

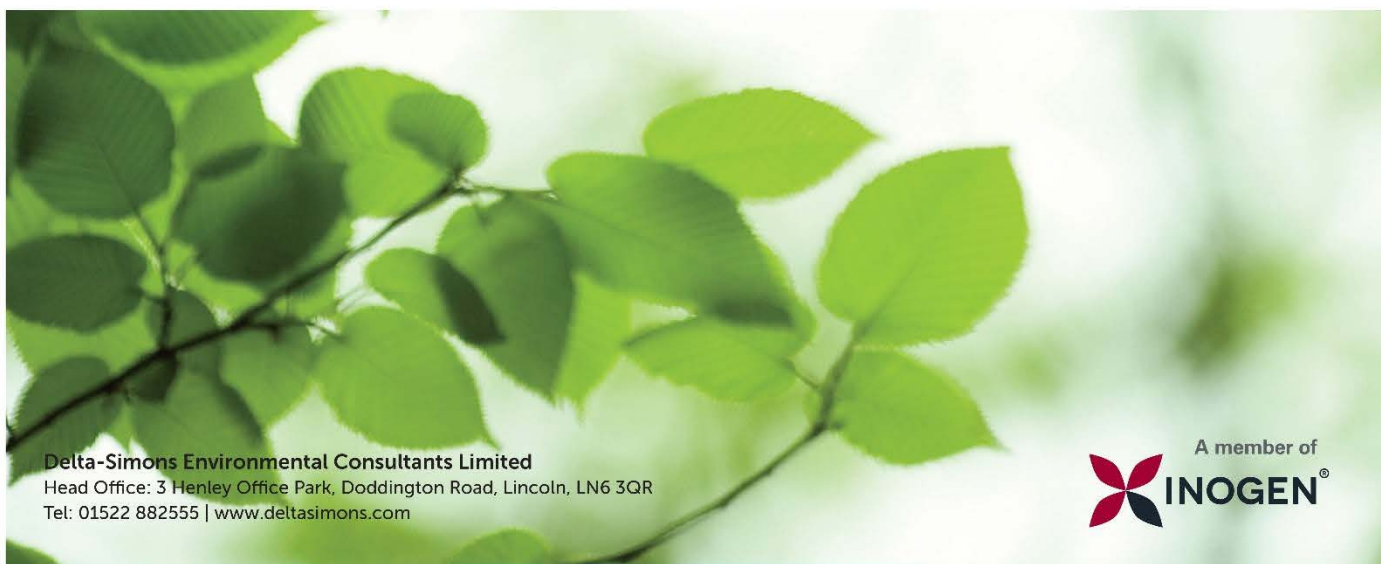
Preliminary Geo-Environmental Risk Assessment

Hillingdon Gardens

Presented to **Inland Homes Ltd**

Issued: October 2019

Delta-Simons Project No. 17-0420.02





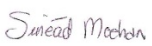
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Report Details

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| Client | Inland Homes Ltd |
| Report Title | Preliminary Geo-Environmental Risk Assessment |
| Site Address | Hillingdon Gardens |
| Project No. | 17-0420.02 |
| Delta-Simons Contact | Susana Pereira (susana.pereira@deltasimons.com) |

Quality Assurance

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About us

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Specialising in Environment, Health & Safety and Sustainability, Delta-Simons provide support and advice within the property development, asset management, corporate and industrial markets. Operating from ten locations - Lincoln, Birmingham, Bristol, Dublin, Leeds, London, Manchester, Newcastle, Norwich and Nottingham - we employ over 75 environmental professionals, bringing experience from across the private consultancy and public sector markets.

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Executive Summary

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| Brief | Delta-Simons was instructed by Inland Homes Ltd to produce a Preliminary Geo-Environmental Risk Assessment for the Site located at the Former Master Brewer Motel Site, Freezeland Way, Hillingdon UB10 9PQ. For construction of a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development. |
| Site Use & Surrounding Area | The Site currently comprises a roughly rectangular shaped, currently vacant plot of land, located within a predominantly commercial/residential area with Hillingdon Station and the A40 to the west and north of the Site. It is bound by vegetated undeveloped land to the east. The Site predominantly comprises concrete and asphalt hardstanding with areas of roughly vegetated land with trees and bushes. |
| Environmental Setting | <p>The Site is understood to be underlain by a sequence of Made Ground (in locations of former buildings or infilled ground) underlain by deposits of the London Clay Formation (unproductive strata), underlain by Woolwich and Reading Beds Formation, and subsequently the Seaford and Newhaven Chalk Formation (classed as Secondary A Aquifers and Principal Aquifers respectively).</p> <p>The nearest pertinent surface water features are the Yeading Brook “west arm” located approximately 530 m to the east and the River Pinn, located approximately 720 m to the west of the Site boundary.</p> |
| Contamination Potential Sources | Limited potential sources of contamination have been identified, comprising localised Made Ground deposits, the former development at the Site and the associated reservoir and tank. Off-Site potential sources include a historical landfill site, potentially infilled ground, a waste transfer site, a railway line, and commercial units in the surrounding area. |
| Contaminated Land Risk Associated with Ownership | There is considered to be a Low risk of enforcement action by the regulatory authorities under Part 2A of the Environmental Protection Act, the Water Resources Act or the Environmental Damage Regulations. The potential for legal action by surrounding landowners / Third Parties based on the potential for contamination to migrate off-Site (ongoing or historically) is considered to be Low to Moderate. |
| Development Considerations | Widespread contamination is considered unlikely and the preliminary risk assessment has identified a Low to Moderate risk of soil/groundwater contamination and hazardous ground gas at the Site. Asbestos may be present within the localised Made Ground. |
| Recommendations | <p>Previous Delta-Simons investigation information has indicated that significant widespread contamination is not present across the Site. Limited potential historical off-Site sources of contamination have been identified; however, these are not considered to represent a significant risk to the Site, given the distance from Site and absence of detectable significant contamination.</p> <p>It is considered that an investigation to assess the potential for contamination within soils and groundwater and risk from ground gas is not required due to the previous works undertaken and low risk of the Site.</p> <p>Any further investigation should refine the Site-specific ground model and groundwater regime and enable an assessment of foundation and engineering solutions to be made.</p> <p>Additionally, in the event of redevelopment:</p> |

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| | <ul style="list-style-type: none">▲ Where landscaping or garden areas are proposed, a clean soil capping system should be installed to a minimum recommended depth of 450mm thickness;▲ Suitable dust suppression techniques will need to be implemented by groundworkers during construction works;▲ Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process; and▲ Groundworkers should be made aware of the potential for encountering contamination across the Site, and appropriate personal protective equipment (PPE), appropriate standards of personal hygiene and safe methods of working should be adopted to mitigate the potential risks. <p>An upgraded concrete specification and supply pipes is likely to be required in the event of redevelopment at the Site.</p> |
| <p>This is intended as a summary only. Further detail and the limitations of the assessment is provided within the main body of the Report.</p> | |

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1.0 Introduction

1.1 Appointment

Delta-Simons Environmental Consultants Limited (“Delta-Simons”) was instructed by Icis Design Limited on behalf of Inland Homes Ltd (the “Client”) to prepare a Preliminary (Geo-Environmental) Risk Assessment for redevelopment of land at the Former Master Brewer Motel Site, Freezeland Way, Hillingdon UB10 9PQ (the “Site”).

1.2 Context & Purpose

The aim of this report is to identify likely environmental issues associated with soil and groundwater conditions that may affect the proposed development of the Site. This report is designed in accordance with ‘the Model Procedures for the Management of Land Contamination (CLR 11)’, the relevant requirements of the National Planning Policy Framework 2019 (NPPF) (paragraphs 170 & 178-180)¹ and the Planning Practice Guidance (Land Affected by Contamination)².

The proposed development is a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development.

A Proposed Development Plan is provided as Appendix C.

1.3 Scope of Works

- ▲ Review of the environmental setting of the Site, including the current use / status of the Site and surrounding area, and review of the geology, hydrogeology and hydrology;
- ▲ Review of the historical activities of the Site and surrounding area;
- ▲ Review of regulatory information relating to the Site;
- ▲ Review of the online planning records for the Site;
- ▲ Complete a Site reconnaissance by undertaking a visual inspection of readily accessible areas of the Site;
- ▲ Review Of previous Delta Simons’ reports prepared for the Site;
- ▲ Develop an outline Conceptual Site Model and undertake a Preliminary Risk Assessment with respect to potential contamination focussed on the proposed land use;
- ▲ Identify potential contamination risks and / or liabilities associated with the proposed acquisition of the Site;
- ▲ Provide commentary on potential land contamination in the context of the proposed development; and
- ▲ Summarise readily available data on the flood risk associated with the Site.

In completing this Assessment, Delta-Simons has utilised the following data sources and third party information:

- ▲ Current and Historical Ordnance Survey (OS) maps;
- ▲ British Geological Survey (BGS) data;
- ▲ Environment Protection Agency (EPA) online data;
- ▲ Coal Authority (CA) online data;
- ▲ A Landmark Envirocheck Report for the Site (Ref. 210572128_1_1), dated July 2019;
- ▲ Historical Maps included as part of the Envirocheck Report; and

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

² <https://www.gov.uk/guidance/land-affected-by-contamination>

- ▲ Information provided by Hillingdon London Borough Council.

1.4 Limitations

The standard limitations associated with this assessment are presented in Appendix A. In addition, there are the following specific limitations that apply to this assessment:

- ▲ The Consultant undertaking the Site inspection will observe for evidence of invasive species, particularly Japanese Knotweed. It should be noted however that the Consultant is not a trained ecologist and a separate survey undertaken by an experienced Ecologist should be completed to provide a robust assessment;
- ▲ The report includes a preliminary assessment for the potential for radon gas hazards. A detailed radon assessment falls outside of the scope of this report, and the requirement for radon mitigation measures in the proposed development should be identified separately to the satisfaction of Hillingdon London Borough Council Building Control;
- ▲ A commentary has been provided regarding existing Site services in the context of assessing environmental issues, however a detailed review of all overhead or underground services is outside the scope of this assessment; and
- ▲ Dense overgrown areas of vegetation limited access to parts of the Site.

2.0 Site Context & Data Review

2.1 Site Information

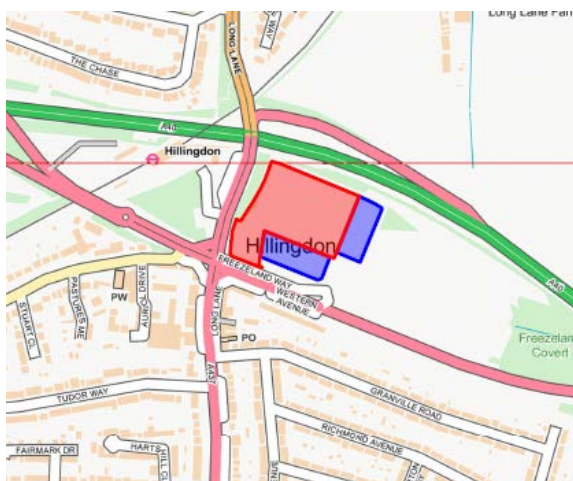


Figure 1: Contains OS data ©, Crown Copyright and Database Right (2016) © OpenStreetMap contributors



Figure 2: Contains OS data ©, Crown Copyright and Database Right (2016) Contains Data from, © 2015 Landmark Information Group Ltd

| Site Location | | Site Layout | |
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| Co-ordinates | Centred approximately at National Grid Reference 507770, 184905. | Elevation | 34 - 36 m AOD |
| | | Area | 2.53 Ha (red line) (0.51ha blue line (Green Belt land)) |
| Site Location | The Site is located on Freezeland Way in Uxbridge, London, approximately 2.1 km north-east of Uxbridge town centre, the A40 is located to the north of the Site. | | |
| Current Site Use | <p>The Site is vacant following the demolition of a motel, which formerly comprised a main accommodation building, a reception building, and a staff accommodation building, with surrounding hardstanding and landscaping. There are stockpiles of surplus demolition rubble in the central portion of the Site and security bunds near the entrance to the south. Vegetation surrounds the perimeter of the Site.</p> <p>A Site Location Plan is provided as Figure 1.</p> <p><i>The current Site use is not considered to represent a potential source of contamination.</i></p> | | |
| Proposed Development Description | <p>The proposed development is a residential-led, mixed-use development comprising buildings of between 2 and 11 storeys containing 514 units (Use Class C3); flexible commercial units (Use Class B1/A1/A3/D1); associated car (164 spaces) and cycle parking spaces; refuse and bicycle stores; hard and soft landscaping including a new central space, greenspaces, new pedestrian links; biodiversity enhancement; associated highways infrastructure; plant; and other associated ancillary development.</p> <p>A Proposed Development Plan received from the Client is included as Appendix C.</p> | | |
| Site Reconnaissance | Delta-Simons conducted a Site visit on 15 th July 2019. A series of Site photographs are presented as Appendix D, and pertinent information that was observed or reported on-Site is summarised as follows. | | |

