



Preliminary Geo-Environmental Risk Assessment

Banbury 200 Site, Southam Road, Banbury OX16 3AE

Presented to: **Lysander**

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Delta-Simons Project No: 21-1553.03



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Report Details

Client	Lysander
Report Title	Preliminary Geo-Environmental Risk Assessment
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Executive Summary

<p>Brief</p>	<p>Delta-Simons was instructed by Lysander (the “Client”) to prepare a Preliminary (Geo-Environmental) Risk Assessment for Banbury 200 Site, Southam Road, Banbury OX16 3AE.</p> <p>The proposed development is for the use of the Site for storage of operational vehicles, together with elevational and Site alterations, associated parking, welfare facilities, vehicle barrier and associated infrastructure.</p>
<p>Site Use & Surrounding Area</p>	<p>The Site comprises two main areas; Warehouse (east) and Car Park (west). The eastern area comprises a warehouse (formerly occupied by Jacobs Douwe Egberts and Kraft) and external areas surfaced with a combination of tarmac and concrete-hardstanding. The western part of the Site is currently covered by asphalt hardstanding in use as a car park by the adjacent warehouse.</p>
<p>Environmental Setting</p>	<p>The Site is likely underlain by a sequence of Topsoil/Made Ground with localised superficial strata (Alluvium/River Terrace Deposits) underlain by bedrock of the Charmouth Mudstone Formation (Secondary Undifferentiated Aquifer).</p> <p>Bird Brook is culverted beneath the north-west of the Site flowing to the east, where it eventually feeds into the River Cherwell.</p>
<p>Contamination Potential Sources</p>	<p>Potential sources of contamination associated with the Site relate to the former use as a food processing plant and the presence of AST/UST and infrastructure associated with the most recent Site use.</p> <p>Potential sources of contamination and ground gas have been identified within the surrounding area of the Site, including previous and current industrial land uses and associated IPPCs, discharge consents adjacent the northern Site boundary and infilled ground within close proximity to the Site.</p>
<p>Contamination Land Risk Associated with Ownership</p>	<p>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 commercial use. 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.</p>
<p>Uncertainty and Data Gaps</p>	<p>This assessment is based on desk study information, a Site walkover survey and review of the previous ground investigation data undertaken by third-parties.</p>
<p>Recommendations and Development Considerations</p>	<p>The Site is proposed for a continued commercial use. Based on the proposed redevelopment, no further ground investigation for land contamination purposes is considered to be required. Geotechnical ground investigation/assessment may be required to support with the development design of ancillary buildings and changes to the ground surface appropriate to the proposed Site use or if in the event of a change in Site layout or development scheme.</p> <p>The design and construction of any ancillary structures and infrastructure should take account of the potential geo-hazards identified comprising the likely presence of Made Ground, shallow groundwater, possible shrinking/swelling clays and compressible soils and the culvert beneath the north-western part of the Site. A structural assessment may be required for the retaining wall along the eastern Site boundary.</p> <p>Storage vessels (e.g. drums) containing chemicals should be appropriately disposed of off-Site under Duty of Care.</p> <p>Prior to any construction works, any ACMs are required to be dealt with in a safe and controlled manner, with appropriate method statements and risk assessment to ensure safety to ground workers, end users and adjacent site users.</p>

	<p>The use of PPE and robust health and safety measures by construction workers should mitigate the risk from contaminants in Made Ground.</p> <p>Suitable clean material should be obtained and used as a growing medium in additional landscaped areas.</p> <p>Aggressive ground chemistry may degrade buried concrete and therefore, there may be a requirement for upgraded concrete to be used.</p>
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This is intended as a summary only. Further detail and the limitations of the assessment are provided within the main body of the Report.

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1.0 Introduction

1.1 Appointment

Delta-Simons Environmental Consultants Limited (“Delta-Simons”) was instructed by Lysander (the “Client”) to prepare a Preliminary (Geo-Environmental) Risk Assessment for Banbury 200 Site, Southam Road, Banbury OX16 3AE (the “Site”).

This Report was undertaken in accordance with Delta-Simons fee proposal dated 13th July 2021. The standard limitations associated with this Assessment are presented in Appendix A.

1.2 Context & Purpose

The aim of this Report is to support the submission of a planning application for the proposed development.

The proposed development is for the use of the Site for storage of operational vehicles, together with elevational and Site alterations, associated parking, welfare facilities, vehicle barrier and associated infrastructure.

To that end this study assesses the likely environmental and geotechnical issues associated with soil and groundwater conditions that may affect the proposed development of the Site. This Report is designed in general accordance with guidance on Land Contamination: Risk Management pages of the [GOV.UK](https://www.gov.uk) web pages, the relevant requirements of the National Planning Policy Framework (NPPF) (as revised 2021) (paragraphs 174 & 183-184)¹ and the Planning Practice Guidance (Land Affected by Contamination)²

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;
- ▲ Consult and review information from the Local Authority and Petroleum Officer in relation to Part 2A of the 1990 Environmental Protection Act;
- ▲ Review online records of potential unexploded ordnance risks;
- ▲ Complete a Site reconnaissance by undertaking a visual inspection of readily accessible areas of the Site;
- ▲ Review of readily available third-party reports relating to the Site or surrounding area;
- ▲ Develop an outline Conceptual Site Model and undertake a Preliminary Risk Assessment with respect to potential contamination focussed on the proposed land use; and
- ▲ Provide commentary on potential land contamination and geotechnical constraints in the context of the proposed redevelopment.

Data sources used in this assessment are listed in Appendix B.

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 maintained a general awareness for evidence of invasive plant species, particularly Japanese Knotweed. While none were observed during the walkover, it should be noted that the Consultant is not a trained ecologist and a separate survey undertaken by an experienced Ecologist would be necessary if a more robust assessment is needed.

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf

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

- ▲ The Report includes an initial assessment of unexploded ordnance (UXO) risks for the Site using online data sources. A detailed UXO assessment falls outside of the scope of this Report, further specialist assessment may be required;
- ▲ 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 the Local Authority;
- ▲ A commentary has been provided regarding existing Site services in the context of assessing environmental and geotechnical issues, however a detailed review of all overhead or underground services is outside the scope of this assessment;
- ▲ A small maintenance building was present in the north-western part of the Site. Internal access was not available; however, plastic storage drums were observed via a small obscured window;
- ▲ Access was not permitted inside the existing warehouse in the east during the Site walkover survey; therefore, commentary is limited to external areas of the Site only;
- ▲ Information provided by the Local Petroleum Officer for Oxfordshire County Council outlined the potential presence of underground fuel storage tanks to the south-west of the warehouse. However, it is unclear if the tanks remain on Site or whether they have been decommissioned and/or removed; and
- ▲ The appended Envirocheck® database and historical mapping cover an area slightly larger than the proposed development boundary.

2.0 Site Context & Data Review

The following sections provide a summary of the key site features based on the data sources listed in Appendix B. All distances, measurements and dates are approximate and the accuracy limitations of the data sources should be noted.

2.1 Site Information

Co-ordinates	Centred at National Grid Reference 445120, 241430	Elevation	97 – 101 m AOD m AOD
		Area	4.45 Ha
Site Address and Location	<p>Banbury 200 Site, Southam Road, Banbury, OX16 3AE, UK.</p> <p>The Site is located in northern Banbury, approximately 790 m from the town centre. Oxford is approximately 36 km to the south. The Site is located within a commercial area along Southam Road approximately 1.8 km to the south-west of the M40 motorway.</p> <p>A Site location map is included as Figure 1.</p>		
Current Site Use	<p>The Site comprises two main areas:</p> <p><i>Warehouse (east)</i></p> <p>The area comprised a building understood to contain two warehouse areas separated by a brick wall with external areas surfaced with a combination of tarmac and concrete-hardstanding. External areas were in use for van storage.</p> <p>It is understood that the Site was most recently occupied until circa 2018 by Jacobs Douwe Egberts (JDE) – a coffee manufacturer as part of the wider JDE factory Site which lies to the north of the subject Site. The Site was historically occupied from the mid-1960s by Kraft (food processing plant).</p> <p><i>Car Park (west)</i></p> <p>The western part of the Site was covered by asphalt hardstanding in use as a car park by the adjacent warehouse.</p> <p>A grassed area with trees and hedges was in the north of the Site and a small brick building (presumably for maintenance) located in the north-western corner together with multiple bike shelters. The southern and south-eastern part of the car park was not utilised.</p> <p>A Site Constraints Plan is included as Figure 2.</p>		
Site Description	<p>Delta-Simons conducted separate Site walkovers on 11th January 2021 (Warehouses) and 29th March 2021 (Car Park). A series of Site photographs are presented as Appendix C and a Constraints Plan as Figure 2. Pertinent information that was observed or reported on-Site is summarised as follows:</p> <p>Warehouse (East)</p> <p>▲ The warehouse area was a broadly rectangular shaped parcel of land and comprised a car park in the western part of the Site, and two warehouses in the central and north-eastern part of the Site. Vehicle access was gained in the south-east of the Site via an access road leading off Southam Road. The main entrance was secured with automatic barriers. Another access point was via Ruscote Avenue in the north-west, secured by large, metal lockable gates. Site levels in the east were generally flat-lying with boundaries comprising a combination of metal and wooden fencing with a vegetated earth mound in the south (Photos 1-3);</p>		

