site
This drawing must not be scaled
This drawing must be read in conjunction with all other relevant drawings, specification clauses and current design risk register
This drawing must not be used for land transfer purposes
Calculated areas in accordance with Assael Architecture's Definition of Areas for Schedule of Areas
This drawing must not be used on site unless issued for construction
Subject to survey, consultation and approval from all statutory Authorities

Revision Status:
P=Preliminary
C=Contract

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Drawing notes

Electronic file reference

Enter Source Filename ' Eg AA Title Block'

Status R:	Revision	Date	DRN	CHK	CDM
18	For Information	01/07/20	MP	HB	
19	For Information	13/07/20	LP	HB	
20	Design Freeze	17/07/20	TP	HB	

Key	Studio	1 Bed	2B3P	2B4P	3 Bed
Market					
Shared Ownership					
London Affordable Rent					
London Living Rent					
Plant/Refuse/Bike Store					
Commercial					

Purpose of information

The purpose of the information on this drawing is for:

All information on this drawing is not for construction unless it is marked for construction.

- Planning ☐
- Information ☒
- Comment ☐
- Client approval ☐
- Construction ☐

Key

Client

Avanton

Project title

A3004
Manor Road Richmond

Drawing title

GA Plans Proposed
Ground Floor

Scale @ A1 size: **1:500**

Date: **July '20**

Drawing N°

MNR-AA-ALL-GF-DR-A-2000

Status & Revision

R20

Assael

Assael Architecture Limited
123 Upper Richmond Road
London SW15 2TL

+44 (0)20 7736 7744
info@assael.co.uk
www.assael.co.uk

A.5 Surface Water Calculations

- Greenfield runoff rates
- Predevelopment brownfield runoff rates
- MicroDrainage quick storage estimates
- MicroDrainage infiltration simulation results

FAIRHURST

Greenfield Runoff		Job No.	126782	Calculated	KFM
		Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond				

Site Information

Site Location	TW9 1YB	
Site Area	1.842	ha
Impermeable Area	1.842	ha
% Impermeable	100	%

Hydrological Region	6		
SOIL Type	4		
SAAR	600		
SPR	0.3		
$A_{(50)}$	50		Minum 50 hectares
$Q_{BAR(50)}$	76.08		50 hectare equivelent
Q_{BAR}	2.80	l/s	Qbar for site
$Q_{BAR(site)}/A_{(site)}$	1.52	l/s/ha	Qbar per hectare of site

GC_1	*0.85*	Growth curves for Hydrological Region
GC_{30}	*2.30*	
GC_{100}	*3.19*	

Total Q_{1yr}	**1.3**	l/s/ha
Total Q_{30yr}	**3.5**	l/s/ha
Total Q_{100yr}	**4.9**	l/s/ha

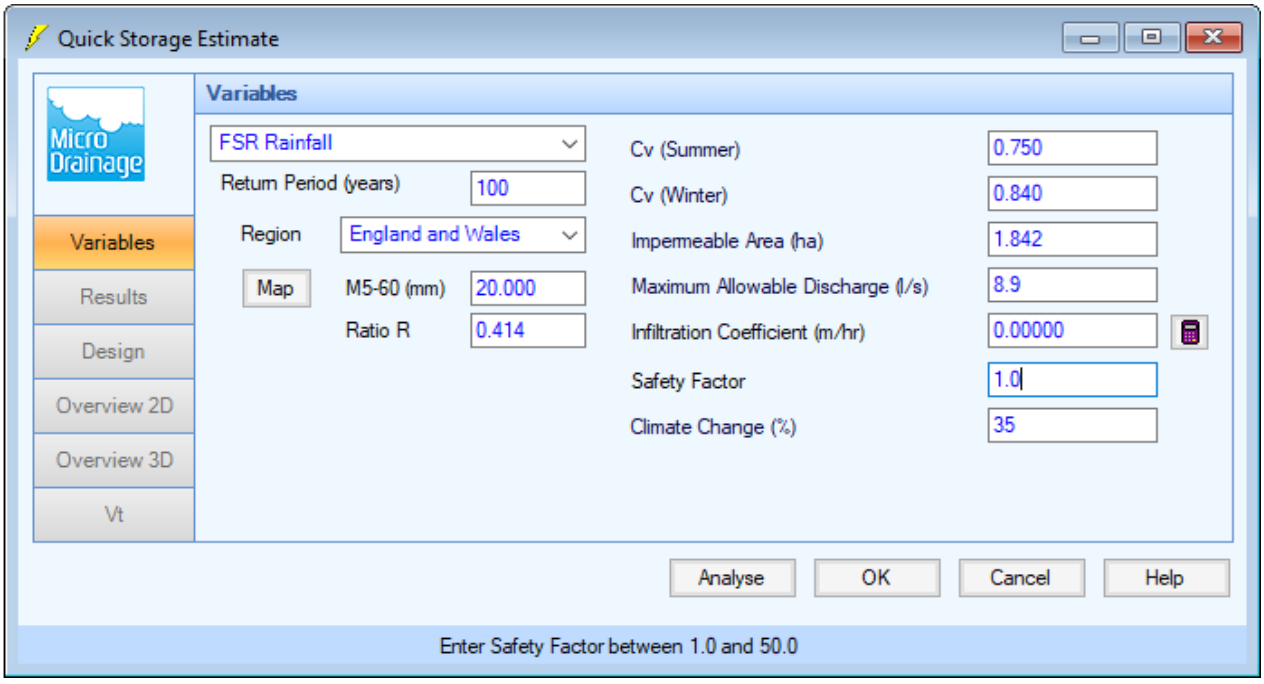
Total Q_{1yr}	**2.4**	l/s
Total Q_{30yr}	**6.4**	l/s
Total Q_{100yr}	**8.9**	l/s

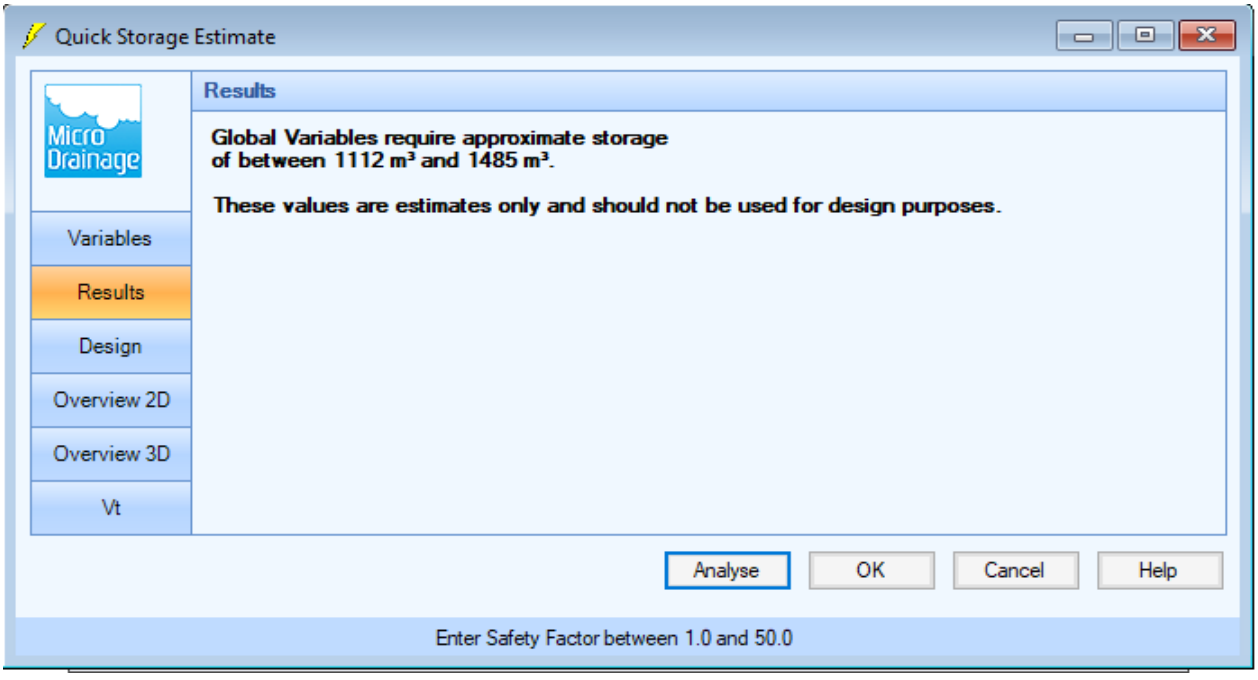
FAIRHURST

Brownfield Runoff		Job No.	126782	Calculated	KFM
		Date	11/10/2018	Checked	AC
Project	Manor Road, Richmond				

Site Location	TW9 1YB		**Site Information**
Site Area	1.842	ha	
Impermeable Area	1.842	ha	
% Impermeable	100	%	
Climate Change Allowance	35	%	
M5 -60	20	mm	**Storm Information**
Ratio 'r'	0.4		
Storm Duration	5	Minutes	
Z1	0.37		
M5-Dmin	7.4	mm	
Z2	0.62		**1 Year Runoff**
M1-Dmin	4.6	mm	
i	55.1	mm/hr	
Runoff	281.9	l/s	
Z2	1.46		**30 Year Runoff**
M30-Dmin	10.8	mm	
i	129.6	mm/hr	
Runoff	663.9	l/s	
Z2	1.85		**100 Year Runoff**
M100-Dmin	13.7	mm	
i	164.28	mm/hr	
Runoff	841.2	l/s	
Z2	1.85		**100 Year + Climate Change Runoff**
M100-Dmin	13.7	mm	
i	221.8	mm/hr	
Runoff	1135.7	l/s	

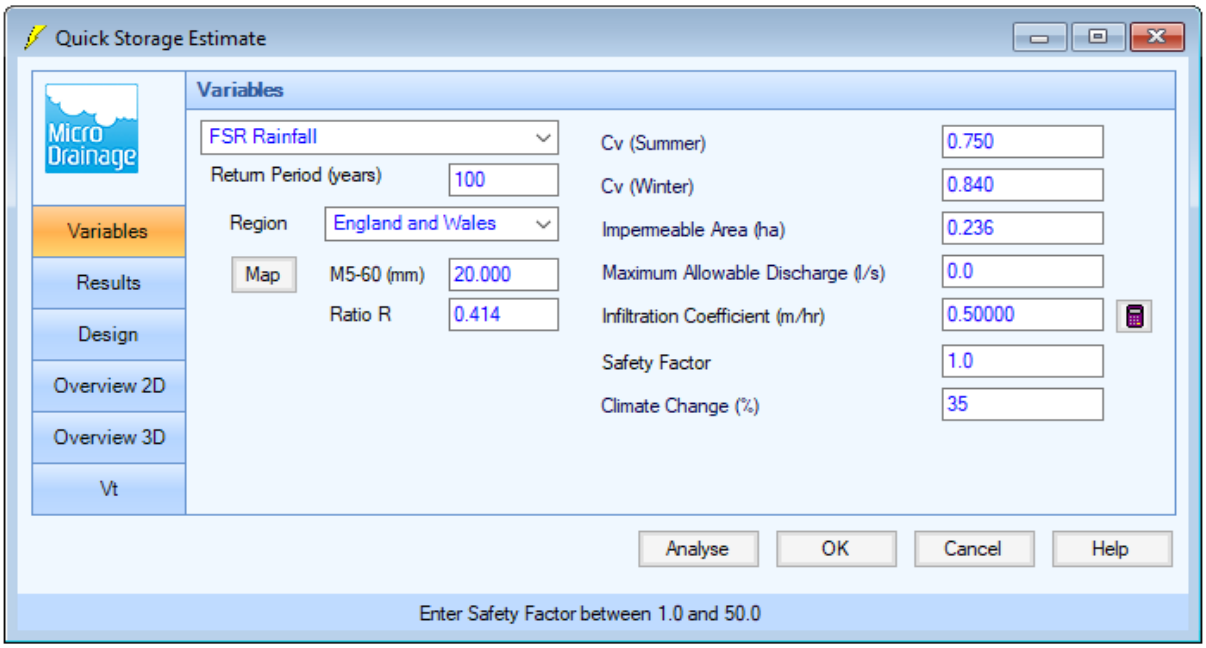
Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	**Job No.**	126782	**Calculated**	KFM
	Date	17/07/2020	**Checked**	RP
Project	Manor Road, Richmond			