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| | <p>At the time of the walkover the Site comprised a roughly rectangular shaped, vacant, plot of land. Evidence of the former demolished buildings, comprising service trenches and building footings, was present within the Site surfacing in the south west, north west and centre of the Site.</p> <p>The Site surface comprised asphalt and concrete hardstanding in varying condition across the Site with areas of soft landscaping and vegetated areas along the boundaries of the Site, particularly to the east.</p> <p>A raised reservoir with ventilation pipe and large associated tank of unknown use, were present in the south of the Site. The tank was partially buried below ground level and connected to the adjacent reservoir via above ground pipework. No hydrocarbon odour or staining was noted surrounding the tank and it is considered that the tank was used as a water storage facility for the former Master Brewer building. As such, it is not considered to represent a significant source of contamination. Both reservoir and tank were present within an area of dense vegetation including mature and semi-mature trees and bushes. A former electrical control panel in poor condition was present adjacent to the east of the reservoir.</p> <p>The north west and south west perimeter of the Site was encompassed by approximately 2m high palisade fencing, with an access gate adjacent to Freezeland Way in the south west. The south eastern boundary predominantly comprised dense vegetation and hedgerow with wire fencing. The north of the Site is bound by the A40, with an approximately 3m high drop to the road below.</p> <p>Within the north east overgrown areas of the Site small stockpiles of metal waste were noted.</p> <p>Asbestos containing materials and invasive species were not identified on Site, however due to the overgrown nature of the landscaped areas of the Site it is considered that this risk is still present.</p> <p>Previously, as recorded in Delta-Simons' 2017 report, there were two main stockpiles of surplus demolition rubble in the central portion of the Site and security bunds made of the demolition rubble near the entrance. These stockpiles of demolition rubble have since been removed with only small stockpiles of metal waste visible on Site.</p> | |
| Potential Sources | Potential sources of contamination on-Site are limited to deposits of Made Ground. | |
| Current Surrounding Area | North | To the north of the Site is the A40, adjacent to which is agricultural land. |
| | East | Undeveloped land is present to the east of the Site. |
| | South | Freezeland Way is located immediately to the south, with residential and mixed commercial properties beyond. |
| | West | Long Lane is located immediately east, with Hillingdon Rail Station and commercial properties located beyond. |
| | The surrounding Site uses are not considered to represent a significant source of contamination. | |

2.2 Environmental Setting

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| Published Geology | From published British Geological Survey mapping (1:50,000 Sheet Number 255, Beaconsfield), it is understood that the Site is directly underlain by the London Clay Formation, which is underlain by the Woolwich and Reading Beds of the Lambeth Group, followed by the Seaford Chalk and Newhaven Chalk Formation (undifferentiated). |
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| Specific Ground Conditions | <p>From the BGS viewer a borehole log located approximately 20 m to the north west of the Site (BGS reference: TQ08NE39) recorded the following generalised geology;</p> <ul style="list-style-type: none"> ▲ Topsoil to a depth of 0.15 m bgl; ▲ Underlain by Weathered London Clay to 2.45 m bgl; ▲ Firm to stiff Clay of the Woolwich and Reading Beds with occasional dense sand bands to a depth of 18.10 m bgl; ▲ Very stiff black silty clay with coarse flints of the Bull Head Bed formation to a depth of 20.10 m bgl; and ▲ Rubbly light grey and white chalk with occasional flints to borehole completion at 20.50 m bgl. <p>Additionally, available site investigation reports (see Section 2.5) identified the following ground conditions: Made Ground in two forms – Topsoil and/ or sandy gravel extending to a maximum depth of 0.90 m bgl. London Clay was encountered to a maximum depth range of 1.70 – 3.50 m bgl. The Upper Mottled Beds of the Woolwich and Reading Beds encountered to a depth of between 9.50 and 16.20 m bgl. The Laminated Beds of the Woolwich and Reading Beds were proven to a maximum drilled depth of 20.0 m bgl at six locations.</p> <p>Observations recorded during the Delta-Simons 2015 investigations showed no significant evidence of contamination during the intrusive works.</p> |
| Hydrogeology | <p>The EA classify the Woolwich and Reading beds as a Secondary A Aquifer and the Seaford Chalk and Newhaven Chalk at depth beneath the Site are classified as a Principal Aquifer.</p> <p>The EA data also indicates that the Site is not in a designated groundwater Source Protection Zone. According to the Envirocheck Report, there is one groundwater abstraction within 1 km of the Site relating to make-up or top-up water, located approximately 970 m north-west of the Site.</p> <p>Resting groundwater levels recorded during the Delta-Simons 2015 investigation were between 0.32 m bgl and 2.36 m bgl.</p> |
| Hydrology | <p>The nearest surface water feature is a pond, located approximately 320 m to the east of the Site. Beyond this, the nearest flowing surface water features are the Yeading Brook “west arm” located approximately 530 m to the east and the River Pinn, located approximately 720 m to the west of the Site.</p> <p>There are no surface water abstractions located within 1 km of the Site.</p> |
| Coal Mining | <p>Reference to the Coal Authority on-line viewer indicates that the Site is not within a Coal Mining Reporting Area and is not within a Development High Risk Area. Consequently, a Coal Mining Risk Assessment (CMRA) is unlikely to be required under the planning regime.</p> |
| Radon Gas | <p>The Site lies within an area where less than 1% of homes are above the National Radiological Protection Board (NRPB) recommended “action level” for radon. BRE211 (2007) indicates that no radon protective measures are necessary in the construction of new buildings at the Site.</p> |
| Ecological Receptors | <p>From the information provided within the Envirocheck® Report it is understood that five areas of adopted green belt are present between 40 m and 170 m of the Site one of which is identified on-Site.</p> |

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| Heritage Interest | According to sketchmap.co.uk , the closest area of heritage interest is located approximately 500 m to the north of the Site associated with two Grade II Listed Buildings. |
| Environmental Sensitivity | The Site is considered to be of a low to moderate environmental sensitivity. |

2.3 Historical Use of the Site & Surrounding Area

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| Approach | The historical development of the Site and surrounding area has been assessed through a review of available historical OS maps and Google Earth historical satellite imagery. A summary of the key historical Site uses and developments in the surrounding area is presented below. Copies of pertinent historical maps are included as Appendix E. |
| Historical Features On-Site | <p>The earliest available map of 1866 shows the whole Site to be undeveloped land in likely agricultural use, with a possible pond in the centre of the Site. By the 1938 map edition a public house is present in the south western corner comprising the main building, two external buildings, and a pond in the centre of the Site.</p> <p>By the 1975 mapping the Master Brewer Motel is present in the centre of the Site, where the pond from previous map editions remains in the centre of the Site adjacent to the motel building. Additionally, an extension to the existing public house and further building in the north west of the Site is also noted.</p> <p>Furthermore, by the 1978 mapping a covered reservoir and associated tank are present adjacent to the southern boundary of the Site.</p> <p>By the 1990 map edition a further extension to the Master Brewer Motel building in the east of the Site is present. The Site remains unchanged until the demolition of the motel in 2009 where the pond previously identified on-Site is noted to be infilled.</p> <p>It is understood that the former buildings were demolished in 2009, with the covered reservoir remaining in the south west.</p> <p>The Site remains as such until the most recent map edition (2019), where the Site is shown to be vacant.</p> <p>No significant sources of historical contamination have been identified associated with the previous Site use.</p> |
| Potentially Contaminative Historical Features Off-Site | <p>Potential sources of contamination within 500 m of the Site include:</p> <ul style="list-style-type: none"> ▲ A railway is present, approximately 100 m north-west, from circa 1896 until present day; ▲ Railway sidings are present, approximately 150 m west from circa 1935 until circa 1970; ▲ A coal yard is present, approximately 150 m north-west, associated with the railway sidings, from circa 1962 until circa 1970; ▲ A works is present, approximately 75 m west of the Site, from circa 1962 until circa 2002; ▲ A garage is present, located approximately 80 m to the southwest, from circa 1962 until present day; ▲ A builder's yard is present, located approximately 120 m southwest, from circa 1962 until 1992; ▲ A depot is present from circa 1962 until present day, located approximately 200 m to the south-west; and |

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| | ▲ A warehouse is present from circa 1962 until 1979, located approximately 200 m to the south-west, adjacent to the depot. |
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2.4 Environmental Database Review

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| Approach | The Landmark Envirocheck® Report provides a database of environmental information held by various statutory bodies including the EA, Local Authority (LA), Health & Safety Executive (HSE) and HPA amongst others. A full copy of the Envirocheck® Report is provided in Appendix F and the most relevant information is summarised below. |
| Features On-Site | The Landmark Envirocheck® Report lists one entry relating to a tank (generic) on-Site, assumed to be associated with the covered reservoir in the south-west of the Site. Additionally, an area of Adopted Green Belt is present within the east of the Site. No further pertinent features are recorded on Site. |
| Potentially Contaminative Features Off-Site | Pertinent features noted within the Landmark Envirocheck Report within 250 m of the Site include the following: ▲ Two Discharge Consents regarding two permitted discharge consents located approximately 75 m south-west of the Site, both of which relate to sewage discharges from a pumping station, from the earliest effective date of 1989. Where consents were revoked in 2010 and 2014 respectively; ▲ One Local Authority Pollution Prevention and Control regarding a dry cleaners approximately 90 m south west of the Site, listed as permitted; ▲ One area of Potentially Infilled Land (water) approximately 240 m north of the Site and mapped circa 1920; ▲ One Registered Landfill Site approximately 115 m east of the Site, licenced to AMEC Civil Engineering Ltd at Long Lane Farm. The landfill is registered as very large, accepting equal to or more that 250,000 tonnes per year of inert waste and prohibiting clinical and special wastes. Dated from November 1992, the license is now lapsed; ▲ One Registered Waste Transfer Site approximately 70 m west of the Site licenced to TEF Williamson dated 1990, for an input rate between 25,000 and 75,000 tonnes per year, the licence is now lapsed; ▲ Twelve Contemporary Trade Directory Entries between approximately 75 m and 210 m to the south, south west and north west of the Site regarding active and inactive entries for dry cleaning services, car customisation and dealership, dairies, Hillingdon Station and sportswear manufacturers. The closest of which is in regard to cleaning services approximately 75 m south of the Site; and ▲ One Commercial Services Points of Interest approximately 105 m west of the Site regarding a vehicle repair and testing garage. Additionally, there is one record of a Historical Landfill Site located approximately 345 m east (ref. HIL062 DL413) registered to AMEC Civil Engineering Limited, at Lay-by Western Avenue Long Lane Farm. Accepting inert materials. The license was issued in 1992 and surrendered in 1994. |
| Implications for Land Contamination Risk | No potential sources of contamination have been identified at the Site from the regulatory information. Potential off-Site sources of contamination have been identified that will be considered in the conceptual site model. |

2.5 Planning Review/Regulatory Enquiries

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| On-line Planning Portal | London Borough of Hillingdon | Date Accessed | 11/07/2019 |
| Findings | <p>There are twenty-three planning applications for the Former Master Brewer Site area between the dates 15/09/76 and 01/09/17, which comprise the following pertinent applications:</p> <ul style="list-style-type: none"> ▲ Multiple outline applications for a mixed-use development comprising residential dwellings and commercial units with car parking and hard and soft landscaping (refusal); ▲ Applications for a 70 to 84 bed hotel and food-store with retail units, car parking and landscaping and the demolition of the now former Master Brewer (refusal); ▲ An extension to the former Master Brewer Motel of 40 bedrooms, including the addition of external signage and adverts (approved); ▲ An outline application for a petrol filling station and associated buildings (refusal); and ▲ An application for the development of a garage/shed and radio mast and flagpoles (approved). <p>No additional potentially contaminative activities or other information pertinent to this assessment was identified from the historical planning records.</p> | | |