	<ul style="list-style-type: none">▲ The majority of the area was occupied by a metal framed warehouse building covering approximately 18,000 m² with 20 No. Heavy Goods Vehicle (HGV) loading bays along the southern elevation of the building. Access inside the warehouse building was not permitted at the time of the walkover (Photos 4-5);▲ An area of car parking laid to asphalt hardstanding was noted in the east and south-east. The surfacing was observed to be in good condition with no evidence of wear or repair. A small electrical substation was present adjacent to the north-east enclosed by wooden fencing. Access to the substation was gained via the adjacent Waitrose (Photos 6-7);▲ An asphalt access path led around the outside of the warehouse along the northern elevation. A retaining wall was observed spanning a large proportion of the northern boundary where levels associated the adjacent plot to the north were noted to be approximately 500 mm higher than the Site peaking towards the centre of the boundary (Photos 8-9);▲ A concrete hardstanding access road was located to the west of the warehouse between this area and the adjacent car park area with metal access gates. The gate was locked at the time of the visit. The concrete in this part of the Site was observed to be in fair condition with some evidence of cracking and repair particularly in the north-western corner (Photo 10);▲ A surface water course (Bird Brook) was noted to be partially culverted beneath the north-western part of the Site flowing in an easterly direction. The water was observed to be cloudy and water was observed to be discharging into water course from the bank on the northern side. It was not possible to determine if this was via a pipe or directly from the ground. The watercourse appeared to be culverted under the access road off-Site to the north (Photos 11-12);▲ A small brick structure and an old bike storage area were observed to the west of the warehouse (Photos 13-14). Locked metal gates were present to the south-west of the bike storage area that led to the large concrete hardstanding car park in the east which was approximately 1.5 to 2.5 m higher than the warehouse area. A retaining earth bank spanned this section of the Site boundary (Photo 15);▲ The south of the warehouse area comprised a concrete hardstanding yard currently in use for van storage and distribution purposes. The concrete was noted to be in good condition with no evidence of cracking, wear or repair (Photo 16). Air conditioning units were present adjacent to the warehouse atop of a concrete plinth. Drainage covers indicating a potential interceptor were observed to the north-west of the loading bays (Photo 17). The vegetated earth bank continued to span the south-western section of the boundary where it connected with a large, vegetated mound in the southern extent of the Site. A soft landscaped area formed the south-eastern extent of the warehouse area (Photos 18-21);▲ An electricity substation, operated by Midlands Power Network, was present to the south of the warehouse (Photo 22);▲ A temporary security cabin was present close to the entrance, with a generator and associated diesel fuel tank (Photos 23-24);▲ A large metal tank, assumed to be a sprinkler tank, was noted adjacent to the south-eastern Site boundary associated with the neighbouring Waitrose Site (Photo 25);▲ It is understood that underground fuel storage tanks (USTs) may be present beneath the south-western part of this area. However, no evidence of tanks/interceptors/pipework was evident in the external areas in the south-west during the recent Site walkover. It appeared that concrete surfacing had been recently laid in this area; and
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	<ul style="list-style-type: none">▲ No visual or olfactory evidence of significant contamination or asbestos containing materials (ACM) was observed during the walkover of the warehouse area. Car Park (East)▲ Vehicular access to the car park was gained via Ruscote Avenue in the north-western corner. The main entrance was secured with automatic barriers (Photo 26). A second access point was observed via a locked metal gate leading to the adjacent warehouse (Photo 27);▲ Car park surface levels varied between approximately 101 m AOD, where levels domed in the centre with levels in the north falling down to the north-east (to approximately 98 m AOD) and falling in the south, to the south (where levels were approximately 97 m AOD). The boundaries comprised a combination of metal palisade and wooden fencing (Photos 28-29);▲ The majority of the area was occupied by an asphalt-surfaced car park. The surfacing was noted to be in fair condition, with evidence of wear and areas of patch repairs (Photos 30-31). Localised cracks in the asphalt appeared to be associated with mature and semi-mature trees roots present along the boundaries (Photos 32-33);▲ The south-western-most part of the Site was demarcated by heras fencing and was surfaced with rough ground. Informal drainage trenches were observed along parts of the eastern boundary (Photo 34);▲ A pedestrian walkway was present from the main entrance, leading along the northern Site boundary towards the north-eastern corner of the Site (Photo 35). A vegetated area was also observed along the northern boundary with a row of tree stumps (Photo 36). The grassed area was further divided into two parts, separated by another pedestrian pathway, leading to the entry to the adjacent warehouse. Access to the eastern-most part of the vegetated area was via a metal lockable gate;▲ The culverted Bird Brook was observed to run beneath the north-west of the Site, orientated west to east (Photo 37). An outlet pipe connected to the stream was observed to be dry with an organic residue noted (Photo 38). An additional pipe orientated perpendicular to the culverted stream was observed above the stream, although it was not possible to ascertain the nature of the pipe (Photo 39);▲ A small brick building (Photo 40) and an old bike shelter were observed in the north. Access was not available to the building which was presumed to be associated with Site maintenance; however, observations via a small obscured window indicated the presence of 10 No. 25 litre plastic storage drums (labelled UN3266 – basic inorganic corrosive liquid). Overhead and above ground services were observed to run between the bike shelter and the brick building (Photos 41-42);▲ Locked metal gates were present to the east of the bike shelter that provided access to the adjacent warehouse which at this location lay approximately 1.5 to 2.5 m lower in elevation than the car park. A retaining wall (vegetated earth bank) spanned this section of the Site boundary with the level difference reaching up to approximately 4.5 m (Photo 43);▲ An additional bike shelter was observed in the eastern part of the car park and was noted to have been fenced off. The roof was noted to comprise suspected asbestos cement sheets which were broken, with some cement observed on the ground adjacent to the shelter. (Photos 44-45);▲ A damaged manhole cover was observed in the south-east of the car park and was surrounded by fencing. (Photo 46);
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	<ul style="list-style-type: none"> ▲ Two electric boxes were identified in the car park; adjacent to the Site entrance and along the sloped boundary between the two areas; and ▲ Aside from the suspected ACM and localised storage of chemicals, no visual or olfactory evidence of contamination was observed during the Site walkover.
Description of Adjacent and Surrounding Land Uses	<p>The wider JDE site lies immediately to the north and north-east of the Site with associated tanks and chimneys with further industrial/commercial land uses and a petrol filling station (PFS) beyond.</p> <p>A Waitrose food store is located to the west beyond which is Southam Road and a combination of industrial land uses and Spiceball Country Park.</p> <p>Banbury Cemetery is located to the south of the Site with residential property beyond. Ruscote Avenue is situated to the west with residential property beyond.</p>
<p>Where identified, the potential on-Site or off-Site sources of contamination are considered further in Section 3.0. Potential off-Site sources of contamination include the wider JDE site to the north, the PFS and the industrial land uses to the east and west of the Site.</p>	

2.2 Physical Setting

The physical setting of the subject property can influence the susceptibility to, and relative magnitude of, environmental impacts and liabilities associated with on- and off-Site sources of contamination. The following table provides physical setting information for the subject property and surrounding area.

Published Geology	<p>From the British Geological Survey (BGS) Geology of Britain Viewer, no superficial deposits are recorded beneath the Site. The bedrock underlying the Site is noted to be the Charmouth Mudstone Formation comprising mudstone (recorded as clay at shallow depths).</p> <p>A thickness of Made Ground is anticipated from surface.</p>
Site-Specific Geology	<p>There are no BGS recorded boreholes on the Site. The nearest borehole is, located approximately 10 m to the east of the Site (ref SP44SE400, dated February 1989). The geology encountered comprised the following generalised sequence:</p> <ul style="list-style-type: none"> ▲ Firm dark orange/brown silty clay with rootlets, black organic material and gravel fragments to a depth of 3.0 m below ground level (bgl) interpreted as Superficial Deposits; ▲ Very stiff, blue grey fissured silty clay with occasional fine gravel with occasional shell debris and mudstone fragments to a depth of 7.0 m bgl (maximum depth of the investigation) interpreted as Lower Lias Clay; and ▲ Groundwater was encountered at 2.85 m bgl. <p>A ground investigation conducted by Hydrock (ref: R/161279/002, dated July 2016) was undertaken across the wider JDE site (including the subject Site and land to the north). The recorded ground conditions are summarised as follows:</p> <ul style="list-style-type: none"> ▲ Topsoil comprising orange-brown sandy slightly gravelly clay to depths of between 0.3 and 0.4 m bgl; ▲ Made Ground (surface asphalt/concrete hardstanding) overlying sandy gravel or clay comprising flint, concrete, ironstone, sandstone to depths of between 0.3 and 2.6 m bgl; ▲ Alluvium comprising soft to firm greenish grey slightly sandy clay with some rootlets and a mild organic odour to depths of between 1.2 and 4.6 m bgl; ▲ River Terrace Deposits comprising loose to medium dense orange clayey gravel or firm (occasionally soft) gravelly clay of sandstone, ironstone and flint to depths between 0.9 to 8.0 m bgl;

	<ul style="list-style-type: none"> ▲ Charmouth Mudstone Formation comprising stiff grey thinly laminated clay grading into a very weak thinly laminated grey mudstone with some shell fragments and bands of limestone to a maximum proven depth of approximately 20.14 m bgl (maximum depth of investigation); and ▲ Groundwater was struck between 0.9 and 5.0 m bgl during the investigation and subsequently monitored as depths of between 0.36 and 3.76 m bgl during the post works monitoring.
<p>Aquifers and Groundwater Receptors</p>	<p>The Environment Agency (EA) classify the bedrock (Charmouth Mudstone Formation) as a Secondary Undifferentiated Aquifer. Ground conditions recorded from the BGS borehole and the Hydrock ground investigation recorded superficial stratum of Alluvium and River Terrace Deposits locally beneath the Site that would be classified by the EA as Secondary 'A' aquifers.</p> <p>According to the Envirocheck® Report, the Site is located with an area of medium groundwater vulnerability.</p> <p>There is a single groundwater abstraction within 1 km of the Site located approximately 775 m to the north-west. The licence is recorded as revoked/lapsed and was operated by P M & S M Donger for private water supplies (domestic).</p> <p>The Site is not located within a groundwater Source Protection Zone.</p> <p>Previous investigation indicated groundwater to be present at depths of between 0.9 and 5.0 m bgl, although groundwater flow direction was not ascertained. However, in view of the flow direction of the Bird Brook beneath the north-west of the Site, which flows towards the River Cherwell to the east, groundwater flow is expected to be in an easterly direction and likely in hydraulic continuity.</p>
<p>Hydrology</p>	<p>Bird Brook is present beneath the north-western corner of the Site flowing to the east where it feeds into the River Cherwell.</p> <p>The main watercourses in the vicinity of the Site are:</p> <ul style="list-style-type: none"> ▲ Oxford Canal approximately 350 m to the east of the Site; ▲ River Cherwell approximately 500 m to the east of the Site flowing south; and ▲ Grimsbury Reservoir approximately 610 m to the north-east of the Site. <p>River quality data for the Oxford Canal, monitored in 2000 at the Alcan Intake located approximately 325 m to the east, was classified as General Quality Assessment Grade D - poor.</p> <p>According to the Envirocheck® Report, there are no licensed abstraction records from surface water located within 500 m of the Site.</p> <p>The EA classify the majority of the Site as either a medium or high risk from surface water flooding with areas in the north and west classified as low or very low risk. The Site is not at risk of flooding from rivers or the sea and no flood defences, areas benefitting from defences or water storage areas are noted on-Site or in the local area.</p> <p>The majority of the Site is classified as being at very low risk from surface water flooding with an area in the north of the Site (Bird Brook) noted to be at high risk with surrounding medium and low risk areas.</p> <p>According to the Envirocheck® report, the Site is not in an area where there is the potential for groundwater flooding to occur.</p> <p>During previous Site reconnaissance, Bird Brook (culverted) was observed beneath the north-west of the Site. It was noted by the Site representative that the brook and surrounding vegetated area was maintained by Jacobs Douwe Egberts and that there</p>