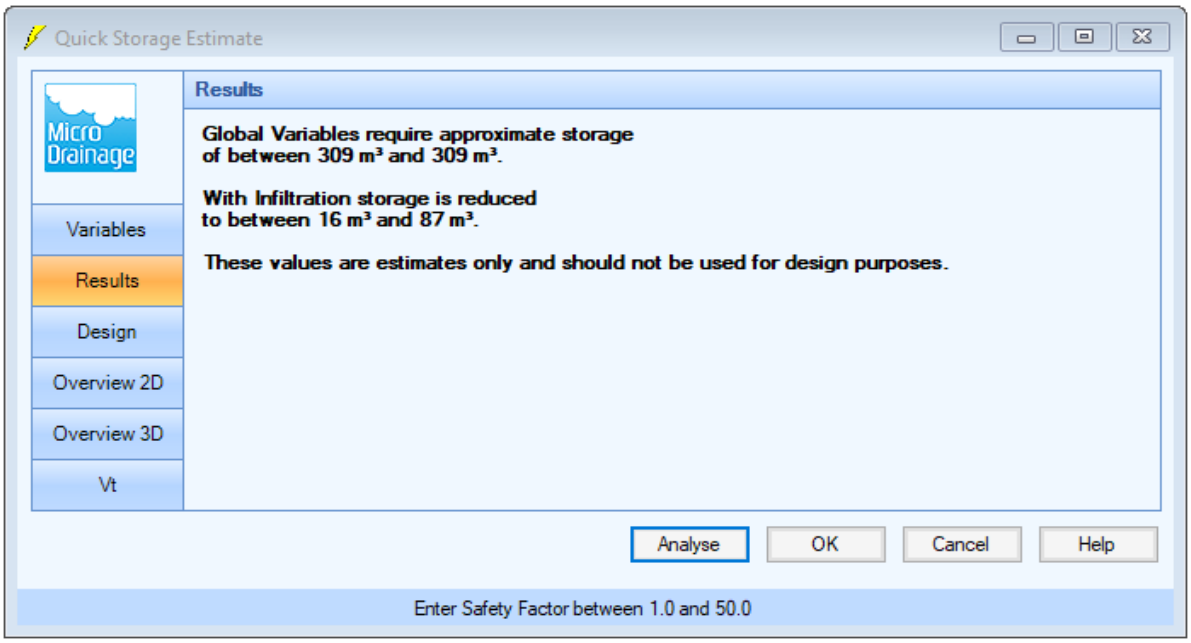




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	Job No.	126782	Calculated	KFM
	Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond			

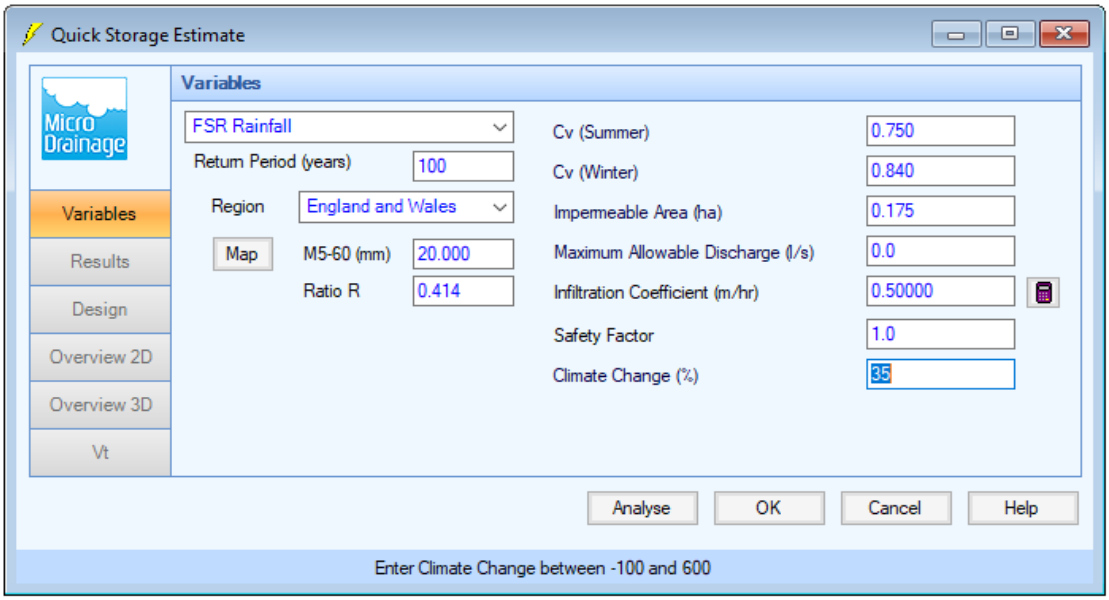
SOAKAWAY 2

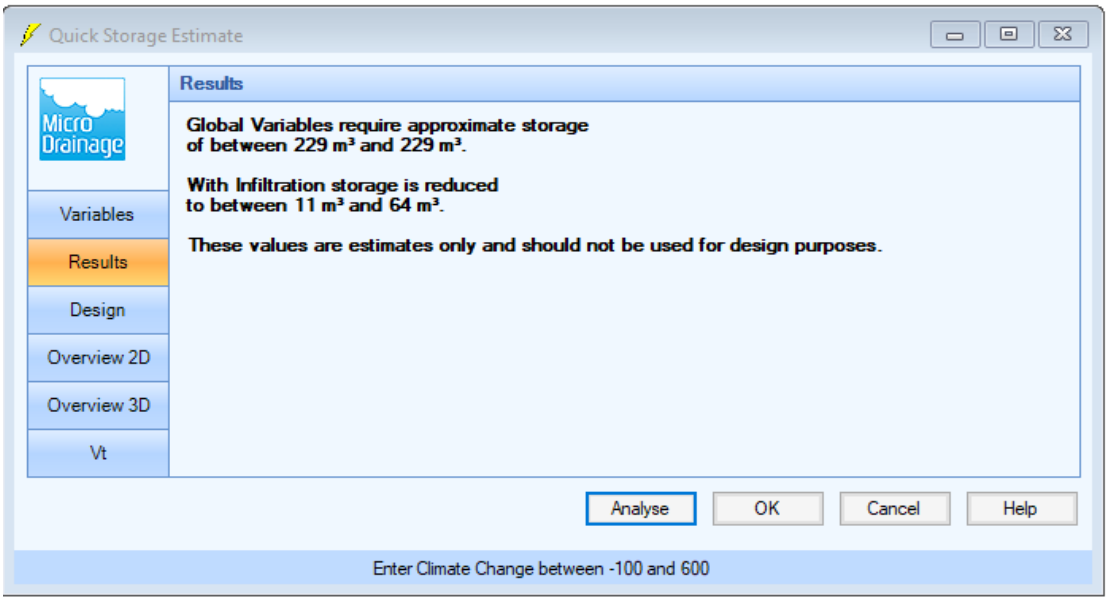




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	Job No.	126782	Calculated	KFM
	Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond			

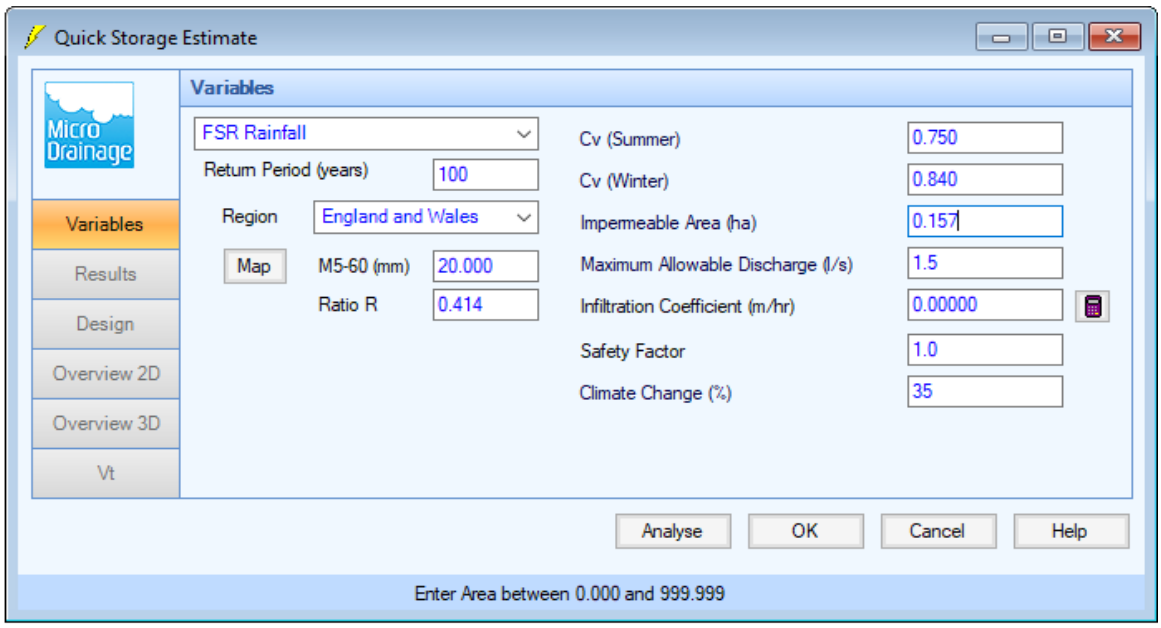
SOAKAWAY 3

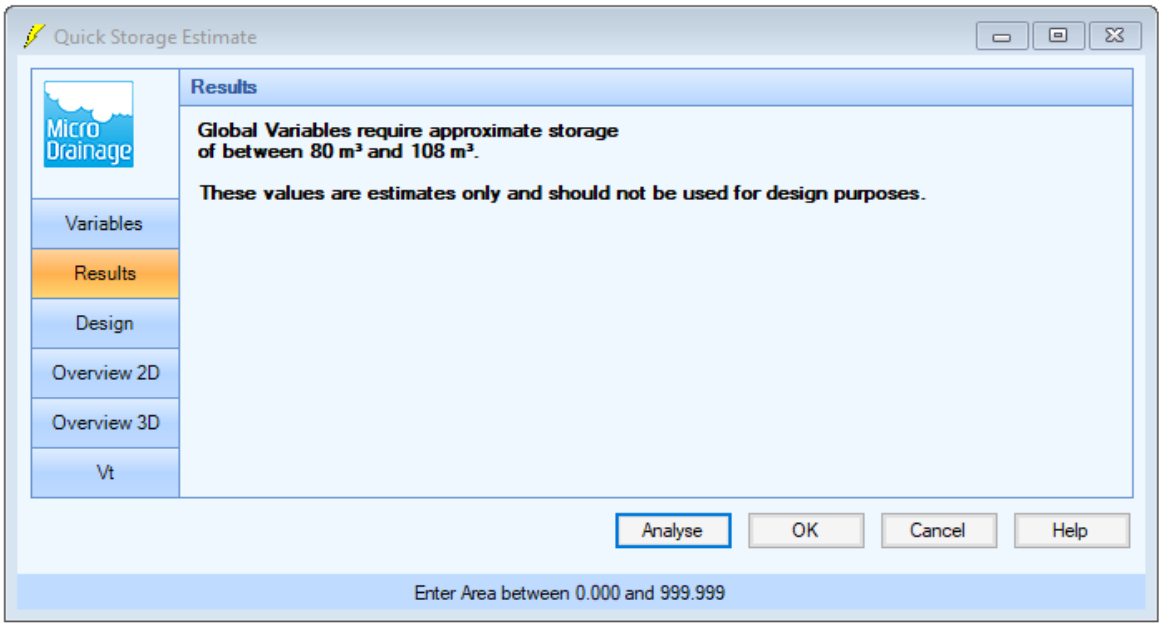




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	**Job No.**	126782	**Calculated**	KFM
	Date	11/10/2019	**Checked**	AC
Project	Manor Road, Richmond			