2.6 Previous Reports

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| List of Reports | <p>Delta Simons has reviewed the following reports relating to the Site:</p> <ul style="list-style-type: none"> ▲ Phase I Initial Environmental Report, Master Brewer, Hillingdon, dated November 2014, by Delta Simons Environmental Consultants Limited (Reference: 14-0724.01); ▲ Phase I Environmental Assessment, Master Brewer Site, Hillingdon, dated March 2015, by Delta Simons Environmental Consultants Limited (Reference: 14-0724.02); ▲ Combined Phase I/II Environmental Assessment, Former Master Brewer, Hillingdon, dated June 2015, by Delta-Simons Environmental Consultants Limited (Reference: 14-0724.01_E); ▲ Factual and Interpretive Geotechnical Report, Former Master Brewer, Hillingdon, dated June 2015, by Delta Simons Environmental Consultants Limited (Reference: 14-0724.01_G); ▲ Preliminary Risk Assessment, Former Master Brewer, Hillingdon, dated August 2017, by Delta-Simons Environmental Consultants Limited (Reference: 17-0420.01 V2); and ▲ Preliminary Waste Classification Report, Former Master Brewer Hillingdon, dated August 2017, by Delta-Simons Environmental Consultants Limited (Reference: 17-0420.01 V2). <p>The relevant environmental reports completed by Delta-Simons have been included as Appendix G</p> |
| Key Findings – Phase I Initial Environmental Report 2014 | <p>Within this review, the following historical Phase I Assessments were reviewed:</p> <ul style="list-style-type: none"> ▲ Phase I Contamination Audit, Master Brewers Hotel, Ref: JAS3363, RPS Group Plc, September 2004; and |

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| <p>(Reference: 14-0724.01)</p> | <p>▲ Environmental Statement (Volume 1), Master Brewer, Hillingdon, London, Cushman & Wakefield Inc, October 2005.</p> <p>The report recommended that a limited environmental assessment be completed in conjunction with geotechnical investigation works, to include ground gas assessment be carried out.</p> |
| <p>Key Findings – Phase I Environmental Assessment 2015 (Reference: 14-0724.02)</p> | <p>The Phase I Environmental Assessment concluded that (for a residential development);</p> <ul style="list-style-type: none"> ▲ No current or historical land use associated with potentially significant contamination sources have been identified at the Site; ▲ Limited potential historical off-Site sources of contamination have been identified, however, due to the distance to these sources, these are not considered to represent a significant risk to the Site; and ▲ Given the current use of the Site which is predominantly covered by the hardstanding, the potential risks to Human Health or controlled waters are considered to be low, however, the potential risks based for the proposed use are considered to be low to moderate. <p>The Environmental Assessment further concluded that;</p> <ul style="list-style-type: none"> ▲ There is a Low risk of enforcement action at the Site, for its proposed use (residential); ▲ Potential for legal action by surrounding landowners based on the potential for contamination to migrate off-Site is considered to be Low; ▲ Delta-Simons considers there to be a Low to Moderate risk of impact on the value of the Site from significant contamination issues; and ▲ On the basis of available information, Delta-Simons considers that with regard to potential soil and groundwater contamination issues and associated environmental liabilities, for its proposed use, the Site represents an investment opportunity with a Low to Moderate overall risk status. |
| <p>Key Findings - Combined Phase I/II Environmental Assessment, Former Master Brewer, Hillingdon 2015, (Reference: 14-0724.01_E)</p> | <p>The ground conditions encountered at the Site comprised Made Ground, underlain by the Weathered London Clay Formation and Woolrich and Reading Beds to a maximum depth of 20.0 m bgl. Where groundwater levels were recorded between 0.90 m and 2.36 m bgl.</p> <p>The Combined Phase I/II Environmental Assessment proposed the following recommendations and development abnormalities (for a mixed-use residential led development);</p> <ul style="list-style-type: none"> ▲ Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process; ▲ From the recorded ground gas monitoring results, the Site was determined to be a Characteristic Situation 1 (CS1). As such no ground gas protection measures would be required for the proposed development; ▲ Groundworkers who are required to perform sub-surface work at the Site should be made aware of the known contaminants in soil and groundwater and the possibility of encountering additional localised low levels of contamination. Therefore, good standards of personal hygiene should be observed, and appropriate levels of PPE utilised where necessary; ▲ Suitable dust suppression techniques will need to be implemented by groundworkers during construction and demolition works; ▲ Confirmation should be sought from the Local Water Authority as to whether they will require upgraded pipework to be installed for new service installations; |

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| | <ul style="list-style-type: none"> ▲ It is recommended that a minimum 600 mm of certified suitable for use topsoil and subsoil overlying should be incorporated into all new landscaped areas; and ▲ Elevated costs above standard inert rates (non-hazardous) should be anticipated for disposal of engineering arisings from the Made Ground to include landfill tax. Additional waste classification testing (including WAC testing) is likely to be required to facilitate off-Site disposal of Made Ground materials. |
| Key Findings - Factual and Interpretative Geotechnical Report, Former Master Brewer, Hillingdon, 2015, (Reference: 14-0724.01_G) | <p>The Factual and Interpretative Geotechnical Report proposed the following recommendations (for a mixed-use residential led development);</p> <ul style="list-style-type: none"> ▲ Traditional pad foundation bearing into the weathered London Clay may be suitable depending on design loads. ▲ A piled foundation solution using traditional bored or CFA piles transferring loads to competent geology may be suitable for the proposed larger development loads. ▲ Following removal or improvement of unsuitable soils (Made Ground strata), ground bearing floor slabs may be suitable for uniformly distributed floor loads up to 35 kN/m². ▲ Shallow cohesive soils are considered unlikely to be suitable for soakaway drainage. ▲ Shallow groundwater is not likely to be encountered in shallow excavations and trenches, however, surface water is likely to collect in any open excavations. ▲ In-situ CBR testing indicates that a conservative value of 3.0% should be adopted for shallow soils for preliminary pavement design. ▲ The conditions of the shallow soils at the Site would be classified as Design Sulphate Class DS-3 and ACEC Class AC-3 (reduced to DS-2 for piles). |
| Key Findings - Preliminary Risk Assessment 2017 (Reference: 17-0420.01 V2) | <p>In summary, the Preliminary Risk Assessment concluded that Previous Delta-Simons' investigation information indicated that significant widespread contamination is not present across the Site. Although limited potential historical off-Site sources of contamination have been identified, these are not considered to represent a significant risk to the Site, given the distance from Site and absence of detectable significant contamination.</p> <p>Measures to mitigate against the identified potential pollutant linkages were recommended as follows:</p> <ul style="list-style-type: none"> ▲ A clean cover soil system should be installed in any soft landscaped areas, to a minimum depth of 450 mm thickness; ▲ Consultation should be sought with the relevant local Water Authority as to whether they will require upgraded pipework to be installed for new service installations; ▲ Suitable dust suppression techniques will need to be implemented by groundworkers during construction and demolition works; ▲ Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process; and ▲ Groundworkers should be made aware of the potential for encountering contamination across the Site, and appropriate personal protective equipment (PPE), appropriate standards of personal hygiene and safe methods of working should be adopted to mitigate the potential risks. |
| Key Findings - Preliminary Waste Classification Report 2017 | <p>The preliminary Waste Classification Report concluded the following:</p> <ul style="list-style-type: none"> ▲ Analytical data from soil samples collected from the stockpile locations- SP1 West, SP2 East - have been entered into the HAZWOL report. Where three soil samples were classified as Non-Hazardous and two soil samples were identified as |

| | |
|-----------------------------------|--|
| (Reference: 17-0420.01 V2) | <p>Hazardous. Furthermore, both samples submitted for WAC analysis would be classified as Non-Hazardous;</p> <ul style="list-style-type: none">▲ No asbestos was identified in the samples obtained within these works. However, it is recommended that all soils are visually screened for presence of ACMs prior to disposal; and▲ It is recommended that the results of both the initial waste classification and WAC are submitted to an appropriate disposal facility to confirm their acceptance criteria and evolve appropriate budget costs. <p>It is noted that following the latest Site reconnaissance, no stockpiles of demolition rubble were observed.</p> |
|-----------------------------------|--|

3.0 Conceptual Site Model

3.1 Introduction

A Conceptual Site Model (CSM) represents the relationships between contaminant sources, pathways and receptors, to support the identification and assessment of Possible Pollutant Linkages (PPL).

3.2 Potential Contamination Sources

Identified potential contamination sources are presented in the following table:

| Reference | Source | Location | Dates Present | Potential Associated Contaminants of Concern |
|-----------|---|----------------|---------------------|---|
| S1 | Made Ground associated with previous demolition | Site-wide | Post 1938 to 2009 | Lead, Selenium and Sulphate have been identified at concentrations exceeding screening values during previous investigation works. Additionally, heavy metals, TPH and PAHs have been identified above detection levels within previous investigations. Ground gas. |
| S2 | Infilled pond | Centre of Site | 1868 to 2009 | Heavy metals, hydrocarbons, PAHs, VOCs, asbestos and ground gas. |
| S3 | Surrounding historical localised commercial/ light industrial land use including historical and registered landfill and waste transfer facility | Off-Site | 1935 to present day | Hydrocarbons, PAHs, VOCs, and ground gas. |

* Based on UK Department of the Environment Industry Profiles

3.3 Potential Receptors

Relevant potential receptors are considered to include:

- ▲ R1 - Construction workers.
- ▲ R2 - Third parties during construction (adjacent Site users and adjacent residents).
- ▲ R3 - Future Site users and maintenance workers.
- ▲ R4 - The underlying aquifers within the Woolwich and Reading Beds (Secondary A Aquifer) and the undifferentiated Seaford and Newhaven Chalk Formation (Principal Aquifer).
- ▲ R5 - The Built Environment (new buildings and infrastructure / utilities).

3.4 Potential Pathways

The potential pathways are considered to be as follows:

- ▲ P1 - Direct contact, ingestion or inhalation of soil bound contaminants / dust during or following redevelopment.
- ▲ P2 - Inhalation of organic vapours associated with contamination.
- ▲ P3 - Migration of ground gas / vapours into on-site buildings causing asphyxiation or risk of explosion.

- ▲ P4 - Leaching of contamination into groundwater followed by migration of groundwater to the wider groundwater environment or discharge to surface waters.
- ▲ P5 - Direct contact between aggressive ground conditions and new infrastructure.

| Pollutant Linkage Assessment | | | | | |
|---------------------------------|--------------------|--------------------|----------------------|---|------------------------|
| Source(s) | Pathway(s) | Receptor(s) | Risk Rating | Justification & Mitigation (if required) | Requires Investigation |
| S1 On-Site Made Ground Deposits | P1, P2, P3, P4, P5 | R1, R2, R3, R4, R5 | Low to Moderate Risk | <p>Previous investigations at the Site have not identified significantly elevated contamination in the shallow soils. The proposed development will have a mix of hardstanding and landscaped areas, with the hardstanding acting to sever the plausible pollutant linkage associated with potential contaminants in the ground. Notwithstanding this, it is recommended that, where landscaping or garden areas are proposed, a clean soil capping system is introduced.</p> <p>The risk posed to construction workers and off-Site human receptors during the redevelopment of the Site is considered low as safe working procedures should be implemented, good standards of personal hygiene should be observed and appropriate levels of personal protective equipment (PPE) provided and utilised to reduce the potential risks.</p> <p>No significantly elevated concentrations of contaminants in groundwater were identified at the Site. Furthermore, the significant thickness of cohesive clay soils are considered protective of the underlying aquifers.</p> <p>Hydrocarbons, especially aromatics and chlorinated solvents, are known to permeate plastic pipes. Assessment of the risk to water pipes for any new supply will have to be undertaken as a requirement of the statutory undertakers who can provide recommendations for upgrading of potable water supply pipes, if considered necessary.</p> <p>Previous investigation works have not identified elevated concentrations or flow of ground gas, resulting in a CS1 at the Site, as such, no ground gas protection measures are required on Site.</p> <p>Due to historical development of the Site, the Made Ground beneath the Site may represent a source of asbestos fibres in soils, although previous investigation works have not positively identified asbestos during testing. Notwithstanding this, groundworkers should be made aware of the possibility of encountering potential Asbestos Containing Materials (ACM) within the Made Ground across the Site and an appropriate protocol should be in place. Safe working procedures should be implemented, including damping down of excavations and stockpiles in line with general dust generation mitigation and appropriate levels of PPE provided and utilised. This recommendation should be captured in Site health and safety documentation and in maintenance plans.</p> | N |
| S2 Infilled Pond | P1, P2, P3, P4, P5 | R1, R2, R3, R4, R5 | Low Risk | <p>Previous investigation works have not identified elevated concentrations or flow of ground gas, resulting in a CS1 at the Site, as such, no ground gas protection measures are required on Site.</p> | N |

| Pollutant Linkage Assessment | | | | | |
|---|--------------------|--------------------|-------------|---|------------------------|
| Source(s) | Pathway(s) | Receptor(s) | Risk Rating | Justification & Mitigation (if required) | Requires Investigation |
| S3 Surrounding historical localised commercial/light industrial land use. | P1, P2, P3, P4, P5 | R1, R2, R3, R4, R5 | Low Risk | <p>Potential and current off-Site sources of contamination are considered to be limited. Furthermore, given the Site is situated in a predominantly built-up area with large amounts of hardstanding and the underlying cohesive geology, any infiltration of rainwater and leaching of contaminants and/or lateral migration of volatile vapours, if present will be restricted.</p> <p>As such, the risk from any significant off-Site sources is considered to be low.</p> | N |