	had not been previous issues with flooding. A flood risk assessment is outside the scope of this Report.
Site Topography.	<p>Car park surface levels varied between approximately 101 m AOD, where levels domed in the centre with levels in the north falling down to the north-east (to approximately 98 m AOD) and falling in the south, to the south (where levels were approximately 97 m AOD).</p> <p>Locked metal gates were present to the east of the bike shelter that provided access to the adjacent warehouse which at this location lay approximately 1.5 to 2.5 m lower in elevation than the car park. A retaining wall (vegetated earth bank) spanned this section of the Site boundary with the level difference reaching up to approximately 4.5 m.</p> <p>A retaining wall was observed spanning a large proportion of the northern boundary where levels associated the adjacent plot to the north were noted to be approximately 500 mm higher than the Site peaking towards the centre of the boundary.</p>
Mining & Quarrying	Reference to the Coal Authority on-line viewer indicates that the Site is not with 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.
Ground Stability Hazards	<p>The Envirocheck® Report indicates the following hazards in the area of the Site:</p> <p>Collapsible ground – very low;</p> <p>Compressible ground – no hazard;</p> <p>Ground dissolution – no hazard;</p> <p>Landslides – very low;</p> <p>Running sand – no hazard; and</p> <p>Shrinking or swelling clay – low.</p>
Radon Gas	<p>Public Health England (ukradon.org) data indicates that the Site lies within an intermediate probability radon area where 1 to 3 % of homes are above the Public Health England recommended “action level” for radon. The Envirocheck® Report indicates that no radon protective measures are necessary in the construction of new buildings at the Site.</p> <p>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 the Local Authority.</p>

2.3 Sensitive Land Use

Ecological Receptors	<p>It is understood from information provided within the Envirocheck® Report, there are no statutory ecological receptors located within 1 km of the Site.</p> <p>The Site is located within the ‘Cherwell (Ray to Thames) and Woodeaton Brook’ Nitrate Vulnerable Zone.</p>
Heritage Interest	According to Historic England (historicengland.org.uk), there are no areas of heritage interest within 250 m of the Site.

2.4 Historical Use of the Site & Surrounding Area

2.4.1 Approach

The historical development of the Site and surrounding area has been assessed through a review of historical maps, aerial photographs, internet sources, previous reports 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 selected historical maps are included as Appendix D.

2.4.2 Historical Use Summary

The following text provides a review of the historical information for the Site, adjacent and surrounding area:

Warehouse (East)

From the earliest available mapping records dated 1882, this area appears to have comprised agricultural land until circa 1965, when a food processing plant and associated car parking was constructed.

By the mid 1980's, the building was extended to the north-west and mapped as a factory with a small rectangular structure constructed in the south-east (understood to be have been a pump house and electrical substation). In addition, a structure was shown to the south of the factory, which was later indicated to be an above ground tank in aerial imagery from 1999. The above ground tank was no longer mapped by 2006.

The area appears to have remained largely unchanged since 2006.

Car Park (West)

Based on a review of the compilation of historical sources presented below dating back to 1882, it appears that the area was first developed for use as a caravan park in the mid-1960s. A small stream was noted to the north from earliest mapping, until it was partially culverted in the 1960s. In the 1970s, the caravan park was redeveloped into the current car park and no changes have occurred since.

The surrounding area was understood to have been in use as agricultural land to the mid-1960s when industrial development began, as well as residential development to the west and south-west of the Site from the 1970s.

Potentially contaminative land uses identified in the surrounding area include:

On-Site

- ▲ Previous use as a food processing plant/factory;
- ▲ Former above ground storage tank in the southern part of the Site;
- ▲ Electrical substations;
- ▲ Made Ground associated with the development of the Site; and
- ▲ Potential presence of asbestos containing materials (ACM) within the existing building/shed fabric.

Surrounding area

- ▲ Factory and works with various tanks, chimneys and substations located approximately 50 m and 100 m to the north/ north-west of the Site shown from 1965 until the 1994 when these were redeveloped into 'Beaumont Industrial Estate';
- ▲ An unspecified works located approximately 300 m east of the Site shown from 1978 to 1993;
- ▲ An electrical substation located approximately 35 m to the west shown from 1970 until present day; and
- ▲ Depot approximately 200 m south-east of the Site shown from 1978 to 2006.

2.4.3 Unexploded Ordnance (UXO)

The Zetica Regional Unexploded Bomb Risk Map for the area of the Site (zeticauxo.com) indicates that there is a low risk of UXO in the area of the Site.

A detailed UXO assessment falls outside of the scope of this Report, and specialist assessment may be required to support future groundworks.

2.5 Environmental Database Review

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 Public Health England amongst others. A copy of the Envirocheck® Report is provided in Appendix E and the most relevant information is summarised below.

<p>Features On-Site</p>	<p>The Landmark Envirocheck® Report lists the following as relating to the Site:</p> <ul style="list-style-type: none"> ▲ Two 'Points of Interest – Manufacturing and Production' for the Site associated with 'unspecified works or factories'. These are presumed to be associated with the former on-Site food processing plant understood to be operated by Kraft (for coffee production) in the eastern half of the Site. ▲ One Pollution Incident to Controlled Waters occurred on-Site in June 1995, where miscellaneous pollutants entered an unspecified watercourse. The incident was classified as 'minor' and no further details have been provided. Given the prevailing impermeable ground conditions and the time that has lapsed since this incident, it is considered unlikely that there would be any ongoing adverse effects/risks.
<p>Potentially Contaminative Features Off-Site</p>	<p>Pertinent entries included within 100 m the Landmark Envirocheck® Report include:</p> <ul style="list-style-type: none"> ▲ Nine (9 No.) discharge consents; the nearest located between 5 and 10 m to the north-east of the Site for trade effluent discharges attached to the wider Jacobs Douwe Egberts Site. The most recent of the consents was dated 4th September 2000. Several consents relating to General Foods/Kraft Foods (the previous occupants of the Site) were recorded approximately 10 m to the north-east of the Site for trade effluent, surface water and cooling water discharges with the most recent consent revoked in August 2000. Further discharge consents within the wider surroundings are those to Alfred Bird & Sons Ltd approximately 50 m to the north-east of the Site for trade cooling discharges noted as revoked in December 1986 and to Smiths Concrete Ltd approximately 95 m to the south-east of the Site for process water discharges, issued November 1983; ▲ Six (6 No.) pollution incidents to controlled waters are recorded within 100 m of the Site; the nearest occurred in 1992 approximately 5 m to the north-west and involved oil entering the watercourse. The incident was classified as minor. Multiple Significant Incidents have been recorded in the surrounding area, two of which were regarding 'unknown sewage' in 1990 and both located approximately 50 m to the east of the Site. One further Category 2 incident occurred in 1989 involving an unknown pollutant approximately 50 m to the east of the Site. Given the significant time that has lapsed since these incidents, they are considered unlikely to adversely impact the Site; ▲ One Prosecution relating to controlled waters from 1992, associated with Southam Road and located approximately 80 m to the south-east. The prosecuted was found guilty of two charges of breaching consents conditions by discharging effluent into Smith's Ditch on 1st October 1991; ▲ Two Local Authority Pollution Prevention and Control (LAPPC) permits within 100 m of the Site relating to petrol filling stations, these are located approximately 70 m to the south-east and 90 m to the east of the Site (both authorisations are noted as revoked); ▲ One Integrated Pollution Control Permit (IPPC) approximately 100 m to the north-east of the Site (Kraft Foods UK Ltd) for combustion processes within the fuel and power industry. The permit was authorised in February 2000 and, as of October 2009, is now an effective IPPC permit for combustion of waste derived fuel (between 3 and 50 Mw). Two further IPPC's are held by Jacobs Douwe Egberts Ops Gb Ltd and Mondelez UK Production Limited for the incineration of

	<p>non-hazardous waste in an incineration or co-incineration plant with a capacity exceeding 3 tonnes per hour, noted as effective; and</p> <ul style="list-style-type: none"> ▲ One entry of potentially infilled land (non-water) approximately 255 m south-west of the Site, mapped in 1995. The fill material is unknown and no further details have been provided. The entry does not appear to coincide with any apparent infilled ground recorded on historical map records; ▲ Multiple active and inactive contemporary trade directory entries within the surrounding area, the closest being an active entry to Johnsons Cleaners approximately 40 m to the east of the Site for Dry Cleaning (situated within Waitrose). Further active entries within 250 m of the Site include: laundries and laundrettes, crane manufactures, car dealers, dry cleaners, plastic injection moulding, and electrical goods sales, manufacturers and wholesalers. <p>Industrial Land Use entries within 500 m of the Site include:</p> <ul style="list-style-type: none"> ▲ There are two Petrol Stations, the first entry is located approximately 75 m to the south-east and is obsolete. the second entry, 410 m to the south-east of the Site; ▲ Seventeen Points of Interest – Commercial Services – including multiple entries associated with vehicle repair, servicing and cleaning. The nearest entry is located 45 m to the west; ▲ Twenty-Six Points of Interest – Manufacturing and Production – including unspecified works or factories, business parks and industrial estates and tanks (generic). The nearest entry is located approximately 60 m to the east associated with unspecified works; ▲ Eleven Points of Interest – Public Infrastructure – including cemeteries, petrol and fuel stations, fire brigade station and waste storage, processing and disposal facilities. The nearest entry is a cemetery, located 160 m to the south; and ▲ Eight Points of Interest – Recreational and Environmental – associated with playgrounds, with the nearest entry approximately 265 m to the west. <p>There are no BGS, LA and EA registered landfill sites on or within 500 m of the Site.</p>
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2.6 Planning Review/Regulatory Enquiries