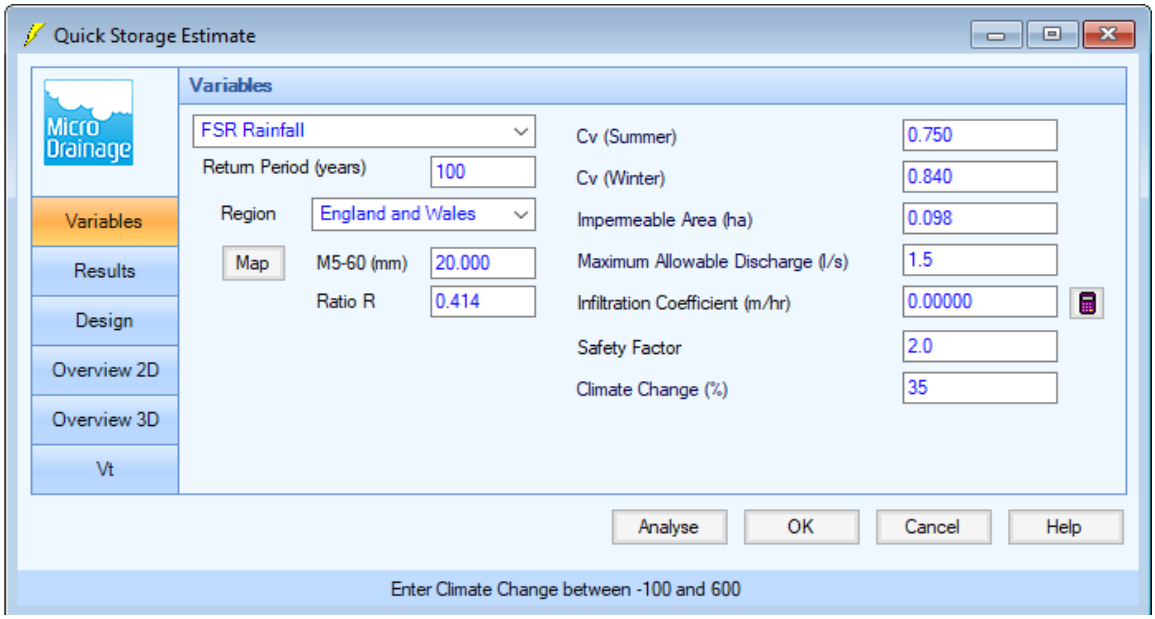
BLUE ROOF 2

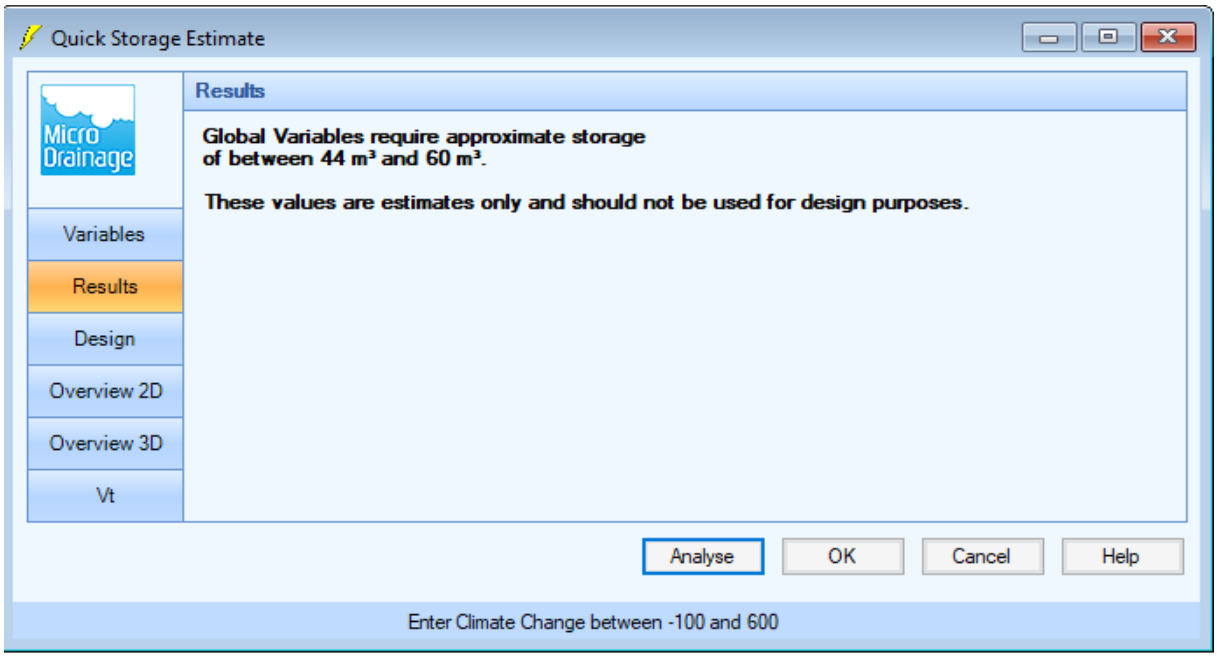




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	Job No.	126782	Calculated	KFM
	Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond			

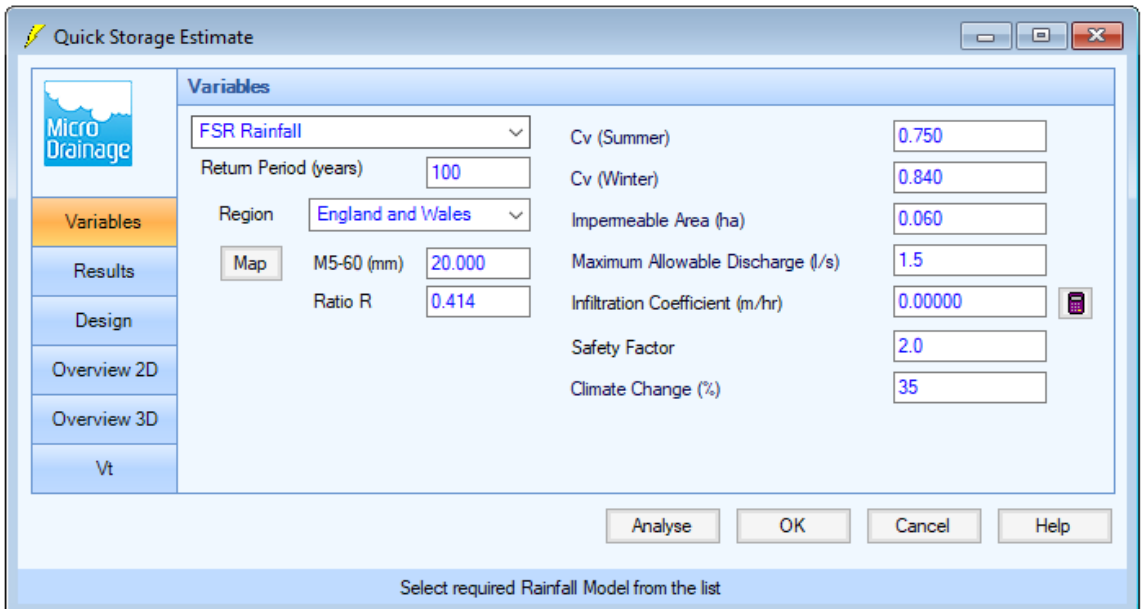
BLUE ROOF 3

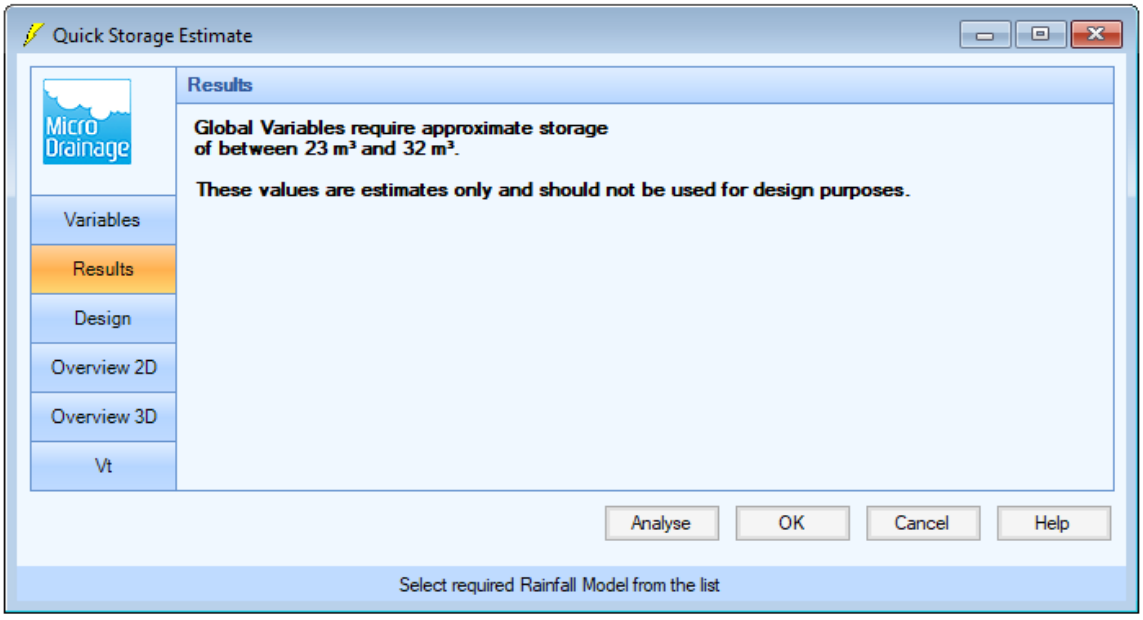




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	Job No.	126782	Calculated	KFM
	Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond			