4.0 Development Considerations

4.1 Potential Remediation Requirements & Solutions

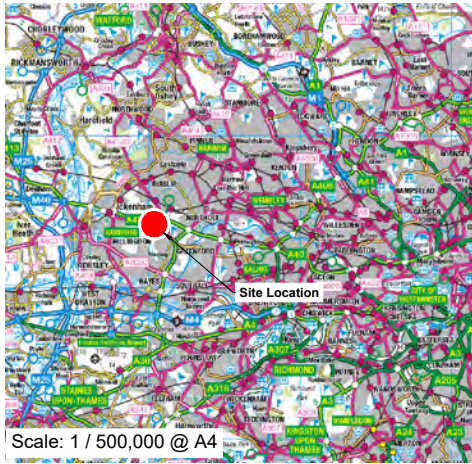
| | |
|---------------------------------------|--|
| Soils | <p>The risk of the Site requiring widespread remediation to protect end users is considered to be low, although localised remedial measures, for example provision of a clean soil cover for proposed soft landscaping, may be required in areas of Made Ground.</p> <p>Should significant contamination and / or ACMs be identified, then this may have an impact on waste disposal costs.</p> |
| Groundwater | <p>Significant widespread groundwater contamination was not identified in previous investigations and is not anticipated.</p> |
| Ground Gas | <p>Investigation works have not identified elevated concentrations or flow of ground gas, resulting in a CS1 classification on-Site, as such no ground gas protection measures are required on Site.</p> |
| Building Fabric & Services | <p>Widespread contamination at the Site has not been identified. However, should new services be proposed, it is recommended these are placed in consultation with the relevant statutory undertaker and placed in clean corridors. A drinking water pipeline assessment may be required confirming service line requirements. Aggressive ground chemistry may attack buried concrete and therefore there may be a requirement for an upgraded concrete specification.</p> |

5.0 Conclusions & Recommendations

5.1 Land Contamination

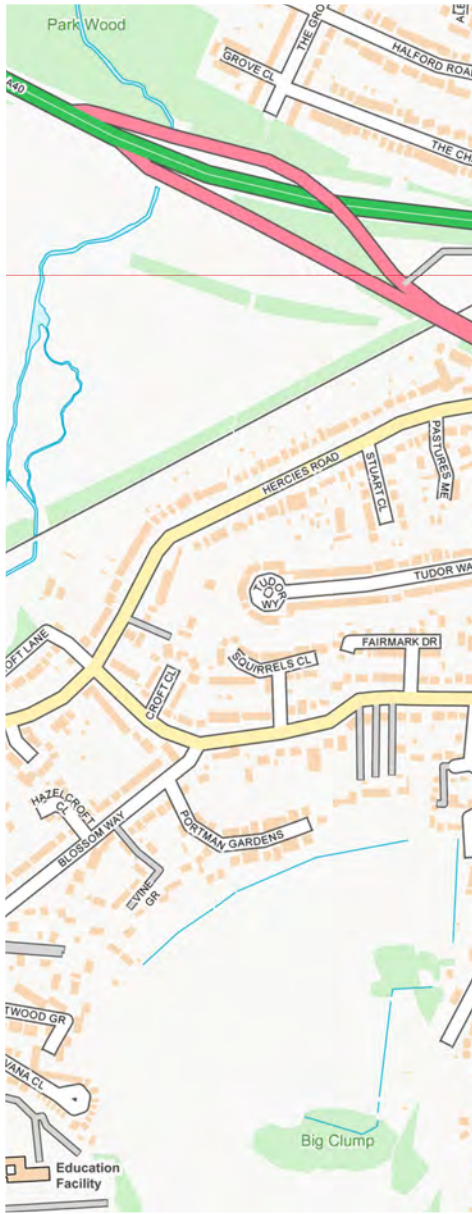
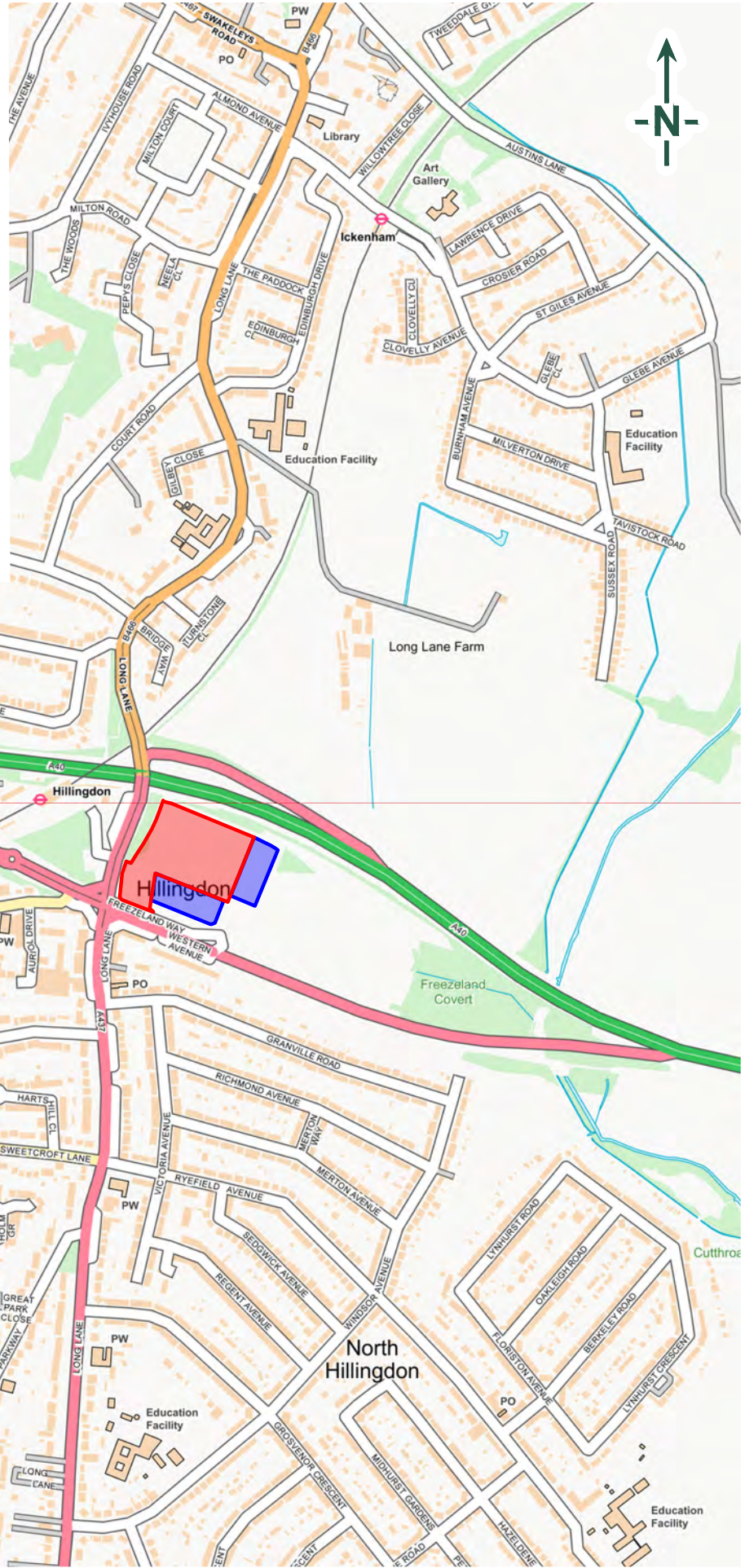
| | |
|--|---|
| Contamination Risks Associated with Ownership (Current Use) | There is considered to be a Low risk of enforcement action by the regulatory authorities under Part 2A of the Environmental Protection Act, the Water Resources Act or the Environmental Damage Regulations, whilst the Site remains in its current vacant state. The potential for legal action by surrounding landowners / Third Parties based on the potential for contamination to migrate off-Site (ongoing or historically) is considered to be Low . |
| Potential Contaminated Land Development Risks | Widespread contamination is considered unlikely and the preliminary risk assessment has identified a Low risk of soil/groundwater contamination and hazardous ground gas at the Site. Asbestos may be present within the Made Ground. |
| Recommendations | <p>Previous Delta-Simons investigation information has indicated that significant widespread contamination is not present across the Site. Limited potential historical off-Site sources of contamination have been identified; however, these are not considered to represent a significant risk to the Site, given the distance from Site and absence of detectable significant contamination.</p> <p>It is considered that an investigation to assess the potential for contamination within soils and groundwater and risk from ground gas is not required due to the previous works undertaken and low risk of the Site.</p> <p>Any further investigation should refine the Site-specific ground model and groundwater regime and enable an assessment of foundation and engineering solutions to be made.</p> <p>Additionally, in the event of redevelopment:</p> <ul style="list-style-type: none"> ▲ Where landscaping or garden areas are proposed, a clean soil capping system should be installed to a minimum recommended depth of 450mm thickness; ▲ Suitable dust suppression techniques will need to be implemented by groundworkers during construction works; ▲ Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process; ▲ Groundworkers should be made aware of the potential for encountering contamination across the Site, and appropriate personal protective equipment (PPE), appropriate standards of personal hygiene and safe methods of working should be adopted to mitigate the potential risks; and ▲ An upgraded concrete specification and supply pipes is likely to be required in the event of redevelopment at the Site. |

Figure 1 – Site Location Map



LEGEND

- Site Boundary
- Greenbelt Land



Scale: 1 / 10,000 @ A4

Contains OS data © , Crown Copyright and Database Right (2018)

| | | | | |
|--|--|-------------------------------------|------------------------------|----------------------------------|
|  | TITLE: Site Location Map Hillingdon Gardens, Freezeland Way Uxbridge | DRAWN BY: CW | SCALE: To Scale@A4 | PROJECT NO: 17-0420.02 |
| | | | | |
| | | CHECKED BY: SP | REVISION: 1 | FIGURE NO: 1 |
| | | DATE: 16th September 2019 | | |

Figure 2 – Site Layout Plan



Appendix A – Limitations

Limitations

The recommendations contained in this Report represent Delta-Simons professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Delta-Simons obtained, reviewed and evaluated information in preparing this Report from the Client and others. Delta-Simons conclusions, opinions and recommendations has been determined using this information. Delta-Simons does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Delta-Simons has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Appendix B – Risk Definitions

Contaminated Land Risk Definitions

The following methodology is based on the methodology presented in CIRIA C552 Contaminated Land Risk Assessment: A Guide to Good Practice 2001. It requires the classification of the:

- Δ Magnitude of the potential consequence (severity) of the Risk occurring: and
- Δ Magnitude of the Probability (likelihood) of the Risk occurring.

The classifications are then compared to indicate the risk presented by each pollutant linkage.