On-line Planning Review	Cherwell District Council	Date Accessed	21/07/2021
On-Site Applications	<p>Several applications have been identified for the Site and wider area. The applications pertinent to this assessment are summarised below:</p> <ul style="list-style-type: none"> ▲ 00/00024/F – ‘extension of exhaust to standby electrical generator’. The application was noted as permitted on 28/02/2000. <p>A location plan within the supporting documents of the Site noted the proposed extension to be off Site in the wider Kraft complex to the north. It was noted in the location plan that a fuel station (DERV lubricating oil) was located in the south of the Site and that the northern and eastern halls of the warehouse on Site were used for finished goods. A pump house and substation as well as a truck were observed in the east of the Site. Within the decision notice, no conditions relating to contaminated land were observed.</p> <ul style="list-style-type: none"> ▲ 00/01347/F – ‘Planning application for formation of rooflight to research and development building’. The application was notes as permitted on 10/08/2000. From a Site location plan it is understood that the application refers to the Kraft food area in the east. No conditions relating to contaminated land were observed within the decision document. ▲ 05/02370/F – ‘Resubmission of application 04/02201/F – Demolition of existing obsolete building and construction of new process building in the same area’. 		

	<p>The application was noted as permitted on 20/01/2006. The application related to the Site and the surrounding area in use at the time by Kraft.</p> <p>No conditions relating to contaminated land were observed in the decision notice.</p> <p>▲ 12/00195/DEM – ‘Demolition of two warehouses, link abutting main Kraft building, part demolition of building to the rear of the site, demolition of prefabricated building to the rear right hand corner of the site and demolition of office building to the front’. The application was noted as permitted on 05/03/2012.</p> <p>From a demolition plan in the supporting documents of the application it is understood that the warehouse on Site was one of three buildings highlighted for demolition. The decision notice had no conditions relating to contaminated land however Condition 2 stated that that all materials and rubbish resulting from the demolition and clearance of the site should be removed. 12/00002/SO – noted as a screening opinion of the application 12/00195/DEM (noted as screening opinion not requiring EIA on 01/03/2012).</p> <p>▲ 12/00329/OUT – Application for the proposed food store of 5574 sqm (60,000sqft) gross floor space and up to 7432 sqm (80,000sqft) gross of non-food retail floor space/ New petrol filling station, new vehicular access and associated highway works at Southam Road and associated car parking, hard and soft landscaping and drainage infrastructure works. The application is noted as withdrawn on 18/06/2015.</p> <p>▲ 12.00009/SO – screening opinion for application 12/00329/OUT (noted as screening opinion not requiring EIA on 01/03/2012).</p> <p>▲ 18/00055/SO – screening opinion for change of use of premises from B8 to B1c/B2/B8, including internal and external alterations, demolition of ancillary structures and new access to Southam Road. The application was decided on 16/08/2018 and a screening opinion was noted as not required.</p> <p>▲ 18/01246/F – application for the change of use of premises from Class B8 to B1c/B2/B8, including internal and external alterations, demolition of ancillary structures and new access to Southam Road. The application was decided on 20/12/2018.</p> <p>The decision notice held conditions relating to drainage but none regarding contaminated land. Several decision notices relating to 18/01246/F were noted, these being non-material amendments, discharge and variation of conditions.</p> <p>▲ 19/00105/DISC – discharge of conditions 4 (car parking and cycle parking detail), 5 (pedestrian walkway), 7 (drainage) and 8 (EV charging points). The application for discharge of conditions was confirmed on 13/05/2019.</p> <p>▲ <i>19/00033/SO – Planning application for the demolition of the existing office and proposed redevelopment of the existing car park for a mixed-use scheme including use classes B1/B2/B8/A1/A5 drive-thru and surface level car park.</i> This application was for a Screening Opinion for an Environmental Impact Assessment (EIA). The decision dated 21/06/2019 noted that an EIA was not required. From a location plan it is understood that the application area refers to the Site and a smaller area to the north.</p> <p>▲ 99/01891/F – <i>Planning application for removing existing chain link fence and erection of new 2.4 metre high palisade type fence around site boundary.</i> The application was noted as permitted on 22/11/1999. From a Site location plan it is understood that the application refers to the Site and the wider Kraft food factory area to the east. No conditions relating to contaminated land were observed within the decision document.</p> <p>Copies of the relevant consents are reproduced as Appendix F.</p>
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<p>Part 2A of the Environmental Protection Act (EPA) 1990</p>	<p>Delta-Simons contacted Cherwell District Council's Contaminated Land Officer (CLO) to obtain details of the Site's current status with respect to Part 2A of the Environmental Protection Act (EPA) 1990 and other pertinent regulatory information relating to the subject property.</p> <p>A response was received on 10th November 2020, stating that the Site has not been determined as 'contaminated land' under Part 2A of the EPA 1990 or as part of Cherwell Council's Contaminated Land Inspection Strategy, and the Council have no evidence to suggest the land underlying the Site is contaminated.</p> <p>No Contaminated Land Register Entries or Notices for the Site are listed in the Envirocheck[®] report.</p> <p>Information was also requested from the EA regarding an on-Site pollution incident to controlled waters listed within the Envirocheck[®]. However, the EA did not hold any further information regarding the incident.</p> <p>A copy of the CLO response is included in Appendix G.</p>
<p>Trading Standards Service – Oxfordshire County Council</p>	<p>The Local Petroleum Officer (part of the Trading Standards for Oxfordshire County Council) was contacted regarding the presence of underground fuel storage tanks to the south of the on-Site warehouse. Pertinent information is summarised below:</p> <ul style="list-style-type: none"> ▲ Two tanks (petrol and diesel) were installed, referenced Tank 1 and Tank 2. Each tank had a 3,000 gallon capacity and were of single skin steel construction; ▲ Both tanks were reportedly installed in 1972, and both were converted to store diesel in April 1992, effectively decommissioning the tanks from a petroleum licence perspective. The final petroleum licence shows a capacity of 27,276 litres of petrol; ▲ A hand drawn plan from 1975 shows an interceptor and pumps installed next to the southern elevation of the building apparently under the roof. In 1983 a traffic service area was created away from the building with pipework from the existing tanks and a new interceptor installed. A plan shows the use of changeover chambers, which indicates that both tanks were twin compartments, possibly of 1500 gallons each; ▲ No records of any fuel leakages or tank integrity failures were provided from the Local Authority to Delta-Simons; ▲ No information relating to decommissioning or removal of the tanks was available, therefore the status of the tanks is currently unknown; and ▲ The Local Authority reported that they hold no records of any other tanks that may have been on-Site (e.g. diesel or heating oil). <p>A plan indicating the locations of the underground fuel storage tanks is included in Appendix G.</p>

2.7 Previous Reports

<p>List of Reports</p>	<p>Delta-Simons has been provided with the following reports relating to the Site:</p> <ul style="list-style-type: none"> ▲ Peter Brett Associates LLP Ground Stability and Phase 1 Contaminated Land Desk Study (Ref: 26004/006) dated March 2012; ▲ Hydrock Ground Conditions Desk Study (Ref: R/161279/001) dated April 2016; ▲ Hydrock Ground Investigation (Ref: R/161279/002) dated July 2016; ▲ WSP High level Peer Review of Selected Third-Party Information (70038703/TA/Final), dated October 2017; ▲ WSP Tank Investigation (Ref: 10954) dated January 2018;
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	<ul style="list-style-type: none"> ▲ Pre-Construction Phase CDM Information Record and Client Requirements by RPS (undated); and ▲ Post Contract Health and Safety Information File for the Demolition Works (Ref: C11281) by DSM dated February 2019. <p>Copies of the reports are provided in Appendix H.</p>
<p>Key Findings - Summary of Ground Stability and Phase 1 Contaminated Land Desk Study by Peter Brett Associates LLP</p>	<p>The desk study was written to support a planning application for the proposed Southam Road Retail Park. The desk study area covers the central and eastern parts of the Site and an additional area to the east which is currently a Waitrose supermarket with associated car parking and hardstanding areas. Information within the desk study has been superseded by information within this report. Information further to this report is as follows:</p> <ul style="list-style-type: none"> ▲ At the time of reporting the Site was occupied by Kraft Foods and comprised a warehouse unit with temporary office building, gas and electricity outbuildings, truck wash and truck parking areas, access routes and areas of open ground. <p>With respect to ground stability, the report noted:</p> <ul style="list-style-type: none"> ▲ A potential risk to the Site from possible adverse foundation conditions – hazards associated with ground in areas of deep made ground and superficial deposits (possible alluvium), possible shrinking or swelling hazards associated with clay soils and potential obstructions associated with former warehouse foundations; and ▲ A potential risk from unstable slopes – existing cut slopes along the south-western Site boundary. The report noted that there was no visual evidence of slope instability although any alteration that may occur to slope profiles would require consideration. <p>Photographic evidence from the Site walkover detailed a truck wash and the location of possibly decommissioned underground fuel storage tanks.</p> <p>Contained within the report appendices was an ‘Interpretive report on ground investigation for new evaporates at Kraft Foods’ (Ref: 25186/01) by Geotechnical Engineering Ltd, dated March 2011. The intrusive investigation was undertaken in February 2011 and comprised a single exploratory location advanced using dynamic sampling drilling techniques with rotary core follow on to 9.0 m bgl. A location plan of the borehole was not included within the appendix of the report, it is therefore unknown if the borehole was on Site.</p> <p>Gas monitoring visits were noted to have taken place on three occasions after initial monitoring was carried out (4th, 11th and 18th March 2011). On all occasions, methane was not recorded above the detection limit of < 0.1% by volume. Carbon dioxide levels ranged between 0.3 % and 1.3 % v/v and concentrations of oxygen between 5.0 % and 20.1 %. It was also noted that minimal gas flow rates were detected with a maximum rate of 0.4 l/hr, with all visits occurring at times of high atmospheric pressure (>1000mb). The gas conditions were considered representative of CIRIA Characteristic Situation 1 (CS1).</p> <p>Laboratory contaminant testing was carried out however the copy of the associated appendix is not clear. It was noted in the written section of the report that no exceedances of the adopted Generic Assessment Criteria (GAC) were noted. In addition, no obvious visual or olfactory evidence of contamination was discovered, and the report concluded that no specific remedial requirements were identified as a result of the investigation.</p>