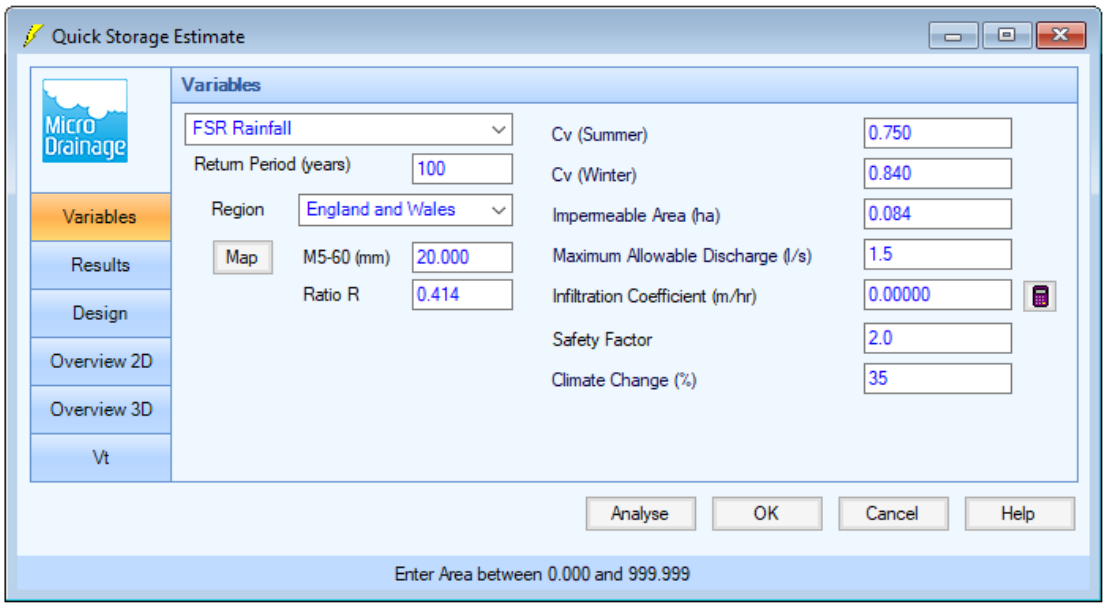
BLUE ROOF 4

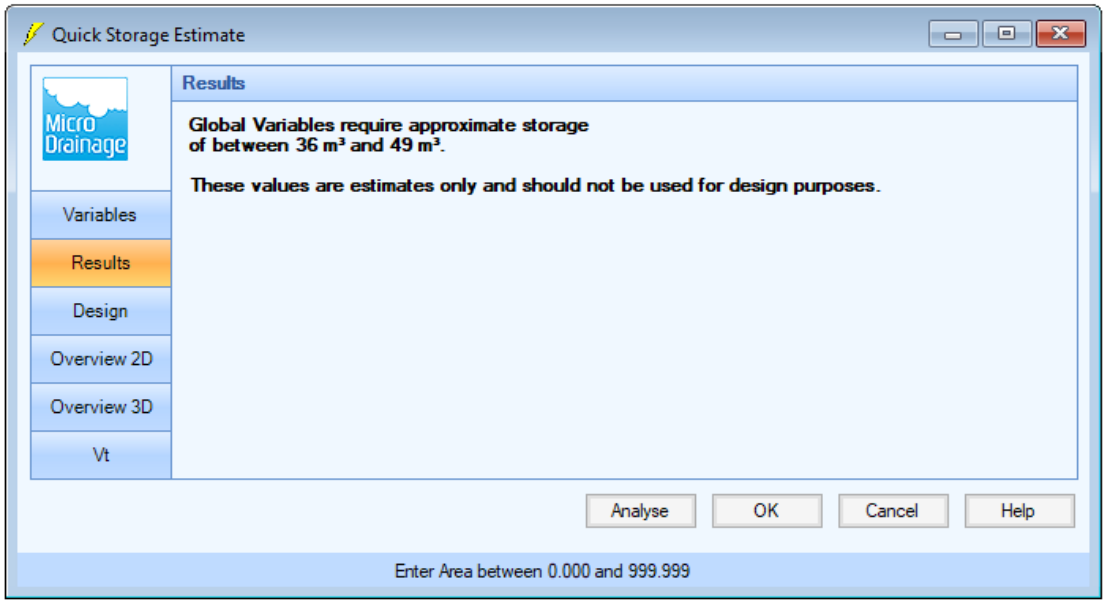




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	Job No.	126782	Calculated	KFM
	Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond			

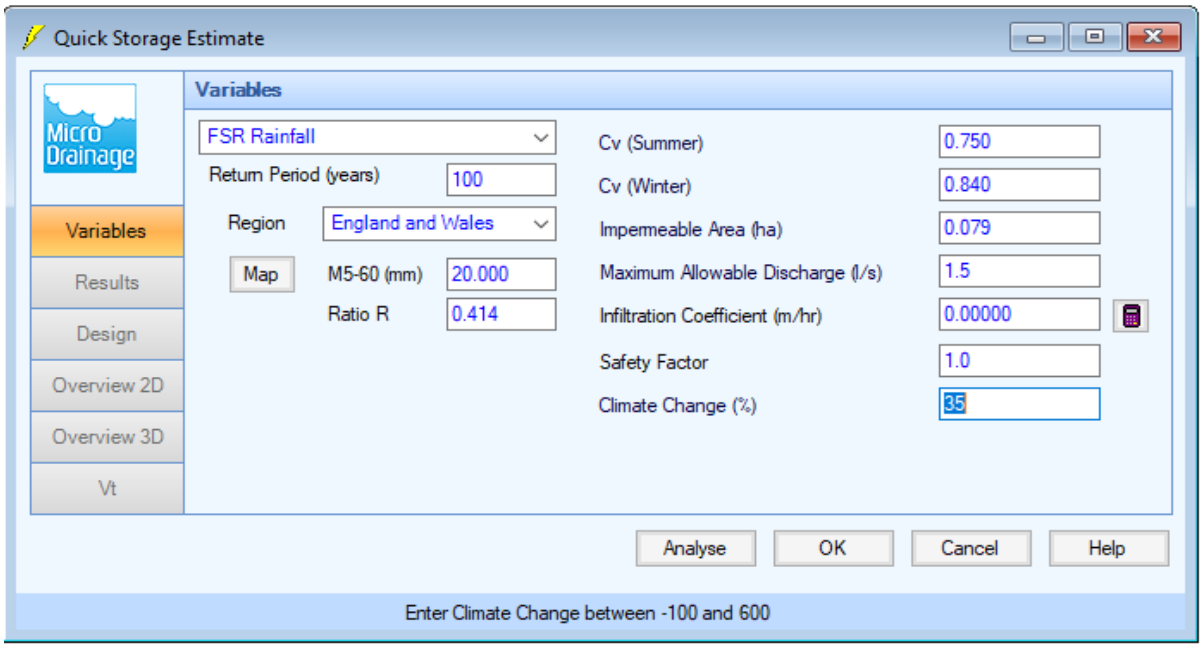
BLUE ROOF 5

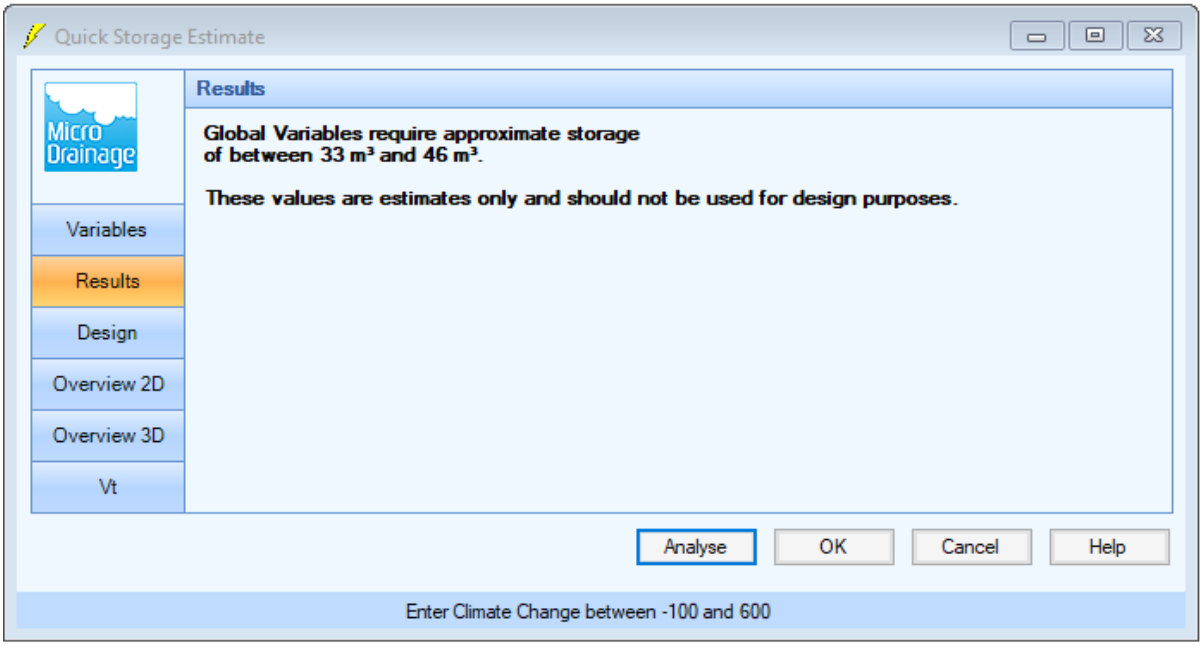




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	Job No.	126782	Calculated	KFM
	Date	11/10/2019	Checked	AC
Project	Manor Road, Richmond			