Consequence to Receptor Definition Matrix

| | Human Health | Controlled Waters | Buildings/Services |
|---------------------------|--|---|--|
| Severe Consequence | Acute or chronic permanent impact on human health. | Sensitive controlled water pollution ongoing, or just about to occur. | Catastrophic collapse |
| Medium Consequence | Chronic permanent impact on human health | Gradual pollution of sensitive controlled water | Degradation of materials |
| Mild Consequence | Chronic temporary impact on human health | Gradual pollution of non-sensitive controlled water | Damage to building rendering it unsafe to occupy (eg foundation damage resulting in instability). |
| Minor Consequence | Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). | Slight discoloration of water | Easily repairable effects of damage to buildings, structures and services, i.e discoloration of concrete |

Probability Definitions

| Probability | Definition in Context |
|-----------------------|--|
| Higher | There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution. Positive evidence of source, pathway and receptor. |
| Likely | There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term. Suspect source, pathway, and receptor |
| Low Likelihood | There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term. |
| Unlikely | There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term No evidence of hazard, pathway, and receptor |

Standard Risk Matrix

| | | Consequence/ Magnitude of impact | | | |
|-------------|----------------|----------------------------------|--------------|--------------|--------------|
| | | Severe | Medium | Mild | Minor |
| Probability | High | Very High | High | Moderate | Moderate/Low |
| | Likely | High | Moderate | Moderate/low | Low |
| | Low Likelihood | Moderate | Moderate/low | Low | Very Low |
| | Unlikely | Moderate/low | Low | Very Low | Very Low |

Classified risks and likely action

| Significance Level | Definition/Comments |
|--------------------|--|
| Very High Risk | <p>There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening.</p> <p>This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.</p> <p>Demonstrable contaminated land situation, highest threat & liability level, urgent action recommended.</p> |
| High Risk | <p>Harm is likely to arise to a designated receptor from an identified hazard.</p> <p>Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.</p> <p>Likely contaminated land situation, risk assessment and action recommended.</p> |
| Moderate | <p>It is possible that harm could arise to a designated receptor from an identified hazard. However, if is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild</p> <p>Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.</p> <p>Plausible contaminated land situation, risk assessment and possible action recommended.</p> |
| Low Risk | <p>It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.</p> <p>Unlikely contaminated land situation, possible risk assessment and possible action.</p> |
| Very Low Risk | <p>There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.</p> <p>Negligible risk, no action recommended except vigilance for changes in conditions.</p> |

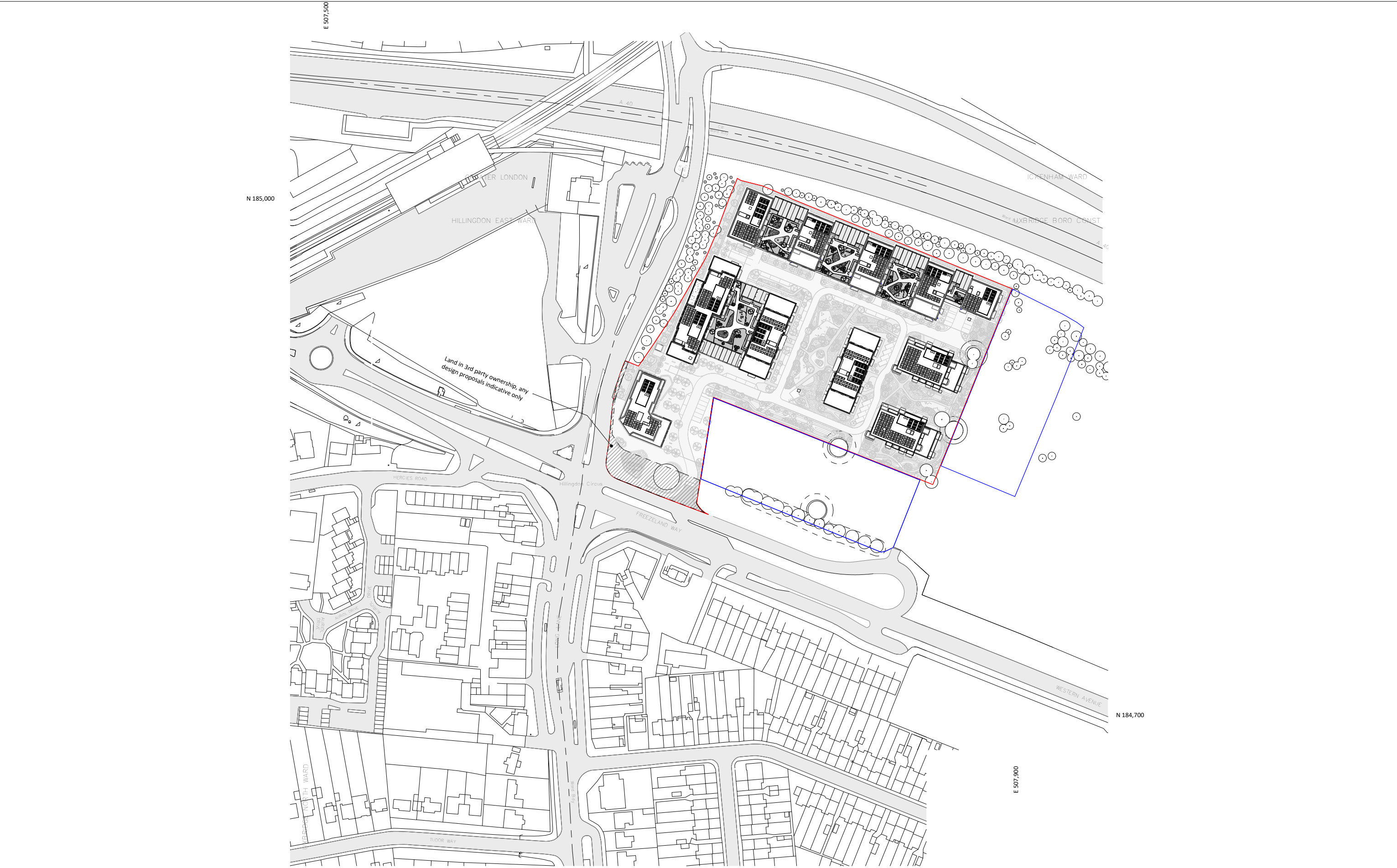
The geohazards listed in the report within Section 4 follow guidance presented in Clayton, C.R.I. (2001) *Managing Geotechnical Risk*, Thomas Telford and the Highways Agency document HD22/08 '*Managing Geotechnical Risk*' (2008) which aims to identify and manage the geotechnical risks associated with a scheme throughout its lifespan, from planning to construction to maintenance.

For each geohazard the probability of the hazard occurring (P) has been considered together with the impact it would have (I) if it were to happen to calculate the risk rating between 1 and 25.

Risks that fall within Moderate, Significant and Severe categories below are considered to be **substantial** and are therefore listed within the report.

| Probability | (P) | | Impact | (I) | | (R) | Risk |
|--------------------|-----|----------|----------------|-----|----------|---------|-------------|
| Very Likely (VLk) | 5 | X | Very High (VH) | 5 | = | 20 – 25 | Severe |
| Likely (Lk) | 4 | | High (H) | 4 | | 15 – 19 | Substantial |
| Plausible (P) | 3 | | Medium (M) | 3 | | 10 – 14 | Moderate |
| Unlikely (U) | 2 | | Low (L) | 2 | | 5 – 9 | Minor |
| Very Unlikely (VU) | 1 | | Very Low (VL) | 1 | | 1 – 4 | Negligible |

Appendix C – Proposed Development Plan



NOTES

CONSULTANTS

- Refer to highways consultant's drawings for details
- Refer to landscape consultant's drawings for details
- Landscaping layout is indicative only

AREAS

- Refer to area schedule

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N

| Rev | Notes | Date | By | Auth |
|-----|----------------------|----------|----|------|
| P1 | DRAFT Planning Issue | 30-08-19 | CS | FvB |
| P2 | Issue for Planning | 19-09-05 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

— Extent of application site

— Extent of leasehold site

0m20m40m60m80m100m

VISUAL SCALE 1:1000 @ A1

ColladoCollinsArchitects

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London W1W 6DW
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Date: 28/07/17
Drawn By: BM
Checked by: JBC
Scale @ A1: As indicated
Scale @ A3: 1 : 2000
CAD File No:

Inland Homes
Hillingdon
Proposed Site Plan

PLANNING
19011

P0-001

P2
Revision

Appendix D – Site Photographs

Site Photographs



Photograph 1 – Eastern Corner of Site



Photograph 2 – North Western Corner of Site



Photograph 3 – South Eastern Corner of Site



Photograph 4 – Site Centre



Photograph 5 – View of South of Site



Photograph 6 – Area of Hardstanding in the South of Site



Photograph 7 – On-Site Tank and Reservoir



Photograph 8 – Area of Green Belt



Photograph 9 – Area in South East of the Site



Photograph 10 – Soil bund



Photograph 11 – Western Site Boundary



Photograph 12 – Central Site area



Photograph 13 – Soft Landscaped Area



Photograph 14 – Site Entrance

Appendix E – Historical Maps

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 | | Minor Roads | | |
| | 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 | | | | |
| | County Borough Boundary (England) | | | | |
| | County Burgh Boundary (Scotland) | | | | |
| | 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 |
| | Bracken | | Heath |
| | Marsh | | Reeds |
| | Building | | Glasshouse |
| | Sloping Masonry | | Pylon |
| | Cutting | | Embankment |
| | Road Under | | Road Over |
| | Level Crossing | | Foot Bridge |
| | Standard Gauge Multiple Track | | 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 |
| | Civil Parish | | |
| | BP, BS Boundary Post or Stone | | Police Station |
| | Church | | Post Office |
| | Club House | | Public Convenience |
| | Fire Engine Station | | Public House |
| | Foot Bridge | | Signal Box |
| | Fountain | | Spring |
| | Guide Post | | Telephone Call Box |
| | Mile Post | | Telephone Call Post |
| | Mile Stone | | Well |

1:10,000 Raster Mapping

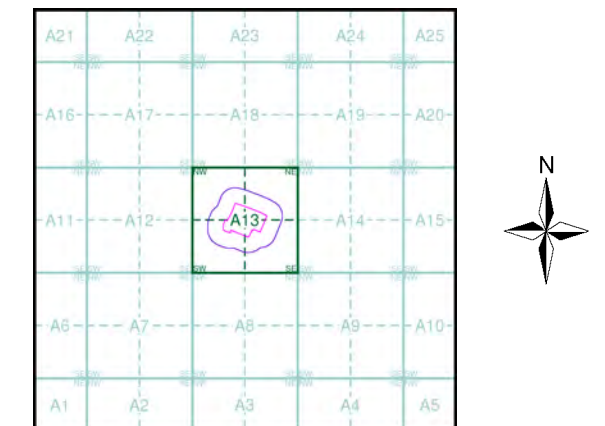
| | | | |
|--|--|--|--|
| | Gravel Pit | | Refuse tip or slag heap |
| | Rock | | Rock (scattered) |
| | Boulders | | Boulders (scattered) |
| | Shingle | | Mud |
| | Sand | | Sand Pit |
| | Slopes | | Top of cliff |
| | General detail | | Underground detail |
| | Overhead detail | | Narrow gauge railway |
| | 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 |
| | Mean high water (springs) | | Mean low water (springs) |
| | Telephone line (where shown) | | Electricity transmission line (with poles) |
| | 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 |



Historical Mapping & Photography included:

| Mapping Type | Scale | Date | Pg |
|-------------------------------|----------|-------------|----|
| Middlesex | 1:10,560 | 1868 | 3 |
| Buckinghamshire | 1:10,560 | 1881 | 4 |
| Middlesex | 1:10,560 | 1897 | 5 |
| Buckinghamshire | 1:10,560 | 1900 | 6 |
| Middlesex | 1:10,560 | 1916 - 1920 | 7 |
| Middlesex | 1:10,560 | 1916 - 1920 | 8 |
| Buckinghamshire | 1:10,560 | 1932 | 9 |
| Middlesex | 1:10,560 | 1935 | 10 |
| Middlesex | 1:10,560 | 1938 | 11 |
| Middlesex | 1:10,560 | 1938 | 12 |
| Historical Aerial Photography | 1:10,560 | 1948 | 13 |
| Historical Aerial Photography | 1:10,560 | 1948 | 14 |
| Ordnance Survey Plan | 1:10,000 | 1960 | 15 |
| Ordnance Survey Plan | 1:10,000 | 1968 | 16 |
| Ordnance Survey Plan | 1:10,000 | 1970 - 1975 | 17 |
| Ordnance Survey Plan | 1:10,000 | 1977 | 18 |
| London | 1:25,000 | 1985 | 19 |
| Ordnance Survey Plan | 1:10,000 | 1989 | 20 |
| Ordnance Survey Plan | 1:10,000 | 1990 | 21 |
| 10K Raster Mapping | 1:10,000 | 1999 | 22 |
| 10K Raster Mapping | 1:10,000 | 2006 | 23 |
| VectorMap Local | 1:10,000 | 2019 | 24 |

Historical Map - Slice A



Order Details

Order Number: 210572128_1_1
Customer Ref: 17-0420.03
National Grid Reference: 507800, 184900
Slice: A
Site Area (Ha): 3.65
Search Buffer (m): 1000