<p>Key Findings – Ground Conditions Desk Study by Hydrock</p>	<p>Hydrock undertook a desk study for the Site (development area recorded as 6.10 hectares) in April 2016.</p> <p>At the time of reporting, the land was noted to be in use as part of the existing Kraft factory with a lorry park and wash in the west. The proposed development of the Site was to be commercial/industrial although no specific plan had been provided to Hydrock at the time. An electricity substation was noted in the south-west and a brook in the north-west of the Site, noted to be culverted through four pipes beneath the warehouse and exiting at the eastern side of the warehouse from two pipes. The brook then flows into the River Cherwell to the east. A walkover of the Site was done in April 2016, a description of the Site was provided however the photolog was not available.</p> <p>Information within this report has been superseded by the current report.</p>
<p>Key Findings – Ground Investigation by Hydrock</p>	<p>The Hydrock ground investigation is understood to be a continuation of the above desk study (covering the wider site area) and comprised:</p> <ul style="list-style-type: none"> ▲ 4 no. rotary cored boreholes to a maximum depth of 20.14 m bgl. BH01, BH03 and BH04 located on Site; ▲ 26 no. window sampler boreholes to a maximum depth of 5.45 m bgl. WS1 to WS18 to WS23 and WS26 located on Site; ▲ 9 no. boreholes were installed with gas/groundwater monitoring standpipes. Of these, 6 no. were noted as being on-Site (WS01, WS03, WS09, WS13, WS14, WS18, WS19, and WS26); ▲ 6 no. monitoring rounds measuring gas concentrations and groundwater levels; ▲ Chemical analysis of soils and groundwater; and ▲ Geotechnical testing of soils and rocks. <p>The ground investigation was undertaken between the 26th May and 7th June 2016. During the intrusive works, obstructions were encountered in the Made Ground at two on-Site locations:</p> <ul style="list-style-type: none"> ▲ WS04 (eastern boundary) at 0.9 m bgl. Terminated on concrete. ▲ WS08 (just left off the Western Hall) at 0.5 m bgl. Terminated in hand pit due to refusal. <p>The recorded ground conditions are summarised as follows:</p> <ul style="list-style-type: none"> ▲ Topsoil comprising orange-brown sandy slightly gravelly clay to depths of between 0.3 and 0.4 m bgl; ▲ Made Ground (surface asphalt/concrete hardstanding) overlying sandy gravel or clay comprising flint, concrete, ironstone, sandstone to depths of between 0.3 and 2.6 m bgl; ▲ Alluvium comprising soft to firm greenish grey slightly sandy clay with some rootlets and a mild organic odour to depths of between 1.2 and 4.6 m bgl; ▲ River Terrace Deposits comprising loose to medium dense orange clayey gravel or firm (occasionally soft) gravelly clay of sandstone, ironstone and flint to depths between 0.9 to 8.0 m bgl; ▲ Charmouth Mudstone Formation comprising stiff grey thinly laminated clay grading into a very weak thinly laminated grey mudstone with some shell fragments and bands of limestone to a maximum proven depth of approximately 20.14 m bgl (maximum depth of investigation); and

Groundwater was struck between 0.9 and 5.0 m bgl during the investigation and subsequently monitored as depths of between 0.36 and 3.76 m bgl during the post works monitoring.

Ground investigation results indicated that the Site was classified as being representative of a Characteristic Situation 1 (CS1).

GSV (May – June 2016)						
	Max CH4 - steady (%v/v)	Max CO2 - steady (%v/v)	O2 – steady (%v/v)	Max flow rate (l/hr)	Gas Screening Value (CH4) (l/hr)	Gas Screening Value (CO 2) (l/hr)
WS1	0.1	0.8	19.4 – 20.9	0.1	0.001	0.0008
WS3	0.1	2.6	15.5 – 19.3	0.1	0.001	0.0026
WS9	0.1	0.2	14.4 – 19.7	0.1	0.001	0.0002
WS13	0.1	2.1	17.9 – 20.8	0.1	0.001	0.0021
WS14	0.1	1.6	18.0 – 19.9	0.1	0.001	0.0016
WS18	0.1	1.5	18.2 – 20.2	0.1	0.001	0.0015
WS19	0.1	4.9	15.2-16.0	0.01	0.0001	0.0049
WS26	0.1	0.9	16.7 - 20.7	0.01	0.0001	0.0009

Asbestos was identified in two of the 38 soil samples analysed (whole development area), one of the samples was on-Site, as follows:

Location	Depth (m bgl)	Material	Asbestos	Strata	Quantification Result (%)
WS03 (in south of eastern carpark)	0.60	Hard / cement type material, loose fibres and insulation lagging	Chrysotile / Amosite	Made Ground	0.076

Soil samples were tested for a suite of analytes comprising metals, polycyclic aromatic hydrocarbons (PAHs) volatile organic compounds (VOCs), benzene, toluene, ethylbenzene and xylene (BTEX) and total petroleum hydrocarbons (TPH). One TPH exceedance was noted by Hydrock in WS03 (Aliphatic >EC12 – EC16 banding 59 mg/kg vs an adopted GAC or 24mg/kg). VOCs in all samples were noted below the detection limit. However, when compared to the generic assessment criteria adopted by Delta-Simons for a commercial end use, no exceedances were noted.

Analysis of 5 no. groundwater samples was undertaken over the whole development area (4 no. were located on-Site). The testing included PAHs, VOCs, BTEX and petroleum hydrocarbons. Concentrations were below detection limits for the aforementioned contaminants in all samples.

The geotechnical section of the report summarised that obstructions were encountered at shallow depth in two locations and as such further obstructions should be anticipated. In regard to foundations, it was noted that ground improvement and potential foundation deepening may be required with pad or piled foundations in the eastern part of the Site and that suitable dewatering would be required. Hydrock also noted that the construction of a ground bearing floor slab would require the over-excavation and replacement of the Made Ground. Soakaway drainage was not considered suitable for the Site. The report concluded that the footprint of the building had not been fully investigated and that further investigation was recommended.

Key Findings – High Level Peer Review of Selected Third Part Information by WSP

WSP were instructed to perform a high-level peer review on third party information relating to the Site. The report reviewed information from the following sources and from the Cherwell District Council planning portal:

- ▲ Peter Brett Associates – Flood Risk Assessment, March 2012;
- ▲ Hydrock – Ground Conditions Desk Study, April 2016; and); and

	<p>▲ Hydrock – Ground Investigation, July 2016.</p> <p>Information pertinent to this report includes that the historic fuel station shown centrally in the south of the Site (former refuelling area) from historic plans was not targeted by the Hydrock ground investigation, however whilst hydrocarbon contamination in the area cannot be discounted, laboratory test results suggest that there is no significant fuel release / hydrocarbon contamination in the area. The report stated that until otherwise stated, the potential for underground diesel storage tanks (USTs) and associated infrastructure in addition to hydrocarbon ground contamination, could not be discounted.</p> <p>The review concluded that WSP considered the Site to be low / medium risk with respect to potential contamination land liabilities due to the uncertainty over the former refuelling infrastructure.</p>																														
<p>Key Findings – Tank Investigation by WSP</p>	<p>WSP were commissioned by Paloma Capital LLP to undertake a Site investigation of a 0.1-hectare sized area located in the south-west of the Site following a WSP peer review of the previous RPS reports. At the time of reporting the area was noted to be disused and comprised hardstanding and a grassed embankment with an access path. The investigation comprised four boreholes (WS202, WS203, WS205 and WS207) advanced to a maximum depth of 5.0 m bgl on 30th November 2017. The reporting area was found to be underlain by granular and cohesive Made Ground over superficial River Terrace Deposits and Alluvium, with the mudstone bedrock encountered at approximately 4.2 m bgl. Groundwater was noted within the Made Ground or River Terrace Deposits at depths between 1.26 m and 2.05 m bgl and was inferred to flow east consistent with topography. The investigation did not identify the presence of non-aqueous phase hydrocarbons in the ground or resting on the groundwater beneath the site. Visual and olfactory evidence of hydrocarbon contamination was noted in arising from two locations, as follows:</p> <p>▲ WS203 – 1.0 - 1.5 m bgl: Slight black hydrocarbon staining and moderate hydrocarbon odour (field screening of the soil using a PID recorded 1 ppm); and</p> <p>▲ WS205 – 2.0 - 2.5 m bgl: Slight hydrocarbon odour (PID reading < 1 ppm).</p> <p>Soil and groundwater samples were tested for a range of analytes as summarised below:</p> <table border="1" data-bbox="438 1310 1428 1982"> <thead> <tr> <th>Determinand</th> <th>No. soil samples analysed</th> <th>No. of groundwater samples analysed</th> </tr> </thead> <tbody> <tr> <td>Total Petroleum Hydrocarbon Criteria Working Group (TPH CWG) and Benzene, Toluene, Ethylbenzene and Xylene (BTEX)</td> <td>8</td> <td>3</td> </tr> <tr> <td>Heavy metals</td> <td>8</td> <td>3</td> </tr> <tr> <td>Hexavalent Chromium</td> <td>8</td> <td>3</td> </tr> <tr> <td>16 Speciated Polyaromatic Hydrocarbons (PAHs)</td> <td>8</td> <td>3</td> </tr> <tr> <td>Semi-volatile organic compounds (SVOCs)</td> <td>2</td> <td>2</td> </tr> <tr> <td>Volatile Organic Compounds (VOCs)</td> <td>2</td> <td>2</td> </tr> <tr> <td>pH</td> <td>9</td> <td>3</td> </tr> <tr> <td>Soil Organic Matter</td> <td>10</td> <td>N/A</td> </tr> <tr> <td>Asbestos Fibre Screen</td> <td>8</td> <td>N/A</td> </tr> </tbody> </table>	Determinand	No. soil samples analysed	No. of groundwater samples analysed	Total Petroleum Hydrocarbon Criteria Working Group (TPH CWG) and Benzene, Toluene, Ethylbenzene and Xylene (BTEX)	8	3	Heavy metals	8	3	Hexavalent Chromium	8	3	16 Speciated Polyaromatic Hydrocarbons (PAHs)	8	3	Semi-volatile organic compounds (SVOCs)	2	2	Volatile Organic Compounds (VOCs)	2	2	pH	9	3	Soil Organic Matter	10	N/A	Asbestos Fibre Screen	8	N/A
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Soil Testing Results

Soil analysis highlighted the presence of low concentrations of petroleum hydrocarbons in all of the samples with total petroleum hydrocarbons (TPH) reported between 0.92 mg/kg (WS205 at 3.5 – 3.7 m bgl) and 156 mg/kg (WS203 at 1.0 – 1.3 m bgl). The hydrocarbons detected were predominantly the heavier-end compounds (C12 and above), with only trace concentrations or below the laboratory limit of detection (LOD) for the lighter C5 to C12 compounds in the majority of samples tested.