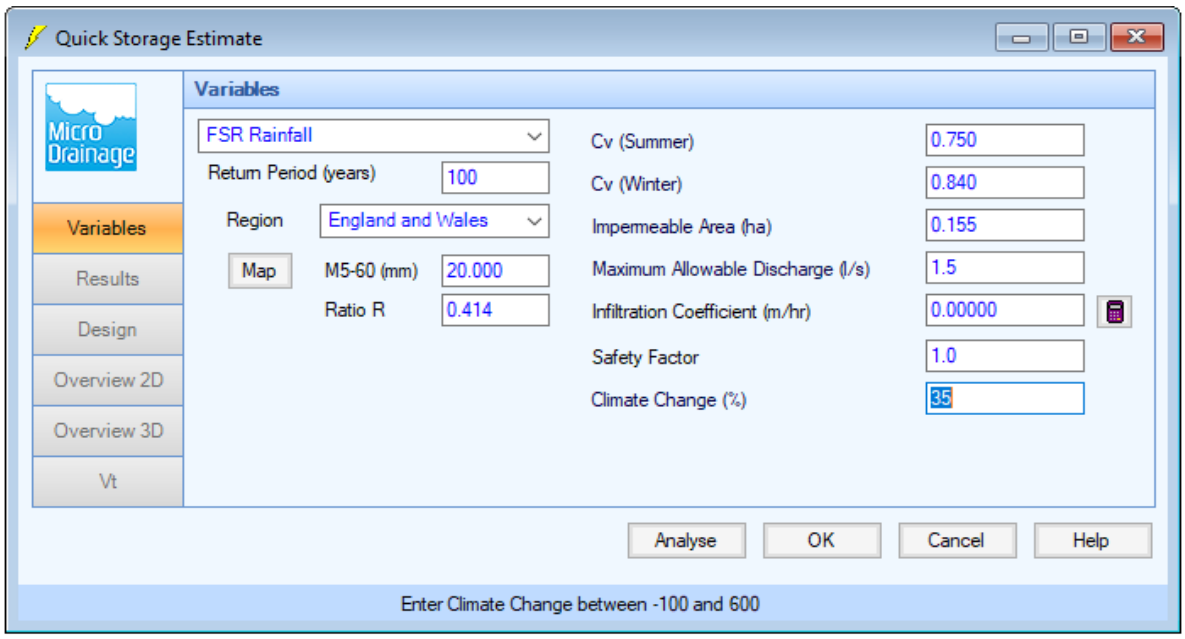
BLUE ROOF 6

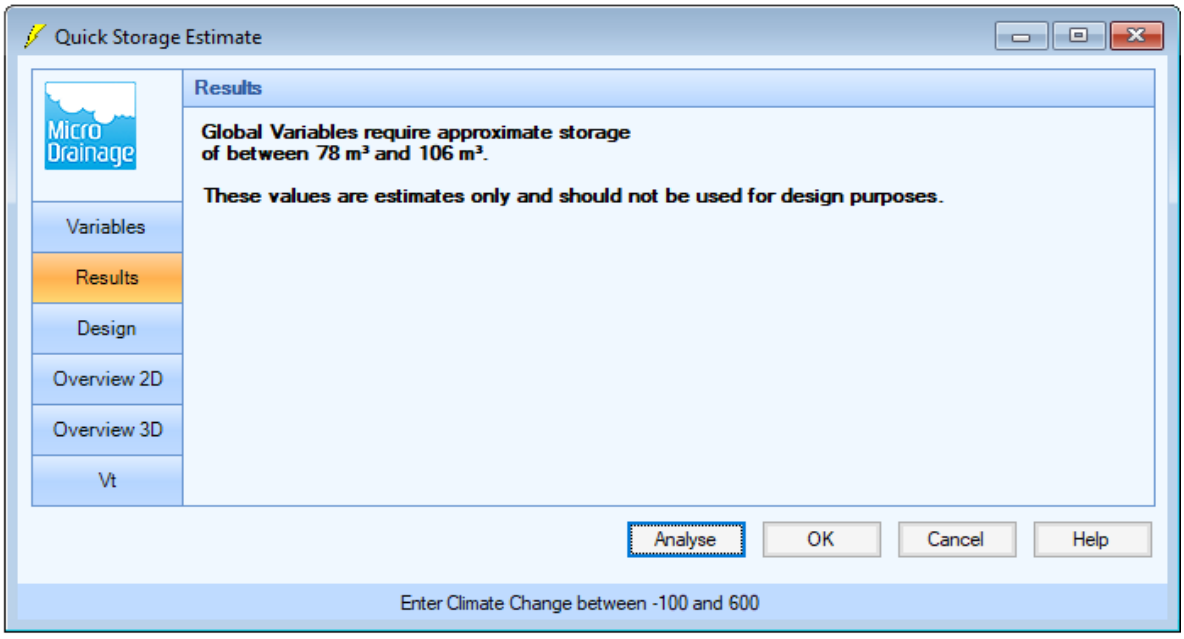




Attenuation required for 100yr + 35% climate change storm at greenfield runoff rates	**Job No.**	126782	**Calculated**	KFM
	Date	11/10/2019	**Checked**	AC
Project	Manor Road, Richmond			

BLUE ROOF 7





Summary of Results for 100 year Return Period (+35%)

Half Drain Time : 53 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.165	0.565	12.6	48.8	O K
30 min Summer	6.263	0.663	12.6	57.3	O K
60 min Summer	6.279	0.679	12.6	58.7	O K
120 min Summer	6.224	0.624	12.6	53.9	O K
180 min Summer	6.151	0.551	12.6	47.6	O K
240 min Summer	6.076	0.476	12.6	41.1	O K
360 min Summer	5.938	0.338	12.6	29.3	O K
480 min Summer	5.829	0.229	12.6	19.8	O K
600 min Summer	5.747	0.147	12.6	12.7	O K
720 min Summer	5.691	0.091	12.6	7.9	O K
960 min Summer	5.648	0.048	12.2	4.2	O K
1440 min Summer	5.635	0.035	8.8	3.0	O K
2160 min Summer	5.625	0.025	6.4	2.2	O K
2880 min Summer	5.620	0.020	5.0	1.7	O K
4320 min Summer	5.614	0.014	3.6	1.2	O K
5760 min Summer	5.611	0.011	2.8	1.0	O K
7200 min Summer	5.610	0.010	2.5	0.8	O K
8640 min Summer	5.608	0.008	2.1	0.7	O K
10080 min Summer	5.607	0.007	1.8	0.6	O K
15 min Winter	6.246	0.646	12.6	55.9	O K
30 min Winter	6.372	0.772	12.6	66.7	O K
60 min Winter	6.399	0.799	12.6	69.0	O K
120 min Winter	6.317	0.717	12.6	62.0	O K
180 min Winter	6.204	0.604	12.6	52.2	O K
240 min Winter	6.087	0.487	12.6	42.1	O K
360 min Winter	5.881	0.281	12.6	24.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	134.830	0.0	17
30 min Summer	88.004	0.0	31
60 min Summer	54.688	0.0	50
120 min Summer	32.836	0.0	84
180 min Summer	24.046	0.0	116
240 min Summer	19.168	0.0	150
360 min Summer	13.875	0.0	214
480 min Summer	11.034	0.0	272
600 min Summer	9.231	0.0	328
720 min Summer	7.976	0.0	382
960 min Summer	6.328	0.0	490
1440 min Summer	4.560	0.0	734
2160 min Summer	3.281	0.0	1080
2880 min Summer	2.595	0.0	1468
4320 min Summer	1.863	0.0	2164
5760 min Summer	1.471	0.0	2896
7200 min Summer	1.224	0.0	3640
8640 min Summer	1.053	0.0	4264
10080 min Summer	0.927	0.0	5016
15 min Winter	134.830	0.0	17
30 min Winter	88.004	0.0	31
60 min Winter	54.688	0.0	56
120 min Winter	32.836	0.0	90
180 min Winter	24.046	0.0	128
240 min Winter	19.168	0.0	162
360 min Winter	13.875	0.0	224

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Summary of Results for 100 year Return Period (+35%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
480 min Winter	5.730	0.130	12.6	11.3	O K
600 min Winter	5.652	0.052	12.6	4.5	O K
720 min Winter	5.644	0.044	11.1	3.8	O K
960 min Winter	5.635	0.035	8.8	3.0	O K
1440 min Winter	5.625	0.025	6.4	2.2	O K
2160 min Winter	5.618	0.018	4.6	1.6	O K
2880 min Winter	5.614	0.014	3.6	1.3	O K
4320 min Winter	5.610	0.010	2.6	0.9	O K
5760 min Winter	5.608	0.008	2.1	0.7	O K
7200 min Winter	5.607	0.007	1.7	0.6	O K
8640 min Winter	5.606	0.006	1.6	0.5	O K
10080 min Winter	5.605	0.005	1.3	0.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
480 min Winter	11.034	0.0	278
600 min Winter	9.231	0.0	312
720 min Winter	7.976	0.0	368
960 min Winter	6.328	0.0	490
1440 min Winter	4.560	0.0	718
2160 min Winter	3.281	0.0	1076
2880 min Winter	2.595	0.0	1468
4320 min Winter	1.863	0.0	2200
5760 min Winter	1.471	0.0	2904
7200 min Winter	1.224	0.0	3616
8640 min Winter	1.053	0.0	4272
10080 min Winter	0.927	0.0	5144

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.414	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+35

Time Area Diagram

Total Area (ha) 0.236

Time (mins) From:	To:	Area (ha)
0	4	0.236

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Model Details

Storage is Online Cover Level (m) 7.000

Cellular Storage Structure

Invert Level (m) 5.600 Safety Factor 1.0
Infiltration Coefficient Base (m/hr) 0.50000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	91.0	91.0	0.800	91.0	123.0	0.801	0.0	123.0

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Summary of Results for 100 year Return Period (+35%)

Half Drain Time : 41 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.461	0.461	11.1	35.0	O K
30 min Summer	6.531	0.531	11.1	40.4	O K
60 min Summer	6.535	0.535	11.1	40.7	O K
120 min Summer	6.478	0.478	11.1	36.3	O K
180 min Summer	6.407	0.407	11.1	31.0	O K
240 min Summer	6.337	0.337	11.1	25.6	O K
360 min Summer	6.216	0.216	11.1	16.4	O K
480 min Summer	6.130	0.130	11.1	9.9	O K
600 min Summer	6.077	0.077	11.1	5.8	O K
720 min Summer	6.051	0.051	11.1	3.9	O K
960 min Summer	6.041	0.041	9.1	3.1	O K
1440 min Summer	6.029	0.029	6.5	2.2	O K
2160 min Summer	6.021	0.021	4.7	1.6	O K
2880 min Summer	6.017	0.017	3.7	1.3	O K
4320 min Summer	6.012	0.012	2.7	0.9	O K
5760 min Summer	6.010	0.010	2.2	0.7	O K
7200 min Summer	6.008	0.008	1.8	0.6	O K
8640 min Summer	6.007	0.007	1.6	0.5	O K
10080 min Summer	6.006	0.006	1.4	0.5	O K
15 min Winter	6.529	0.529	11.1	40.2	O K
30 min Winter	6.621	0.621	11.1	47.2	Flood Risk
60 min Winter	6.625	0.625	11.1	47.5	Flood Risk
120 min Winter	6.537	0.537	11.1	40.8	O K
180 min Winter	6.425	0.425	11.1	32.3	O K
240 min Winter	6.317	0.317	11.1	24.1	O K
360 min Winter	6.143	0.143	11.1	10.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	134.830	0.0	17
30 min Summer	88.004	0.0	30
60 min Summer	54.688	0.0	46
120 min Summer	32.836	0.0	80
180 min Summer	24.046	0.0	114
240 min Summer	19.168	0.0	146
360 min Summer	13.875	0.0	206
480 min Summer	11.034	0.0	264
600 min Summer	9.231	0.0	316
720 min Summer	7.976	0.0	368
960 min Summer	6.328	0.0	490
1440 min Summer	4.560	0.0	734
2160 min Summer	3.281	0.0	1092
2880 min Summer	2.595	0.0	1444
4320 min Summer	1.863	0.0	2164
5760 min Summer	1.471	0.0	2936
7200 min Summer	1.224	0.0	3632
8640 min Summer	1.053	0.0	4328
10080 min Summer	0.927	0.0	4952
15 min Winter	134.830	0.0	17
30 min Winter	88.004	0.0	30
60 min Winter	54.688	0.0	50
120 min Winter	32.836	0.0	88
180 min Winter	24.046	0.0	124
240 min Winter	19.168	0.0	156
360 min Winter	13.875	0.0	214