Site Details

Gleeson Mcl Ltd, Long Lane, Hillingdon, UXBRIDGE, UB10 9NR

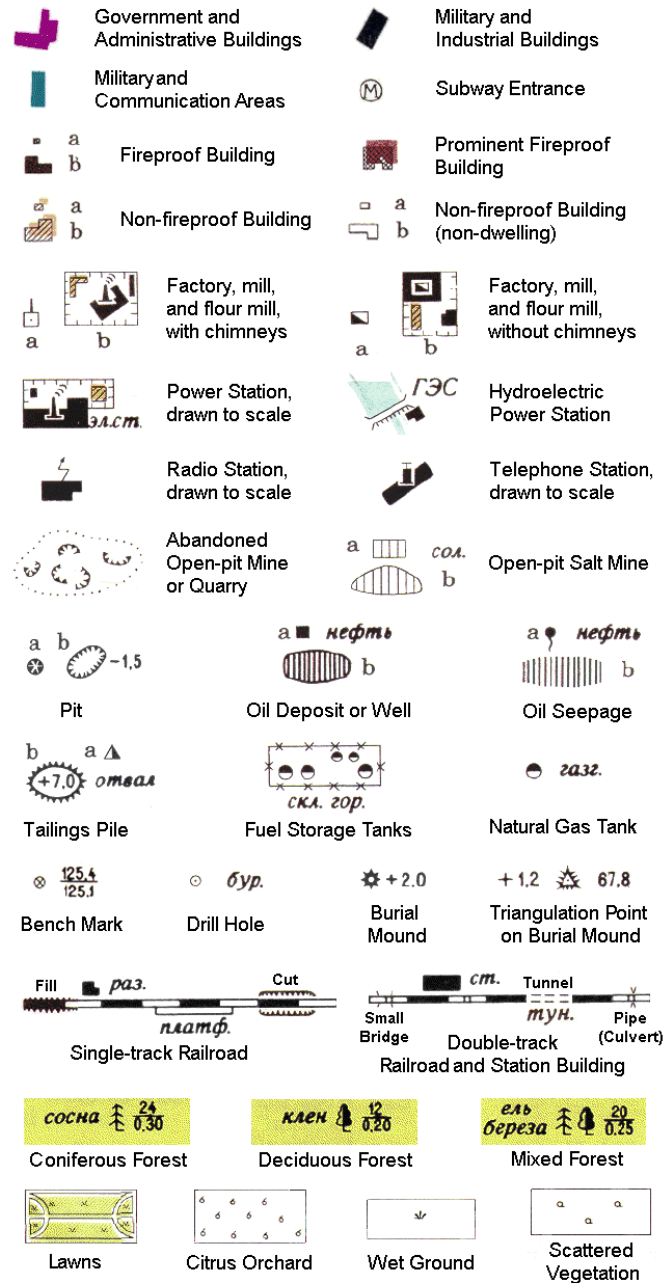


Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Russian Military Mapping Legends

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

a. Not drawn to scale b. Drawn to scale



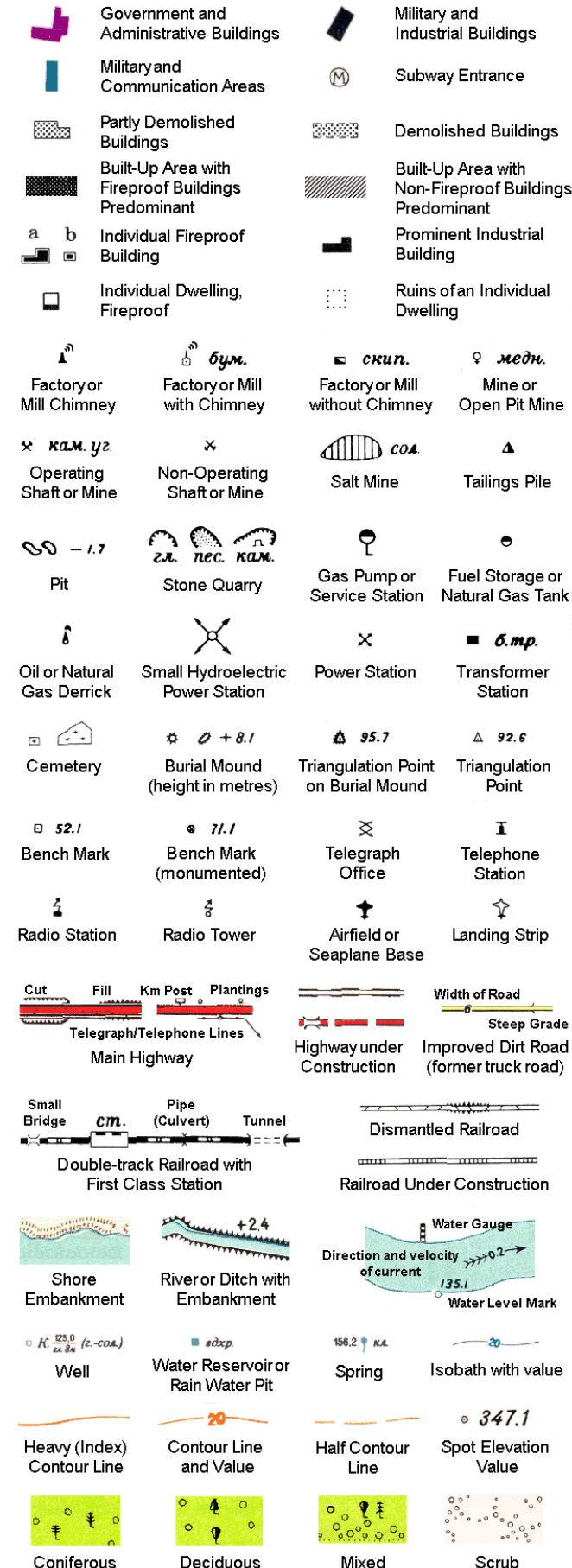
243.8 Values for prominent elevations
186.0 Numbers for spot elevations, depth soundings, contour lines, etc.
0.2 Velocity of the current, width of river bed, depth of river
180/12 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and 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



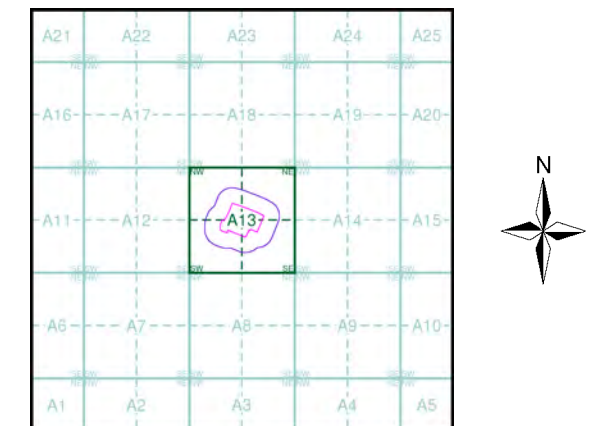
Key to Numbers on Mapping



Historical Mapping & Photography included:

| Mapping Type | Scale | Date | Pg |
|-------------------------------|----------|-------------|----|
| Middlesex | 1:10,560 | 1868 | 3 |
| Buckinghamshire | 1:10,560 | 1881 | 4 |
| Middlesex | 1:10,560 | 1897 | 5 |
| Buckinghamshire | 1:10,560 | 1900 | 6 |
| Middlesex | 1:10,560 | 1916 - 1920 | 7 |
| Middlesex | 1:10,560 | 1916 - 1920 | 8 |
| Buckinghamshire | 1:10,560 | 1932 | 9 |
| Middlesex | 1:10,560 | 1935 | 10 |
| Middlesex | 1:10,560 | 1938 | 11 |
| Middlesex | 1:10,560 | 1938 | 12 |
| Historical Aerial Photography | 1:10,560 | 1948 | 13 |
| Historical Aerial Photography | 1:10,560 | 1948 | 14 |
| Ordnance Survey Plan | 1:10,000 | 1960 | 15 |
| Ordnance Survey Plan | 1:10,000 | 1968 | 16 |
| Ordnance Survey Plan | 1:10,000 | 1970 - 1975 | 17 |
| Ordnance Survey Plan | 1:10,000 | 1977 | 18 |
| London | 1:25,000 | 1985 | 19 |
| Ordnance Survey Plan | 1:10,000 | 1989 | 20 |
| Ordnance Survey Plan | 1:10,000 | 1990 | 21 |
| 10K Raster Mapping | 1:10,000 | 1999 | 22 |
| 10K Raster Mapping | 1:10,000 | 2006 | 23 |
| VectorMap Local | 1:10,000 | 2019 | 24 |

Russian Map - Slice A



Order Details

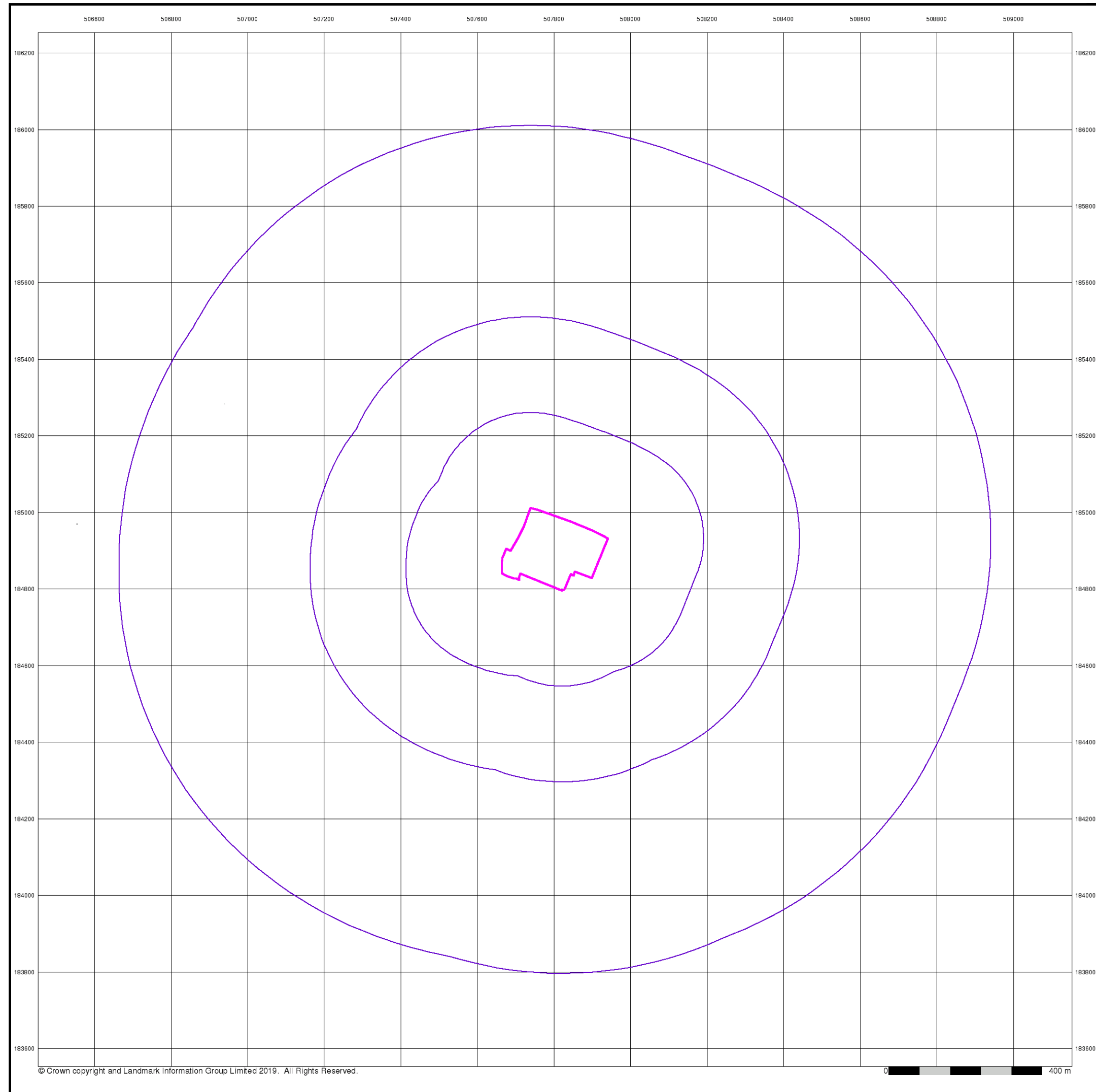
Order Number: 210572128_1_1
 Customer Ref: 17-0420.03
 National Grid Reference: 507800, 184900
 Slice: A
 Site Area (Ha): 3.65
 Search Buffer (m): 1000


Site Details

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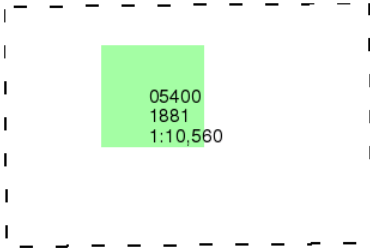
Buckinghamshire