Of the eight samples that were tested for Polycyclic Aromatic Hydrocarbons (PAHs), only one sample (WS205) returned results above the LOD (0.558 mg/kg total PAHs in sample WS205 at 0.7-1.0 m bgl). The concentrations are orders of magnitude below commercial assessment criteria. Concentrations of metals were detected above the LOD in all samples, however, no notably high concentrations were detected. Asbestos was not identified in any of the samples tested.

There were no exceedances of the relevant GAC for any of the soil samples tested, therefore, based on the planned redevelopment scenario, WSP did not consider a significant risk to human health to exist from soil contamination.

Groundwater Testing Results

No light non-aqueous phase liquids (LNAPL) were encountered in any of the monitoring wells during purging or sampling. Three groundwater samples were tested at the laboratory.

Petroleum hydrocarbons were not recorded above the laboratory detection limits. PAH concentrations above detection limits were identified in a single sample (WS202), however none of the PAHs identified are volatile compounds, and no concentrations above trace levels (>1 µg/l) were recorded. WSP noted that the concentration of fluoranthene (0.0146 µg/l) detected resulted in a minor exceedance of the GAC applied by WSP with respect to controlled waters receptors, however the risk was considered low given the distance between the contamination source and the surface water receptor and the absence of any ongoing source of contamination, or widespread contamination in the other groundwater samples retrieved.

Two of the groundwater samples were analysed for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs). Both samples returned results below the LOD.

Low concentrations of a range of metals, including arsenic, barium, boron, lead, selenium, vanadium and zinc were detected in all samples analysed however no GAC exceedances were reported and results were considered consistent with background conditions rather than highlighting any site specific impact.

Additional Information

JDE Coffee noted the following historic fuel infrastructure at the Site during an on-Site interview with WSP: historic fuel pumps, underground storage tanks (USTs) and above ground storage tanks (ASTs). It was confirmed that an AST was formerly present in the south-east of the warehouse Site and had been removed, however JDE Coffee were unclear if USTs in the western part of the warehouse Site were removed, still present or backfilled.

WSP attended site on 8th January 2018 with a specialist ground survey and geophysics company Zetica who employed the following techniques to observe the presence or absence of USTs within the embankment:

- ▲ Electromagnetic (EML) & Magnetometer;
- ▲ Time domain electromagnetic detection (TDEM); and
- ▲ 3D Ground Penetrating Radar.

	<p>Survey results were made available on 12th January 2018 and confirmed there to be an area of disturbed ground measuring 10 m x 14 m (and within this an area of buried concrete) across the anticipated location of the USTs but no evidence of a UST being present. The survey also identified a number of utility services and a section of reinforced concrete.</p> <p>It is noted that no investigation into the area indicated to formerly house underground fuel tanks in the western hall was undertaken, and no comment was made by WSP.</p>
<p>Key Findings – RPS Pre-Construction Health and Safety Record</p>	<p>It was noted that the existing warehouse was undergoing the internal strip out of all fixtures/fittings/M&E including associated asbestos removal by DSM Demolition Ltd on behalf of Astec TM Ltd under a separate contract with a proposed completed date of 12th November 2018. The document references the Hydrock Desk Study and Ground Investigation Reports. There was no mention of fuel tanks.</p>
<p>Key Findings – DSM Group Post Contract Health & Safety Information File</p>	<p>It is understood from the information that the project works comprised the internal strip of two warehouses, identified offices and mechanical and electrical (M&E) fittings (stripped of furnishings, ancillary items and asbestos containing materials). The substation on the eastern elevation was also demolished (the floor slab and foundations removed up to 1 m bgl). All waste was reportedly removed from site to waste facilities holding a suitable permit.</p> <p>There is no mention of fuel tanks and no such features are marked in the associated schematic.</p> <p>Asbestos removal documentation is appended to this document.</p> <p>The above documents do not mention any external re-surfacing works.</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 contaminant linkages.

3.2 Overall Site Sensitivity

The Site is considered to be of a low to moderate environmental sensitivity given the presence of underlying clay (Secondary Undifferentiated Aquifer), the presence of Bird Brook along the northern boundary, the absence of any ecological receptors and the predominantly commercial/industrial use of the Site and surrounding area.

3.3 Potential Contamination Sources

A source is a contaminant or pollutant that is in, on or under the land that has the potential to cause harm or pollution.

The following identified potential contamination sources are considered in the CSM:

Reference	Source	Location	Dates Present	Potential Associated Contaminants of Concern
S1	Former industrial use – food processing plant including: <ul style="list-style-type: none"> ▲ Machinery and plant ▲ Vehicle storage – potential leaks/spills ▲ HGV wash ▲ Pumphouse and electrical substation 	Site-wide	1965 to 2018	Asbestos, heavy metals, Polycyclic Aromatic Hydrocarbons (PAH), petroleum hydrocarbons, volatile organic compounds (VOC), hazardous ground gases/vapours Polychlorinated biphenyls (PCB), and detergents
S2	Current vehicle storage – potential leaks/spills	Site-wide	Present	Heavy metals, PAH, petroleum hydrocarbons, VOC
S3	Made Ground deposits Localised asbestos (Chrysotile and amosite - hard / cement type material, loose fibres and insulation lagging) Visual/olfactory evidence of hydrocarbons adjacent to suspected UST Localised exceedance of PAH in groundwater	Site-wide	1980s to present	Asbestos, heavy metals, PAH, petroleum hydrocarbons, VOC, hazardous ground gases/vapours, pH and sulphate
S4	Chemicals stored in a small brick building	North-western corner	Unknown to present	Inorganic corrosive liquid
S5	Former underground petrol and diesel storage tanks	South-west	1972 to present	Heavy metals, PAH, petroleum

	(UST's), associated pipework and fuel pumps. Potential fuel tank within south-western extent of existing building			hydrocarbons, VOC, hazardous ground gases/vapours
S6	Former above ground diesel tank (AST) with associated pumps	South	1980s to 2006	
S7	Possible interceptor tank	South	1972 to present	
S8	Existing AST associated with generator to temporary guard hut	South-west	Present	
S9	Off-Site industrial land uses: <ul style="list-style-type: none"> ▲ Wider JDE Factory ▲ Engineering Works ▲ Depot ▲ Garage ▲ Printing Works ▲ Unspecified Work & Tanks 	<ul style="list-style-type: none"> ▲ 2 m north; ▲ 120 m east; ▲ 10 m south; ▲ 80 m east; ▲ 130 m south-east; ▲ 160 m east 	<ul style="list-style-type: none"> ▲ 1965 to present ▲ 1965 to 1978 ▲ 1978 to 2006 ▲ 1978 to 1993 ▲ 1965 to 1993 ▲ 1965 to 1978 	Heavy metals, petroleum hydrocarbons, PAH, PCB, VOC and hazardous ground gases and vapours
S10	Discharge consents by Jacobs Douwe Egberts and Kraft Foods including trade effluent discharges.	5 m to 10 m north and north-east of the Site	1986 to 2000	PCB, petroleum hydrocarbons, pH, sulphates, phenols
S11	IPPCs at the JDE site relating to combustion processes within the fuel and power industry and the incineration of non-hazardous waste	100 m north	2009 to present	Heavy metals, petroleum hydrocarbons, PAH, VOC, pH, sulphate, asbestos, hazardous ground gases and vapours
S12	Multiple contemporary trade directory entries including dry cleaners and car dealers within 100 m	40 m east and 70 m south-east	Unknown to present	
S13	Unknown infilled land (pit, quarry etc) and infilled ground associated with culverted Bird Brook	Beneath north-west of Site (Bird Brook) 270 m south-west	Mapped 1995 1965 to present	Hazardous ground gases

Multiple pollution incidents to controlled waters are recorded within 500 m of the Site. One 'minor' incident occurred on-Site; however, no further details have been provided. Given the prevailing impermeable ground conditions and the time that has lapsed since this incident, it is considered unlikely that there would be any ongoing adverse effects/risks. Multiple Significant Incidents have been recorded in the surrounding area, two of which were regarding 'unknown sewage' in 1990 and both located approximately 50 m to the north-east of the Site. One further Category 2 incident occurred in 1989 involving an unknown pollutant approximately 80 m to the south-west of the Site. Given the significant time that has lapsed since these incidents occurred, they are considered unlikely to adversely impact the Site.

Multiple Local Authority Pollution Prevention and Control (LAPPC) permits relating to petrol filling stations are recorded within 500 m of the Site, the closest are located approximately 70 m to the south-east and 90 m to the east of the Site (both authorisations are noted as revoked) and are considered unlikely to adversely impact the Site.

An electrical substation is located approximately 35 m to the west of the Site, was first mapped in the 1970s and; therefore, may present a potential source of polychlorinated biphenyls (PCB). However, PCB are extremely immobile contaminants and any leaks/spills of fluid from electrical equipment is likely to impact the ground directly beneath the substation. Furthermore, the underlying ground conditions are likely to inhibit any potential migration of contaminants towards the Site.

3.4 Potential Pathways

A pathway is a route by which a receptor is or could be affected by contaminant.