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Summary of Results for 100 year Return Period (+35%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
480 min Winter	6.052	0.052	11.1	4.0	O K
600 min Winter	6.043	0.043	9.5	3.2	O K
720 min Winter	6.037	0.037	8.3	2.8	O K
960 min Winter	6.029	0.029	6.5	2.2	O K
1440 min Winter	6.021	0.021	4.7	1.6	O K
2160 min Winter	6.015	0.015	3.4	1.2	O K
2880 min Winter	6.012	0.012	2.7	0.9	O K
4320 min Winter	6.009	0.009	1.9	0.7	O K
5760 min Winter	6.007	0.007	1.6	0.5	O K
7200 min Winter	6.006	0.006	1.3	0.5	O K
8640 min Winter	6.005	0.005	1.2	0.4	O K
10080 min Winter	6.005	0.005	1.1	0.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
480 min Winter	11.034	0.0	252
600 min Winter	9.231	0.0	308
720 min Winter	7.976	0.0	370
960 min Winter	6.328	0.0	492
1440 min Winter	4.560	0.0	718
2160 min Winter	3.281	0.0	1064
2880 min Winter	2.595	0.0	1424
4320 min Winter	1.863	0.0	2168
5760 min Winter	1.471	0.0	2904
7200 min Winter	1.224	0.0	3560
8640 min Winter	1.053	0.0	4248
10080 min Winter	0.927	0.0	5080

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.414	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+35

Time Area Diagram

Total Area (ha) 0.175

Time (mins) From:	To:	Area (ha)
0	4	0.175

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Model Details

Storage is Online Cover Level (m) 7.000

Cellular Storage Structure

Invert Level (m) 6.000 Safety Factor 1.0
Infiltration Coefficient Base (m/hr) 0.50000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	80.0	80.0	0.800	80.0	108.8	0.801	0.0	108.8

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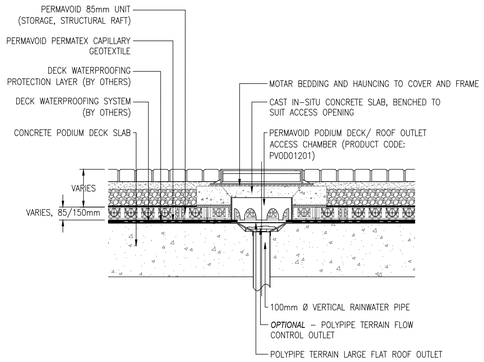
A.6 Surface Water Drainage Strategy

- Fairhurst drawing 126782-C-4000



TYPICAL BLUE ROOF DETAIL
PERMAVOID 85mm/150mm PODIUM DECK WITH ROOF ACCESS CHAMBER

CELLULAR SOAKAWAY TANK CONSTRUCTION DETAILS (TRAFFICKED AREAS)
1:20

DETAILS SHOWN ARE INDICATIVE. REFER TO MANUFACTURER FOR FULL DETAILS AND SPECIFICATIONS. REFER TO MANUFACTURERS DETAILS FOR INLET & OUTLET MANIFOLDS AND INSPECTION ACCESS. (REFER TO LAYOUT FOR LOCATIONS).

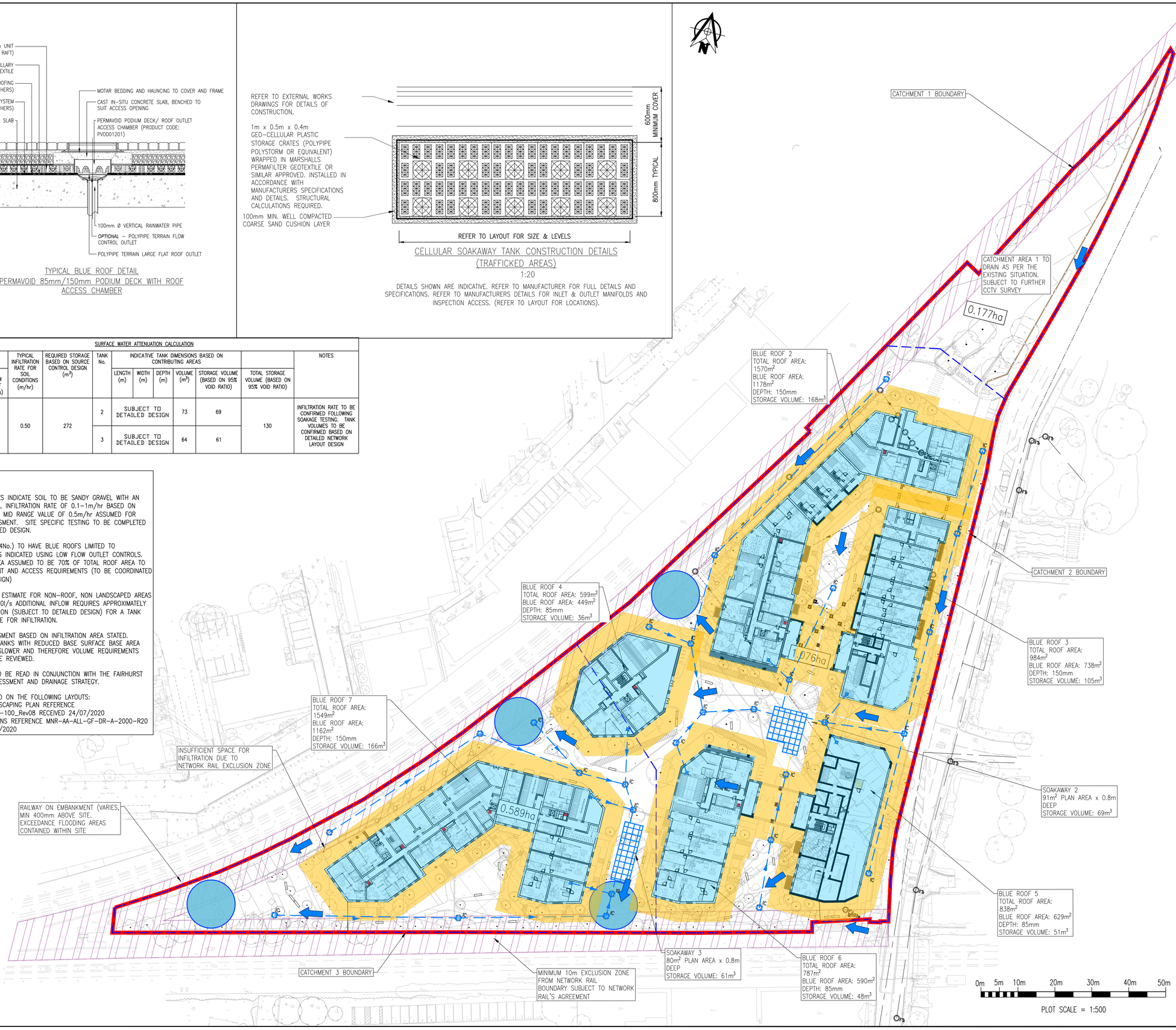
SURFACE WATER ATTENUATION CALCULATION

INFLOW		TYPICAL INFILTRATION RATE FOR SOIL CONDITIONS (m/hr)	REQUIRED STORAGE BASED ON SOURCE CONTROL DESIGN (m^3)	TANK No.	INDICATIVE TANK DIMENSIONS BASED ON CONTRIBUTING AREAS					TOTAL STORAGE VOLUME (BASED ON 95% VOID RATIO)	NOTES
RAINFALL FROM IMPERMEABLE AREA (ha)	REDUCED FLOW FROM BLUE ROOF OUTLET (l/s)				LENGTH (m)	WIDTH (m)	DEPTH (m)	VOLUME (m^3)	STORAGE VOLUME (BASED ON 95% VOID RATIO)		
0.41	5	0.50	272	2	SUBJECT TO DETAILED DESIGN			73	69	130	INFILTRATION RATE TO BE CONFIRMED FOLLOWING SOAKAGE TESTING. TANK VOLUMES TO BE CONFIRMED BASED ON DETAILED NETWORK LAYOUT DESIGN
				3	SUBJECT TO DETAILED DESIGN			64	61		

STRATEGY NOTES

1. LOCAL BOREHOLES INDICATE SOIL TO BE SANDY GRAVEL WITH AN ASSUMED TYPICAL INFILTRATION RATE OF 0.1–1m/hr BASED ON DESIGN GUIDES. MID RANGE VALUE OF 0.5m/hr ASSUMED FOR STRATEGY ASSESSMENT. SITE SPECIFIC TESTING TO BE COMPLETED PRIOR TO DETAILED DESIGN.
2. ALL BUILDINGS (4No.) TO HAVE BLUE ROOFS LIMITED TO 1l/s/BUILDING AS INDICATED USING LOW FLOW OUTLET CONTROLS. BLUE ROOFS AREA ASSUMED TO BE 70% OF TOTAL ROOF AREA TO ALLOW FOR PLANT AND ACCESS REQUIREMENTS (TO BE COORDINATED AT DETAILED DESIGN)
3. MIRCRODRAINAGE ESTIMATE FOR NON–ROOF, NON LANDSCAPED AREAS (0.53ha) WITH 5.0l/s ADDITIONAL INFLOW REQUIRES APPROXIMATELY 222m^3 ATTENUATION (SUBJECT TO DETAILED DESIGN) FOR A TANK WITH 315m^2 BASE FOR INFILTRATION.
4. VOLUMES ASSESSMENT BASED ON INFILTRATION AREA STATED. TANKS DEEPER TANKS WITH REDUCED BASE SURFACE BASE AREA MAY INFILTRATE SLOWER AND THEREFORE VOLUME REQUIREMENTS WILL NEED TO BE REVIEWED.
5. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FAIRHURST FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY.

THIS DRAWING IS BASED ON THE FOLLOWING LAYOUTS:
1. GILLESPIES LANDSCAPING PLAN REFERENCE P11559–00–001–100_Rev08 RECEIVED 24/07/2020
2. ASSAEL SITE PLANS REFERENCE MNR–AA–ALL–GF–DR–A–2000–R20 RECEIVED 22/07/2020



NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO–ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
6. ANY WORKS OUTSIDE SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
7. THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
8. TOTAL SITE AREA = 1.842ha
TOTAL NON ROOF AREA = 1.198ha
TOTAL NON PERMEABLE NON ROOF AREA = 0.703ha

KEY

- SITE BOUNDARY
- 5m HOUSING EXCLUSION ZONE FOR INFILTRATION
- 10m NETWORK RAIL EXCLUSION ZONE FOR INFILTRATION
- INFILTRATION CRATE
- BLUE ROOFS TYPICALLY 85–150mm THICK
- SURFACE WATER EXCEEDANCE ROUTES
- INDICATIVE AREA OF FLOODING
- EXISTING SW MANHOLE
- EXISTING SW PIPE
- PROPOSED SW MANHOLE
- PROPOSED SW PIPE
- RWP PROPOSED RAINWATER PIPE

Rev.	Date	Description	Drwn.	Chkd.	Appd.
P10	27/07/20	SITE PLANS UPDATED	KM	RP	AC
P09	14/07/20	NEW SITE LAYOUT FOLLOWING DESIGN UPDATE	KM	RP	AC
P08	21/11/19	SITE LANDSCAPE LAYOUT UPDATED	KM	KM	AC
P07	22/10/19	SITE LANDSCAPE LAYOUT UPDATED AND ATTENUATION REPOSITIONED	KM	KM	AC
P06	10/10/19	SITE LAYOUT UPDATED	KM	KM	AC
P05	20/05/19	SITE LANDSCAPE LAYOUT UPDATED AND ATTENUATION UPDATED TO SUIT NEW LANDSCAPING AREAS	CD	AP	AC
P04	07/05/19	SURFACE WATER EXCEEDANCE ROUTE, FLOODING AREAS, GREEN ROOF AREAS AND TANK VOLUMES AND CALCS ADDED	HJ	AP	AC
P03	14/12/18	SITE LAYOUT UPDATED	CD	AP	AC
P02	21/11/18	KEY AMENDED	CD	AP	AC
P01	20/11/18	ISSUED FOR INFORMATION	CD	AP	AC

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Client: AVANTON

Project Title:
FORMER HOMEBASE
MANOR ROAD
RICHMOND

Drawing Title:
PRELIMINARY SURFACE WATER DRAINAGE STRATEGY

Scale at A1:	Status:	Fairhurst Project No:
1:500	DISCUSSION	126782
Drawn: AP	Checked: AP	Approved: AC
Date: NOV 18	Date: NOV 18	Date: NOV 18

Drawing No.: 126782–C–4000 Revision: P10

A.7 Typical Drainage Maintenance Schedules

Drainage Maintenance Schedules

DOCUMENT CONTROL		Name	Signature	Date
	Prepared by	A Prais		Nov 2018
	Checked by	A Prais		Nov 2018
	Approved by	A Chambers		Nov 2018

Rev.	Date	Status	Description	Signature		
1				By	Chk	Aprv
2				By	Chk	Aprv

FAIRHURST
consulting engineers

1 Overview

1.1.1 The following tables are taken from the SuDS Manual (CIRIA C753) where available or from manufacturers data and recommendations giving the operation and maintenance requirements for various surface water drainage components.