Published 1881


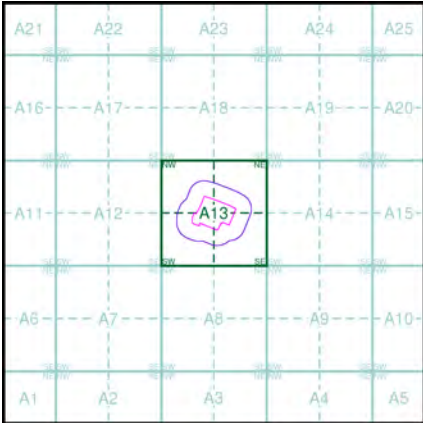
Source map scale - 1:10,560

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: | 210572128_1_1 |
| Customer Ref: | 17-0420.03 |
| National Grid Reference: | 507800, 184900 |
| Slice: | A |
| Site Area (Ha): | 3.65 |
| Search Buffer (m): | 1000 |

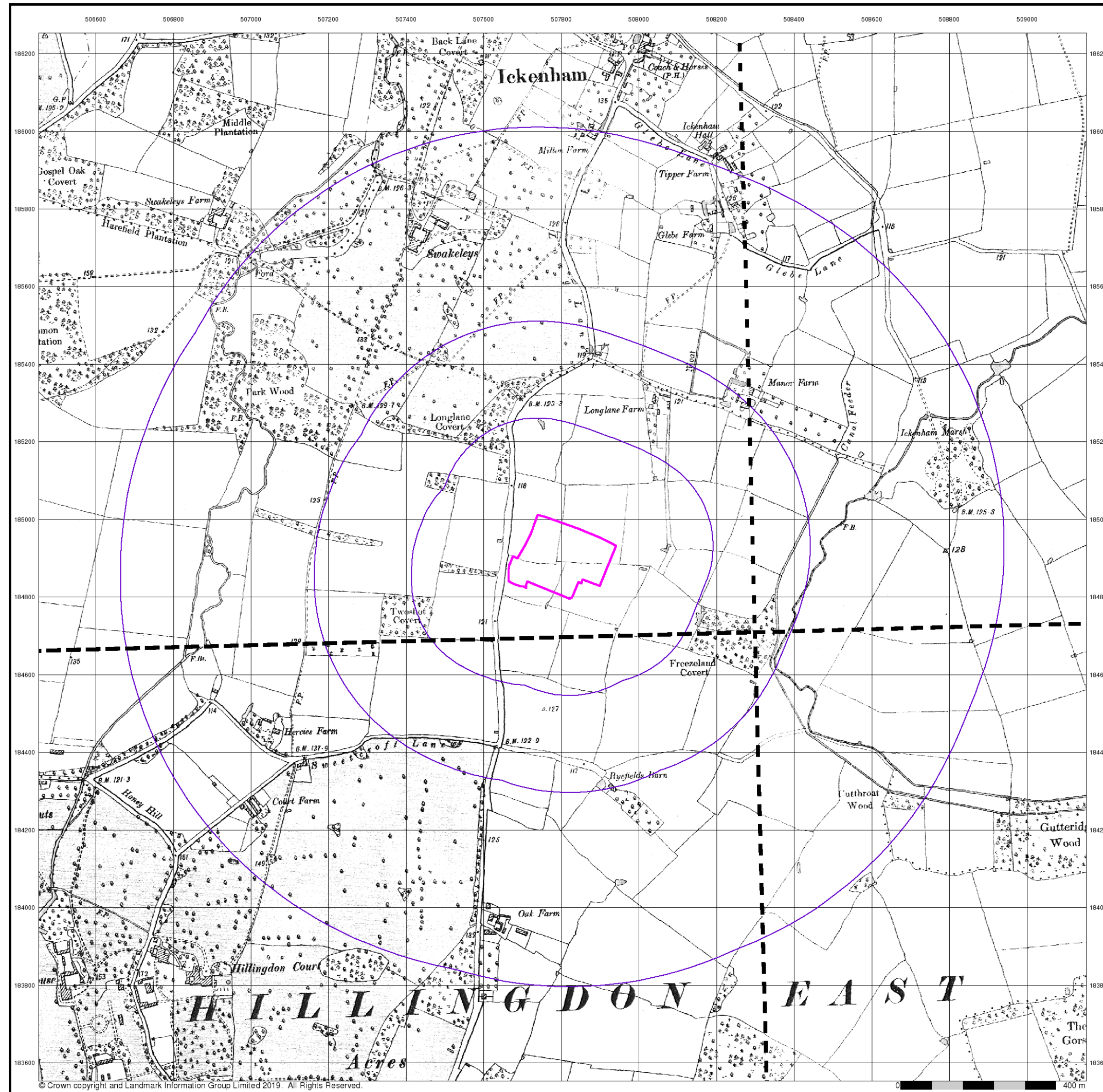
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Middlesex

Published 1897

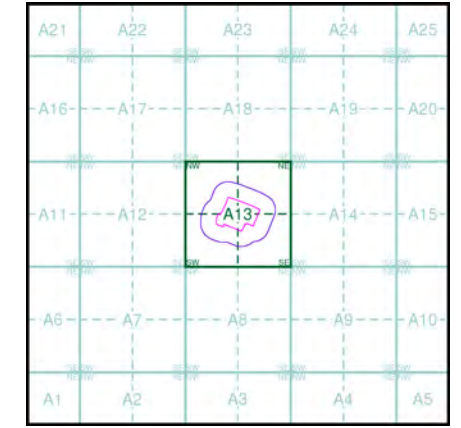
Source map scale - 1:10,560

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)

| | |
|---------------------------|---------------------------|
| 009SE 1897 1:10,560 | 010SW 1897 1:10,560 |
| 014NE 1897 1:10,560 | 015NW 1897 1:10,560 |

Historical Map - Slice A



Order Details

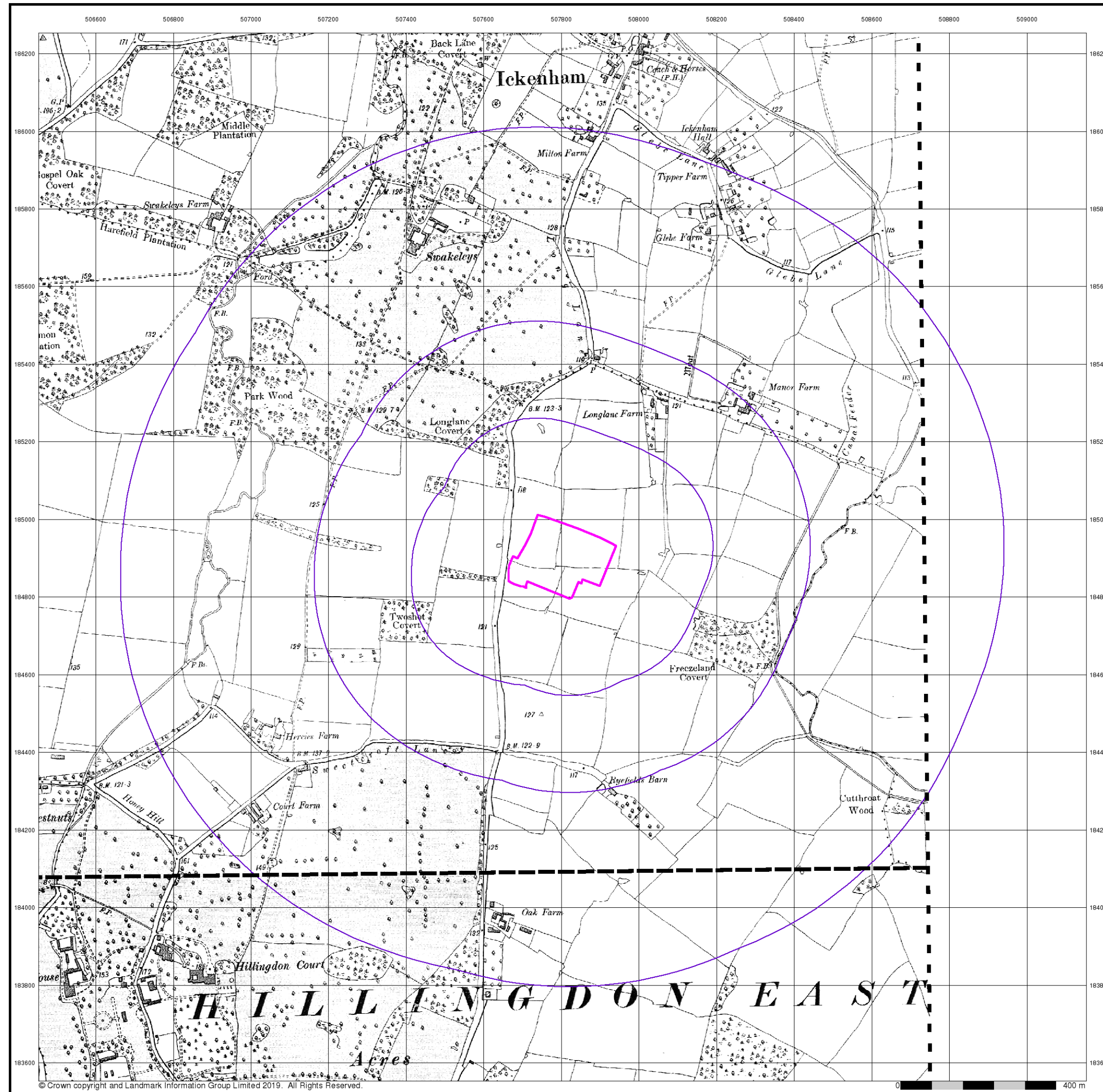
Order Number: 210572128_1_1
Customer Ref: 17-0420.03
National Grid Reference: 507800, 184900
Slice: A
Site Area (Ha): 3.65
Search Buffer (m): 1000

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Buckinghamshire

Published 1900

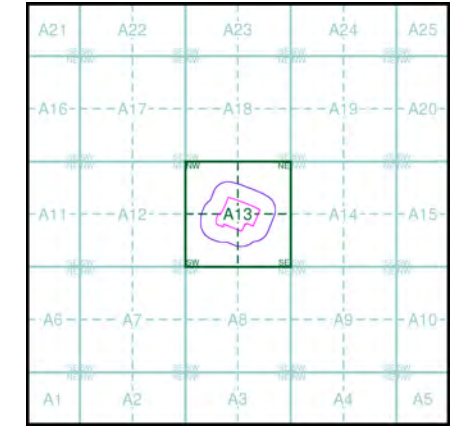
Source map scale - 1:10,560

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)

| |
|----------|
| 054NW |
| 1900 |
| 1:10,560 |
| 054SW |
| 1900 |
| 1:10,560 |

Historical Map - Slice A



Order Details

Order Number: 210572128_1_1
Customer Ref: 17-0420.03
National Grid Reference: 507800, 184900
Slice: A
Site Area (Ha): 3.65
Search Buffer (m): 1000

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Middlesex

Published 1916 - 1920

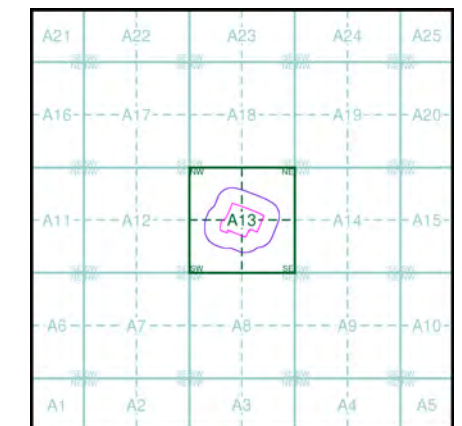
Source map scale - 1:10,560

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)

| | |
|---------------------------|---------------------------|
| 009SE 1920 1:10,560 | 010SW 1916 1:10,560 |
| 014NE 1920 1:10,560 | 015NW 1919 1:10,560 |