The potential pathways are considered to be as follows:

- ▲ Direct contact, ingestion or inhalation of soil bound contaminants / dust during or following redevelopment.
- ▲ Inhalation of organic vapours associated with contamination.
- ▲ Migration of ground gas / vapours into on-Site buildings causing asphyxiation or risk of explosion.
- ▲ Leaching of contamination into groundwater followed by migration of groundwater to the wider groundwater environment or discharge to surface waters.
- ▲ Direct contact between aggressive ground conditions and new infrastructure.

3.5 Potential Receptors

A receptor is something that could be adversely affected by a contaminant, for example a person, controlled waters, an organism, an ecosystem, or Part 2A receptors such as buildings crops or animals.

Relevant potential receptors are considered to include:

- ▲ Construction workers;
- ▲ Third parties during construction (adjacent Site users and adjacent residents);
- ▲ Future Site users and maintenance workers;
- ▲ Culverted Bird Brook in the north-western part of the Site and nearby River Cherwell, Oxford Canal and Grimsbury Reservoir
- ▲ The underlying Secondary Undifferentiated aquifer.
- ▲ The Built Environment (new buildings and infrastructure / utilities).

Source(s)	Pathway(s)	Receptor(s)	Risk Rating	Justification & Mitigation (if required)
<p>Former industrial use – food processing plant</p> <p>Current vehicle storage</p> <p>Made Ground deposits</p> <p>Electrical substation</p> <p>Former AST and UST, associated pipework and fuel pumps</p> <p>Possible interceptor tank</p> <p>Existing AST associated with generator to temporary guard hut</p> <p>Localised suspected asbestos (hard/ cement type material)</p> <p>Current vehicle storage – potential leaks/spills</p> <p>Chemicals stored in a small brick building</p>	<p>P1, P2, P3, P4, P5</p>	<p>R1, R2, R3, R4, R5, R6</p>	<p>Low to Moderate Risk</p>	<p>On-Site development includes the current warehouse which was formerly a food processing plant from the mid-1960s in the east and a car park in the west. Site-wide Made Ground is anticipated to be present associated with the current development and asbestos may be present within Made Ground. As a potential source of ground gases, the Made Ground is considered to be low.</p> <p>Previous investigation undertaken by others identified Made Ground overlying localised Alluvium/River Terrace Deposits and Charmouth Mudstone Formation. Significant widespread contamination of soil and groundwater was not identified. Visual and olfactory evidence of hydrocarbons was observed in the vicinity of USTs; however, concentrations were all found to be below the Generic Assessment Criteria for a proposed commercial/industrial end use. As a potential source of ground gases, the Made Ground is considered to be low.</p> <p>Suspected ACMs were observed within an on-Site bike shelter and should be anticipated to be present within the warehouses. An asbestos survey should be undertaken for existing structures prior to any construction works and any ACMs dealt with in a safe and controlled manner, with appropriate method statements and risk assessment to ensure safety to ground workers, end users and adjacent site users.</p> <p>It is unclear if recorded USTs referenced in previous reports and verified by the petroleum officer are still present on-Site. No visual evidence of any USTs was noted during the Site walkover; however, the purported area had recently been re-laid with new concrete hardstanding. Therefore, at this stage it is not clear whether the interceptor tank, UST's and associated infrastructure have been decommissioned or whether they remain in-situ to be utilised as part of the proposed development at the Site. Identified fuel tanks/infrastructure would require appropriate decommissioning together with removal, including any hydrocarbon impacted soil/groundwater and subsequent validation by an independent engineer and submission of a validation report to the relevant regulators for approval.</p> <p>The current building is not proposed for demolition and the Site is proposed for continued commercial use. Therefore, ground investigation is not considered to be required unless to support design of ancillary buildings and changes to the ground surface appropriate to the proposed Site use. Ground investigation is recommended in the event of a change in Site layout.</p>

Source(s)	Pathway(s)	Receptor(s)	Risk Rating	Justification & Mitigation (if required)
				<p>A 'hotspot' protocol should be in place during the redevelopment for ground workers to act upon should suspected contamination be identified.</p> <p>The use of PPE and robust health and safety measures by construction workers should mitigate the risk from contaminants and asbestos in Made Ground.</p> <p>Aggressive ground chemistry may attack buried concrete and therefore, there may be a requirement for upgraded concrete to be used.</p> <p>Suitable clean material should be obtained and used as a growing medium in additional landscaped areas (if proposed).</p>
<p>Off-Site industrial land uses</p> <p>Off-Site infilled ground (culverted Bird Brook)</p> <p>Discharge consents by Jacobs Douwe Egberts and Kraft Foods including trade effluent discharges</p> <p>Multiple contemporary trade directory entries including laundries and launderettes, crane manufacturers, car dealers, dry cleaners, plastic injection moulding, and electrical goods sales, manufacture and wholesalers</p>	<p>Leaching of contamination into groundwater.</p> <p>Vertical and lateral migration of contamination through permeable deposits below the Site.</p> <p>P4</p>	<p>Controlled waters. R4/R5</p>	<p>Low Risk</p>	<p>The Site is underlain by a Secondary Undifferentiated Aquifer (Charmouth Mudstone Formation) and Bird Brook is located beneath the north-western part of the Site.</p> <p>Groundwater results from previous investigations found no significant widespread contamination of groundwater. Only a localised exceedance of PAH was observed in groundwater sampling undertaken previously by third-parties.</p> <p>The predominantly cohesive nature of the underlying soils means that migration of contaminants from the specified off-Site sources is unlikely and the risk from contaminant migration is therefore low.</p>
	<p>Accumulation of gas in enclosed spaces and sub-floor voids. P3</p>	<p>Future Site users. R3</p>	<p>Low Risk</p>	<p>Gas monitoring undertaken previously (by third-parties) did not identify elevated concentrations of hazardous ground gases and the Site was assigned a Characteristic Situation 1.</p> <p>In the event of a change in Site use or layout, ground investigation is recommended to assess the potential for contamination and ground gases to impact on the proposed development.</p> <p>As a conservative approach, gas protection measures should be incorporated into all new buildings constructed at the Site.</p>

Risk definitions are provided in Appendix I.

4.0 Conclusions & Recommendations

4.1 Land Contamination Risks and Liabilities

<p>Summary</p>	<p><i>Warehouse (East):</i> The eastern part of the Site is shown from the earliest map (dated 1882) to comprise agricultural land, until 1965 when a food processing plant was constructed. It is understood that that former occupants of the Site include Kraft and most recently JDE (coffee manufacturers) until circa 2018.</p> <p><i>Car Park (West):</i>The western part of the Site was first developed for use as a caravan park in the mid-1960s. Bird Brook was noted beneath the north-west of the Site boundary from earliest mapping, until it was partially culverted in the 1960s. In the 1970s, the caravan park was redeveloped into the current car park and no changes have occurred since.</p> <p>Potential sources of contamination associated with the Site relate to the former use as agricultural land, Made Ground associated with the former/current development and potential for localised infilled ground, food processing plant and the presence of AST/UST and associated infrastructure associated with the most recent Site use.</p> <p>Potential sources of contamination and ground gas have been identified within the surrounding area of the Site, including previous and current industrial land uses and associated IPPCs, discharge consents adjacent the northern Site boundary and infilled ground within close proximity to the Site.</p>
<p>Uncertainty and Data Gaps</p>	<p>This assessment is based on desk study information, a Site walkover survey and review of the previous ground investigation data undertaken by third-parties.</p>
<p>Soils</p>	<p>A low to moderate risk of contamination is considered to be present on-Site. Limited groundworks are proposed associated with construction of ancillary buildings/infrastructure and the use of PPE and robust health and safety measures by construction workers should mitigate the risk from contaminants and asbestos in Made Ground.</p> <p>It is unclear if recorded USTs referenced in previous reports and verified by the petroleum officer are still present on-Site. No visual evidence of any USTs was noted during the Site walkover; however, the purported area had recently been re-laid with new concrete hardstanding. Therefore, at this stage it is not clear whether the interceptor tank, UST's and associated infrastructure have been decommissioned or whether they will be utilised as part of the proposed development at the Site. Identified fuel tanks/infrastructure would require appropriate decommissioning together with removal, including any hydrocarbon impacted soil/groundwater and subsequent validation by an independent engineer and submission of a validation report to the relevant regulators for approval.</p> <p>Suspected ACMs were observed within an on-Site bike shelter. Prior to any construction works, any ACMs are required to be dealt with in a safe and controlled manner, with appropriate method statements and risk assessment to ensure safety to ground workers, end users and adjacent site users.</p> <p>Storage vessels (e.g. drums) containing chemicals should be appropriately disposed of off-Site under Duty of Care.</p> <p>Suitable clean material should be obtained and used as a growing medium in additional landscaped areas (if proposed).</p> <p>A 'hotspot' protocol should be in place during the redevelopment for ground workers to act upon should suspected contamination be identified. If</p>

	contamination and/or asbestos are identified, then this may have an impact on waste disposal costs
Groundwater	Significant widespread groundwater contamination is not anticipated and the presence of hardstanding across the majority of the Site should afford protection to the underlying Secondary Undifferentiated Aquifer.
Ground Gas	<p>Gas monitoring undertaken previously (by Hydrock) did not identify elevated concentrations of hazardous ground gases and the Site was assigned a Characteristic Situation 1, for which gas protection measures would not be required.</p> <p>In the event of a change in Site use or layout, ground investigation is recommended to assess the potential for contamination and ground gases to impact on the proposed development.</p> <p>As a conservative approach, gas protection measures should be incorporated into all new buildings constructed at the Site.</p>
Building Fabric & Services	<p>Widespread contamination at the Site is considered unlikely. However, services are recommended to be placed in clean corridors. A drinking water pipeline assessment may be required following soils chemical results. Aggressive ground chemistry may attack buried concrete and therefore there may be a requirement for protection measures to be put in place at the Site.</p> <p>Identified fuel tanks/infrastructure (including the interceptor) should be appropriately decommissioned and removed together with any hydrocarbon impacted soil/groundwater and would require validation by an independent engineer and submission of a validation report to the relevant regulators for approval.</p>
Potential Contaminated Land Development Risks	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 Made Ground. Prior to any construction works and any ACMs dealt with in a safe and controlled manner, with appropriate method statements and risk assessment to ensure safety to ground workers, end users and adjacent site users.