1.1.2 A brief description to be included in the maintenance strategy note / report is included.

1.1.3 This note is intended to be a live document and added to as different components are used at different sites and to be used as a resource for when producing schedules for future sites using the same / similar components.

1.2 Operation and Maintenance

1.2.1 There are three types of maintenance activities associated with surface water drainage systems. The SuDS Manual, CIRIA C753, defines these as:

- Regular Maintenance – 'basic tasks undertaken on a frequent and predictable schedule' including vegetation management, litter and debris removal, and inspections.'
- Occasional Maintenance – 'tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example.'
- Remedial Maintenance – 'intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.'

1.2.2 Specific maintenance needs should be monitored and maintenance schedules adjusted to suit the location and condition of the drainage feature in question.

1.2.3 The table below gives an overview of the maintenance required for each of the SuDS elements used on the site.

1.2.4 Not all drainage features which require maintenance are SuDS devices and are therefore not all in the table below. This includes the following;

- Flow controls including orifice plates, vortex controls etc

Details of the maintenance of these are given in later sections alongside the full details of the SuDS device maintenance requirements.

Operation & maintenance requirement	Piped Network / Inspection Chambers	Porous Pavement	Petrol Interceptor	Modular Storage Tank	Soakaway	Green Roof	Detention / infiltration Basin	Swale
Regular Maintenance								
Inspection	■	■	□	■	■	■	■	■
Litter and debris removal	■	■	□	□	□	■	■	■
Grass Cutting		□	□	□	□	■	■	■
Weed / invasive plant control		□				□	□	□
Shrub management		□				□	□	□
Shoreline vegetation management							□	
Aquatic vegetation management							□	
Occasional Maintenance								
Sediment management[1]	■	■	■	■	■	■	■	■
Vegetation/plant replacement						□	□	□
Vacuum sweeping and		■						

Operation & maintenance requirement	Piped Network / Inspection Chambers	Porous Pavement	Petrol Interceptor	Modular Storage Tank	Soakaway	Green Roof	Detention / infiltration Basin	Swale
brushing								
Remedial Maintenance								
Structure rehabilitation / repair	□		□		□	□	□	□
Infiltration surface reconditioning	□	□	□	□	□	□	□	□
■ Will be required □ May be required [1]Sediment should be collected and managed in pre-treatment systems, upstream of the main device.								

Table 1 - Extracted and adapted from The SuDS Manual (C697, 20071) Table 22.1: Typical key SuDS components operation and maintenance activities.

[1] CIRIA C697 SuDS Manual was superseded in 2015 by the updated SuDS Manual, C753. This table is still relevant however was not included in this format in the later edition.

2 Schedules

2.1 Attenuation Storage Tanks

Source: CIRIA C753 - Table 21.3

2.1.1 Attenuation tanks, in various forms, are used to store runoff on site to limit the peak discharge into the adopted surface water network. On this site, this storage has been achieved through the provision of a below ground cellular storage tank. This tank has a high void ratio allowing large volumes of surface waters to be stored during storm events which is discharged at a controlled flow rate into the sewer network.

2.1.2 Tanks require regular inspection to ensure they operate as designed and do not become blocked, preventing flows entering / exiting the tank or reducing their storage capacity.

2.1.3 During storm events, surface water may be attenuated for long periods of time in the tank. This time may result in any silts suspended in the runoff to settle out and gather at the base of the tank. Failing to take action to remove this can result in reducing the capacity of the tank and the deposited silt causing blockage.

2.1.4 Table 2 outlines the maintenance required for the effective operation of the cellular storage tank.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
Remedial actions	Repair / rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect / check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Table 2 - Attenuation storage tank maintenance requirements (CIRIA C753 Table 21.3)

2.2 Permeable Pavements

Source: CIRIA C753 - Table 20.15

2.2.1 Permeable pavements have higher voids than regular pavements to allow surface water to drain through them either directly into the ground, reducing the flow into the surface water drainage network, or through an outlet into the surface water drainage network. Where an

outlet is provided, the peak flow rate into the network is reduced as infiltration through the pavement takes longer than flowing over hard surfaces.

2.2.2 Table 3 outlines the maintenance required for the effective operation of the permeable pavements.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphospate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Table 3 – Permeable pavement maintenance requirements (CIRIA C753 Table 20.15).

2.3 Outflow Controls – Vortex Control / Hydrobrake

Source: Various manufacturers literature.

2.3.1 A vortex flow control device is a complex control used to limit the discharge rate. Where a simple orifice will limit the discharge by a fixed amount, a vortex control device can vary the discharge rate depending on the head driving the flow. This allows low flow rates to pass during smaller storms, but larger flow rates to pass up to the maximum designed rate during larger storms to prevent the network flooding.

2.3.2 Vortex flow control devices have no moving parts and therefore require little maintenance. Inspections should be completed routinely, or if a blockage is suspected to check for litter and potential blockage risks as detailed in Table 4.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	None required	n/a
Remedial actions	Remove debris and silt build up	As required
	Repair / replace flow control device	As required
Monitoring	Open manhole and visually inspect device and sump for blockages and debris.	Every 3 – 6 months and if evidence of poor performance
	Inspect flow control device for visible signs of damage	Annually or if evidence of poor performance.

Table 4 – Vortex Control / Hydrobrake maintenance requirements

2.4 Other Components - Manholes (including catchpits), Gullies and Channels

Source: Various guidance

2.4.1 In addition to the aforementioned SuDS components of the network, the network also consists of gullies, channels and other components to collect the flow into the network. It is at these locations that silt is most likely to enter the system.

2.4.2 Table 5 outlines the maintenance required for the effective operation of the other surface water drainage network components.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove debris from catchment surface / gratings (where may cause risks to performance)	Monthly (and after large storms)
Remedial actions	Remove sediment from manholes and catchpits	Annually or as required
	Repair / rehabilitation of gratings, inlets and outlets	As required
Monitoring	Inspect / check all gratings, manholes and	Annually and after large

Maintenance Schedule	Required Action	Typical Frequency
	catchpits to ensure that they are in good condition and operating as designed.	storm events
	Inspect and identify any features that are not operating correctly. If required take remedial action	Monthly for three months, then six monthly

Table 5 - Other drainage components maintenance requirements

2.5 Green Roofs

Source: CIRIA C753 - Table 12.5

2.5.1 Green roofs are areas of living vegetation, installed on the top of buildings, for a range of reasons including visual benefit, ecological value, enhanced building performance and the reduction of surface water runoff. There are two main types of green roofs

(i) Extensive – low substrate depths and loadings with low maintenance requirements. These are generally inaccessible.

(ii) Intensive – deeper substrates and loadings which can support a variety of plants but require more intensive maintenance. These are usually accessible.

2.5.2 It is important to note that although they are useful in the control and management of surface water runoff, they are constructed over impermeable bases and therefore do not act in the same way as an equivalent greenfield area. The Green Roof Organisation has guidance on the equivalent impermeability of the area, expected volumes that may discharge to evaporation, and runoff rates used to design downstream elements of the surface water network.

2.5.3 Table 7 outlines the maintenance required for green roofs. Where available, manufacturer specific information should take precedence over this.

Maintenance Schedule	Required Action	Typical Frequency
Regular inspections	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes and roof structure for proper operation, integrity of water proofing and structural stability	Annually and after severe storms
	Inspect soil substrate for evidence of erosion channels and identify and sediment sources	Annually and after severe storms
	Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system	Annually and after severe storms
	Inspect the underside of the roof for evidence of leakage	Annually and after severe storms
Regular maintenance	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth	6 monthly and annually or as required
	During establishment (ie year one), replace dead plants as required (where >5% coverage)	Monthly (but usually responsibility of manufacturer)
	Post establishment replace dead plants as required (where >5% coverage)	Annually (in autumn)

Maintenance Schedule	Required Action	Typical Frequency
	Remove fallen leaves and debris from deciduous foliage	6 monthly or as required
	Remove nuisance and invasive vegetation including weeds	6 monthly or as required
	Mow grasses, prune shrubs and manage other planting (if appropriate) as required – clippings should be removed and not allowed to accumulate	6 monthly or as required
Remedial actions	If erosion channels are evident, these should be stabilised with extra soil substrate similar to the original material, and sources of erosion damage should be identified and controlled	As required
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate	As required

Table 6 – Green Roof maintenance requirements

2.6 Soakaways

Source: CIRIA C753 - Table 13.1

2.6.1 There are many types of infiltration systems of which soakaways area one. These are excavations filled with granular material to allow voids to form for temporary storage of water whilst is soaks into the ground.

2.6.2 Historically these were rubble filled excavations; however more recently similar devices can be constructed using geotextile lines cellular crates. Alternatively, lined soakaways can be created using perforated precast concrete manhole rings surrounded with a geotextile and backfill. Concrete manhole rings have the advantage (over cellular crates) of being more accessible for cleaning and maintenance. Cellular crates have the advantage of being able to achieve larger volumes of storage.

2.6.3 Soakaways are not appropriate for all sites depending on the soil type and other site constraints. Where they are used, they should be designed by an engineer for the specific site for which they are to be used

2.6.4 Table 7 outlines the maintenance required for soakaways[2]

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect for any sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)

[2] Note, this is for concrete manhole ring soakaways. For other types, refer to the appropriate tables.

Maintenance Schedule	Required Action	Typical Frequency
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As required, based on inspections
Remedial actions	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As required
Monitoring	Inspect all silt traps and note rate of sediment accumulation	Monthly in first year and then annually
	Check soakaway to ensure emptying is occurring	Annually

Table 7 - Soakaway maintenance requirements

2.7 Detention Basins

Source: CIRIA C753 - Table 22.1

2.7.1 Detention basins are landscaped depressions that are normally dry except during and immediately following storm events. They can be online components to manage runoff from regular events or offline to manage exceedance events only. They can be used for infiltration, where the underlying ground conditions are suitable or to attenuate flows until downstream capacity becomes available for controlled discharge. Due to their vegetated bases, they can also be used to provide treatment to flows. Depending on their design, they can also be used as recreational facility.