Historical Map - Slice A



Order Details

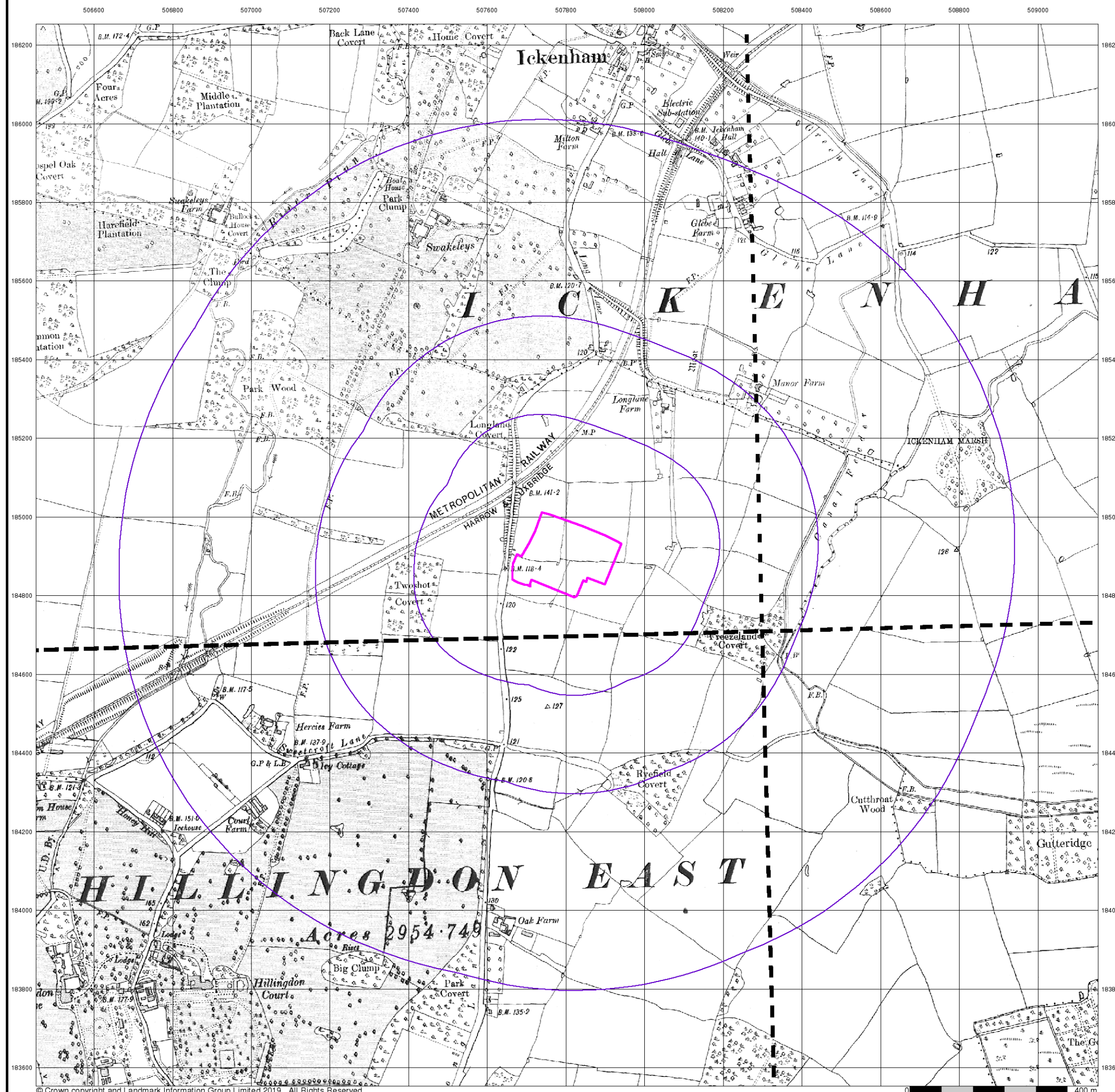
Order Number: 210572128_1_1
Customer Ref: 17-0420.03
National Grid Reference: 507800, 184900
Slice: A
Site Area (Ha): 3.65
Search Buffer (m): 1000

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Middlesex

Published 1916 - 1920

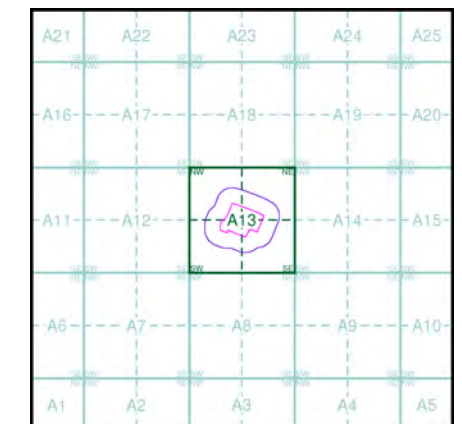
Source map scale - 1:10,560

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)

| | |
|---------------------------|---------------------------|
| 009SE 1920 1:10,560 | 010SW 1916 1:10,560 |
| 014NE 1920 1:10,560 | |

Historical Map - Slice A



Order Details

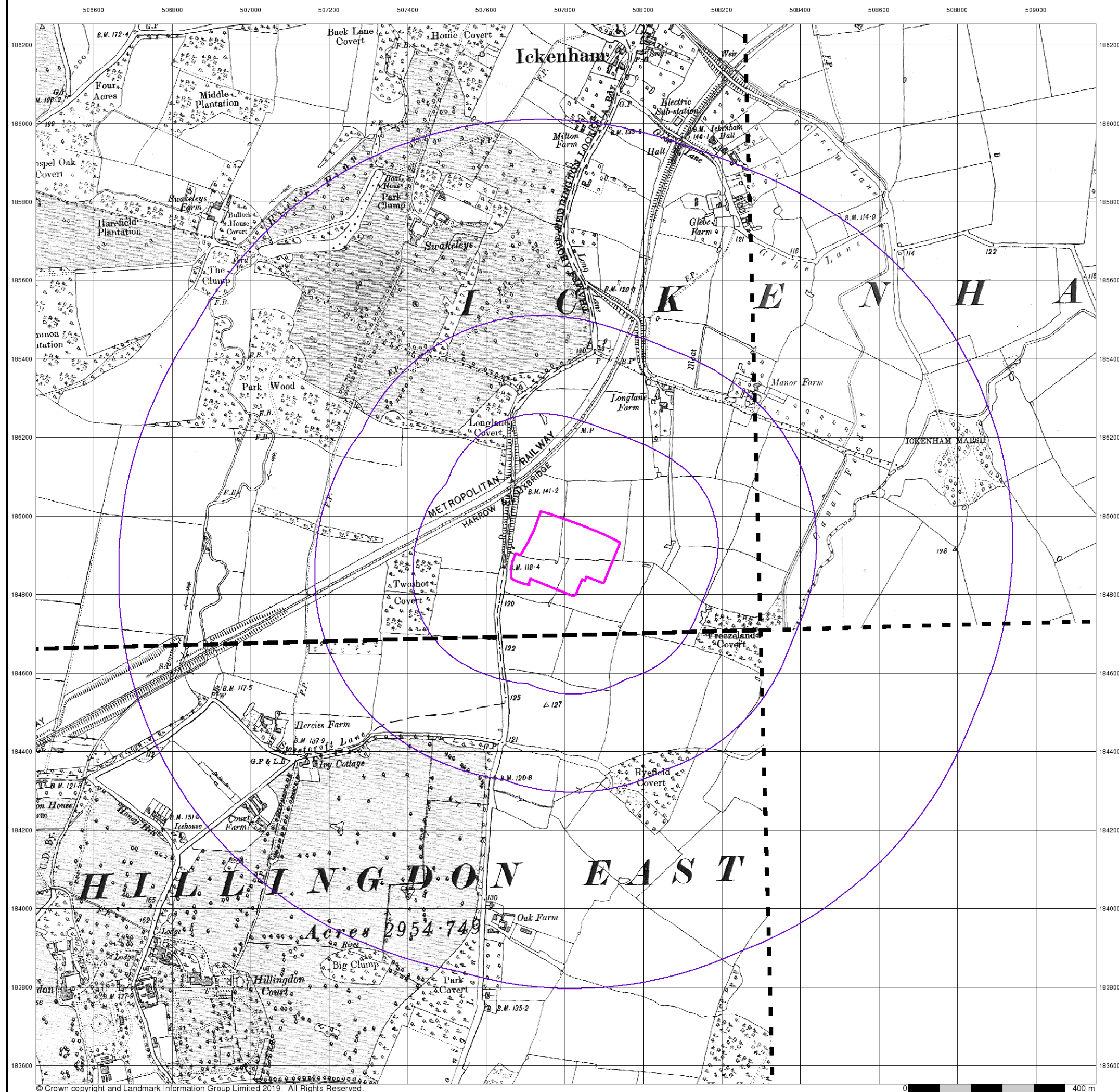
Order Number: 210572128_1_1
Customer Ref: 17-0420.03
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Slice: A
Site Area (Ha): 3.65
Search Buffer (m): 1000

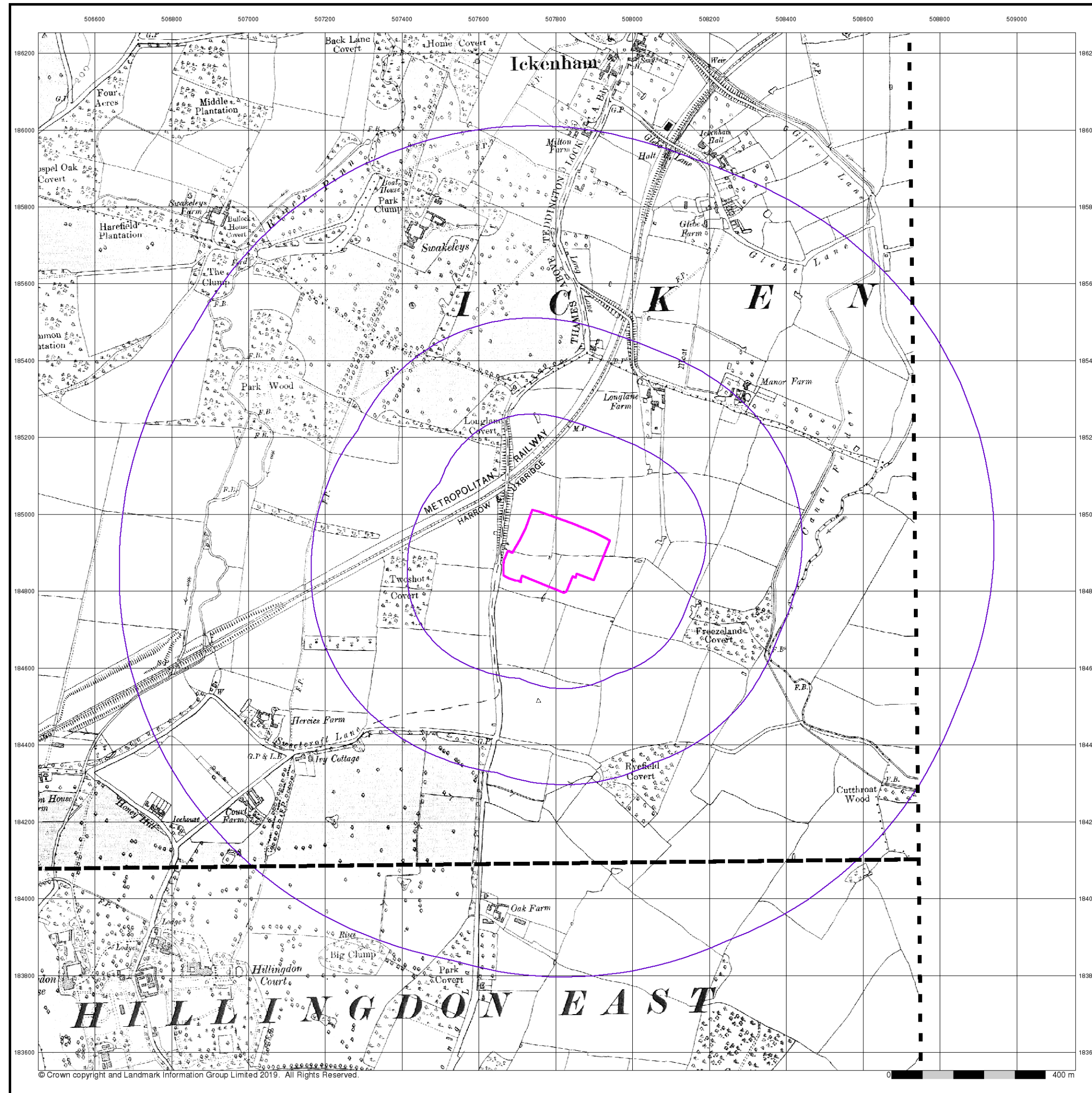
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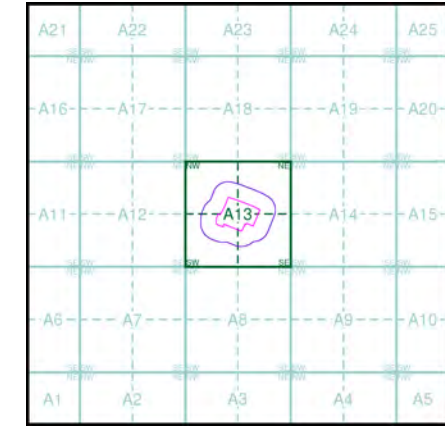
Buckinghamshire
Published 1932
Source map scale - 1:10,560

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)

| |
|----------|
| 054NW |
| 1932 |
| 1:10,560 |
| 054SW |
| 1932 |
| 1:10,560 |

Historical Map - Slice A



Order Details

Order Number: 210572128_1_1
Customer Ref: 17-0420.03
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