Detention basins differ from ponds as they are designed to be dry under normal conditions whereas ponds are designed to maintain a constant presence of water.

2.7.2 Table 8 outlines the maintenance required for detention basins.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season) or as required
	Cut grass – meadow grass in and around basin	Half-yearly (spring- before nesting season and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at stare then as required)
	Inspect inlets, outlets and overflows for blockages and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year) then annually or as required

Maintenance Schedule	Required Action	Typical Frequency
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	
	Remove sediments from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and cuttings	Every 2 years, or as required
	Remove sediments from inlets, outlets forebay and main based when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or returfing	As required
	Realignment of rip-rap	
	Repair/rehabilitation of inlets, outlets and overflows	
	Relevel uneven surfaces and reinstate design levels	

Table 8 – Detention Basin maintenance requirements

2.8 Swales

Source: CIRIA C753 - Table 17.1

2.8.1 Swales are shallow, flat bottomed, vegetated open channels designed to convey, treat and often attenuate surface water runoff. They can be incorporated into site design to enhance the natural landscape and provide biodiversity benefits. Swales can have a variety of profiles and designed to be usually dry (other than during and immediately after rainfall events) or permanently withhold some water. They can be used as surface water conveyance, or if ground conditions allow, infiltration direct to ground.

2.8.2 Table 9 outlines the maintenance required for swales.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain height within specified design range	Monthly (during growing season or as required)
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months,

Maintenance Schedule	Required Action	Typical Frequency
		quarterly for 2 years, then half yearly
	Inspect inlets and fascility surface for silt accumulation, establish appropriate silt removal frequencies.	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% of swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	
	Remove and dispose of oils or petrol residues using safe standard practices	

Table 9 - Swale maintenance requirements

3 Health, Safety and Welfare

3.1.1 All those responsible for maintenance should take appropriate health, safety and welfare precautions for all activities including lone working, if relevant. Risk assessments should always be undertaken before carrying out any works either inside or outside of the site.

3.1.2 The requirements of the Health and Safety at Work Act 1974 and The Construction (Design and Management) Regulations 2015 should be adhered to and any residual risks identified in the Health and Safety File should be managed and information passed on to maintenance operatives through task specific risk assessments.

A.8 Local Authority Drainage Assessment Form

Treatment – Improving the quality of water by physical, chemical and/or biological means.
Watercourse – A term including all rivers, streams, ditches, drains, cuts, culverts, dykes, sluices, and passages through which water flows.

Water table (or groundwater table) – The point where the surface of groundwater can be detected. The water table may change with the seasons and the annual rainfall.

Appendix 1:

DESIGN ASSESSMENT CHECKLIST: SCHEME

Table 1: Scheme Design Assessment Checklist

Requirements			
Site ID	MANOR RD, RICHMOND		
Site Location and co-ordinates	MANOR RD, [redacted] TW9 1YB | 518901, 175426		
Site description	BROWNFIELD	Drawing Reference(s)	126782/C/4000
Date of assessment	14/12/2018	Specification Reference	
Type of development	MIXED USE	Site Area	1.65ha

	SuDS Manual Page Ref*	Y	N	Summary of details	Comments / Remedial actions
PRINCIPLES					
Is the runoff managed at or close to its source, wherever possible? If not, give reasons.		✓		INFILTRATION PROPOSED	
Is the runoff managed at or close to the surface, wherever possible? If not, give reasons e.g. infiltration systems are being used to manage the runoff.		✓		INFILTRATION. NO SPACE FOR ON-SURFACE SUDS	
Where the drainage system serves more than one property, is public space used and integrated with the drainage system in an appropriate and beneficial way ? If not, give reasons.		✓		PERMEABLE AREAS, INFILTRATION TANKS	
Have the opportunities afforded by the drainage system in terms of green infrastructure, biodiversity, urban design, climate adaptation and amenity provision been maximised?		✓		GREEN ROOFS ALLOWANCE FOR CLIMATE CHANGE	
Has an appropriate SuDS Management train been provided?					AT DETAILED DESIGN
Are the operating and maintenance requirements of the drainage system adequately defined?					"
Is operation and maintenance achievable at an acceptable cost?				PRIVATE MANAGEMENT COMPANY	
POINT OF DISCHARGE					
Does the design meet the following discharge hierarchy 1. Infiltration is preferred where it is safe and acceptable to do so; 2. If infiltration is not possible discharge to water course; 3. Discharge to sewer as last resort.		✓		INFILTRATION	
If infiltration is used: Confirm that an acceptable infiltration assessment has been undertaken and submitted?				IN PROGRESS	

	SuDS Manual Page Ref*	Y	N	Summary of details	Comments / Remedial actions
If discharge is to sewer, rather than a surface water body, provide justification.				n/a , possible	
If discharge to a sewerage asset is proposed, has evidence been provided that the design criteria have been agreed with the sewerage undertaker and that an appropriate connection detail has been agreed?				overflow connection depen dant on infiltration results TBC	
Have adequate and appropriate exceedance routes been provided and are they protected from future development?					
INTERCEPTION					
Does the scheme design demonstrate on-site retention of approximately the first 5mm of runoff from impermeable surfaces for most events? How is Interception to be delivered (e.g. infiltration, green roofs, permeable pavements, vegetated surfaces, bespoke design - provide details)?		✓		- GREEN ROOFS - SOFT LANDSCAPING	
PEAK FLOW RATE CONTROL					
Does the design demonstrate control of the 1 year, critical duration site event to the equivalent 1 year greenfield peak flow rate or below?				N/A INFILTRATION DISCHARGE	
Does the design demonstrate control of the 100 year, critical duration site event to the equivalent 100 year greenfield peak flow rate or below?					
Do the design calculations take account of future development (urban creep) and climate change?					
VOLUMETRIC CONTROL (FOR THE 100 YEAR, 6 HOUR EVENT)					
Does the design demonstrate that, for the 100 year 6 hour event: *Either:* The discharged site runoff volume is not greater than the equivalent greenfield runoff volume? *Or:* The discharged site runoff volume over and above the equivalent greenfield runoff volume (i.e. the Long Term Storage Volume) is discharged at a rate < 2 l/s/ha (or another rate that is considered acceptable in not negatively impacting flood risk of the receiving water body) *Or:* Peak flow rates from the site are restricted to 2 l/s/ha or Qbar, whichever is the greater ha (or another rate that is considered acceptable in not negatively impacting flood risk of the receiving water body).				N/A INFILTRATION DISCHARGE	
WATER QUALITY TREATMENT					
Is the receiving water body (surface or groundwater) environmentally sensitive (E.g. Groundwater Source Protection Zone? What is its designation? Are any implications for drainage design clearly defined?				~~N~~ NOT IN GROUND WATER PROTECTION ZONE	

	SuDS Manual Page Ref*	Y	N	Summary of details	Comments / Remedial actions
Does the design include an appropriate treatment strategy that ensures: 1. Sediment is trapped and retained on site in accessible and maintainable areas? 2. Has a sufficient number of drainage components been provided in series prior to discharge? 3. Suitable pollution removal capability e.g. % TSS removal (where this is a requirement of the SAB)		✓		CATCHPITS USED, SOFT LANDSCAPING	
FUNCTIONALITY					
Are the design features sufficiently durable to ensure structural integrity over the system design life (residential 100 years and commercial 60 years), with reasonable maintenance requirements?		✓			
Are all parts of the SuDS system outside any areas of flood risk? If not, provide justification and evidence that performance will not be adversely affected.		✓			
Is pumping a requirement for operation of the system? If yes, provide justification and set out operation and maintenance/adoption arrangements.			✓		
Has runoff and flooding from all sources (both on and off site) been considered and taken into account in the design?		✓			
Are 1 in 30 year flows fully conveyed within the SuD system ?		✓			
Are 1 in 100 year flows contained or stored on-site within safe exceedance storage areas and flow paths? Note some approving authorities may require greater return periods.		✓			
CONSTRUCTABILITY					
Has an acceptable construction method statement been submitted and approved?				AT DETAILED DESIGN/ CONSTRUCTION	
MAINTAINABILITY					
Has an acceptable Maintenance Plan been submitted and approved?				AT DETAILED DESIGN/ CONSTRUCTION	
INFORMATION PROVISION					
Do the design proposals include sufficient provision for community engagement and awareness raising?					

(*) to be added on completion of SuDS Manual update

SYSTEM DESIGN ACCEPTABILITY	Summary details including any changes required	Acceptable (Y/N)	Date changes made
Acceptable: Minor changes required: Major changes required / re-design:			

A.9 Local Authority Planning Checklist

Requirement	Comment / Evidence location
A diagram of the proposed scheme showing the outline design of SuDS for the site. This should show where areas drain to, the flow routes for water through the system, where water will be stored and the volume of storage provided for the design rainfall event, the location, capacity and details of flow controls and the discharge point. Exceedance routes should also be indicated or explained.	Fairhurst Drawing 136782-C-4000
Description of likely geology below the site	Geo-Environmental and Geotechnical Preliminary Risk Assessment, Report Fairhurst 126782-R1
Description of existing topography of the site and natural or existing surface water drainage flows and how these have been allowed for in the design;	Statements in FRA
The proposed destination for the surface water	Statements in FRA & drainage strategy
If discharging surface water to a public sewer, developers will be required to provide evidence with the application that capacity exists in the public sewerage network to serve their development in the form of written confirmation. If discharging to infiltration then the developer will need to provide evidence that the site is suitable. This will require a site investigation including infiltration tests (see the 'SuDS Manual');	Infiltration tests commissioned, awaiting results.
Landscaping plans for any open surface features showing how they are integrated into the overall landscape design for the development;	n/a
Health and safety checklist for the scheme	To be completed during detailed design
Demonstrate how interception losses are provided through the provision of SuDS techniques, which absorb water or allow small volumes to soak into the ground. This means that there should be no runoff for the majority of rainfall events up to 5mm depth (i.e. around 50% of all rainfall events). This is achieved by using systems that allow water to soak into the ground, soil or stone layers and allowing for evapotranspiration. Interception losses occur in the top parts of the system or only require low infiltration rates in the soil below, and therefore can be provided even if the ground is not suitable for full infiltration. This is only a small volume of water so is achievable on most if not all sites in Richmond.	n/a Site to discharge via infiltration
Supporting calculations to demonstrate the system has sufficient capacity.	Pipe capacity to be confirmed at detailed design. Quick storage estimates (see FRA) show preliminary attenuation volumes.

Supporting justification for the treatment provision within the system (see the 'SuDS Manual');	n/a
Explanation of the amenity and biodiversity provision within the system and the basis for the design of these aspects. Whilst these are one of the benefits of SuDS, they may not be provided on all smaller developments (especially single houses). However, providing these aspects can create much more pleasant places to live.	Refer to landscape architect plans
Explanation of the maintenance requirements for the system (what to do and the frequency) along with an indication of how lack of maintenance affects the performance of the system (hydraulic and water quality). Indication of the likely annual cost of maintenance.	See FRA / drainage strategy
Drainage Assessment Checklist	See FRA / drainage strategy

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