4.2 Recommendations and Development Constraints

Ground Investigation Recommendations	<p>The Site is proposed for a continued commercial use. Based on the proposed redevelopment, no further ground investigation for land contamination purposes is considered to be required. Geotechnical ground investigation/assessment may be required to support with the development design of ancillary buildings and changes to the ground surface appropriate to the proposed Site use or if in the event of a change in Site layout or development scheme.</p> <p>The design and construction of any ancillary structures and infrastructure should take account of the potential geo-hazards identified comprising the likely presence of Made Ground, possible shrinking/swelling clays, compressible soils, shallow groundwater, buried services and potential presence of underground fuel tanks and other obstructions including the culverted Bird Brook in the north-west. In addition to this, a retaining wall is located along the southern boundary.</p> <p>Any identified underground fuel storage tanks/infrastructure should be appropriately decommissioned and removed together with any hydrocarbon impacted soil/groundwater and would require validation by an independent engineer and submission of a validation report to the relevant regulators for approval.</p>
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	<p>Storage vessels (e.g. drums) containing chemicals should be appropriately disposed of off-Site under Duty of Care.</p> <p>Prior to any construction works and any ACMs dealt with in a safe and controlled manner, with appropriate method statements and risk assessment to ensure safety to ground workers, end users and adjacent site users.</p> <p>A 'hotspot' protocol should be in place during the redevelopment for ground workers to act upon should suspected contamination be identified.</p> <p>The use of PPE and robust health and safety measures by construction workers should mitigate the risk from contaminants in Made Ground.</p> <p>Suitable clean material should be obtained and used as a growing medium in additional landscaped areas.</p> <p>Aggressive ground chemistry may attack buried concrete and therefore, there may be a requirement for upgraded concrete to be used.</p>
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4.3 Geotechnical Considerations

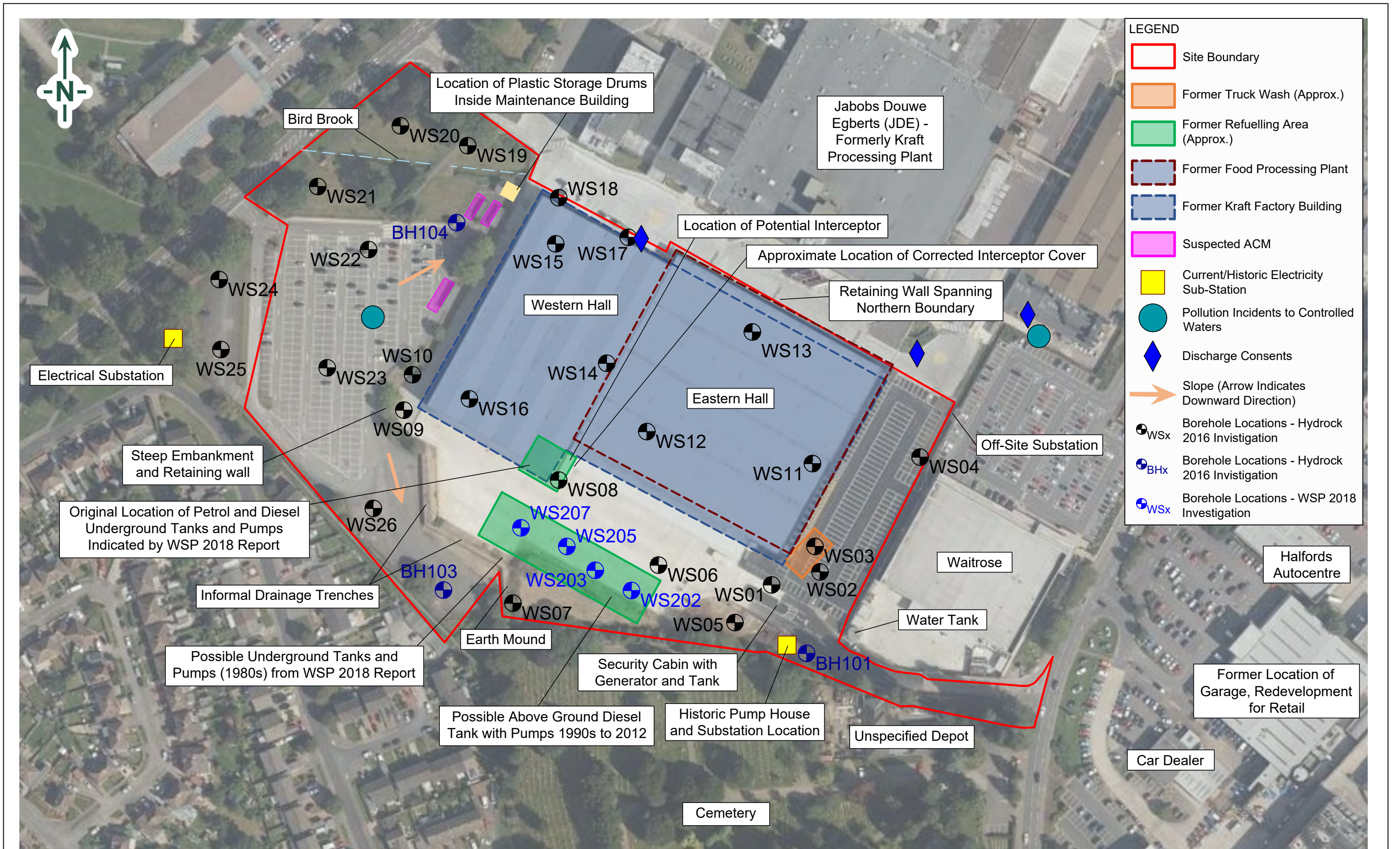
Uncertainty and Data Gaps	This assessment is based on desk study information, a Site walkover survey and review of previous ground investigation data undertaken by third-parties.
Preliminary Ground Model	Based on the available information, it is anticipated that the Site is likely underlain by a sequence of Made Ground with possible localised superficial strata (Alluvium/River Terrace Deposits) underlain by bedrock of the Charmouth Mudstone Formation. Groundwater was previously recorded at variable depths beneath the Site.
Plausible Geo-Hazards	<p>The geohazards listed below have been identified to follow guidance presented in the HE document CD622 'Managing Geotechnical Risk' (2019) which aims to identify and manage the geotechnical risks associated with a scheme throughout its lifespan, from planning to construction to maintenance.</p> <p>The following geohazards are considered to be substantial ground related risks associated with the proposed development. A substantial risk is defined by Delta-Simons in Appendix I.</p> <ul style="list-style-type: none"> ▲ Made Ground: There is anticipated to be a thickness of Made Ground underlying the Site relating to the existing development. Made Ground is typically variable in nature and strength with a potentially low bearing capacity and unacceptable levels of total/differential settlement may occur; ▲ Culverted brook: Bird Brook appears to have been culverted in part beneath the north-west of the Site. The exact location should be identified and surveyed in prior to any construction works commencing on the Site. ▲ Shallow groundwater: Previous Site investigation data has indicated the presence of groundwater which was present at shallow depths. In addition to this, Bird Brook is located in close proximity to the northern Site boundary. This may cause problems with any excavation below the water table; ▲ Buried services: There is a possibility that a number of buried services are located below and adjacent to the Site which would need to be located and diverted, or disconnected and replaced, as appropriate, prior to the commencement of any future construction works; ▲ Relic structures/obstructions: Given that the Site has been developed, there is a possibility of former, foundations, and other buried obstructions, including possible tanks, beneath the Site;

	<ul style="list-style-type: none"> ▲ Shrinkable Soils: The near-surface natural ground conditions may comprise shrinkable soils and appropriate foundation precautions may be required. This should be considered as part of the geotechnical investigation of the Site; ▲ Compressible Soils: Localised Alluvium has been previously recorded by others, and these materials have the potential to be compressible and represent soft spots, which may require removal or ground improvement and are not suitable as founding strata; ▲ Boundary Retaining Wall: A large concrete hardstanding parking area (western part of the Site) lies approximately between 1.5 to 2.5 m higher than the subject Site increasing towards the south-west corner. A retaining earth bank spanned this section of the Site boundary. No obvious evidence of slope instability was observed during Site reconnaissance; however, a structural assessment may be required in this regard; and ▲ Underground Fuel Tanks and Infrastructure: At this stage it is not clear whether the UST and associated infrastructure in the south-western area of the Site have been decommissioned or whether the AST and oil interceptors will be retained on-Site. The removal of identified AST/UST and associated infrastructure (including an oil interceptor) together with any hydrocarbon impacted soil/groundwater would require validation by an independent engineer and submission of a validation report to the relevant regulators for approval.
<p>Geotechnical Development Implications</p>	<p>Identified potential geohazards are limited to the presence of Made Ground, potentially shrinking/swelling clays, compressible ground, shallow groundwater, potential underground fuel tanks, buried services and potential buried obstructions. In addition to this, a retaining wall is located along much of the southern boundary. Redevelopment of the Site is not currently proposed as the existing building and external areas will be used for a continued commercial end use. The design and construction of any ancillary structures and infrastructure should take account of the potential geo-hazards identified.</p> <p>Intrusive ground investigation may be considered appropriate in order to support design of any ancillary structures.</p>

Figures

Figure 1 – Site Location Map

Figure 2 – Constraints Plan



LEGEND

- Site Boundary
- Former Truck Wash (Approx.)
- Former Refuelling Area (Approx.)
- Former Food Processing Plant
- Former Kraft Factory Building
- Suspected ACM
- Current/Historic Electricity Sub-Station
- Pollution Incidents to Controlled Waters
- ◆ Discharge Consents
- ➔ Slope (Arrow Indicates Downward Direction)
- WSx Borehole Locations - Hydrock 2016 Investigation
- BHx Borehole Locations - Hydrock 2016 Investigation
- WSx Borehole Locations - WSP 2018 Investigation

Appendices

Appendix A – Limitations

Limitations

This Report was prepared by Delta-Simons Environmental Consultants Ltd (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. Delta-Simons does not intend, without its written consent through a formal letter of reliance or warranty, for this Report to be disseminated to any party other than the named Client or to be used or relied upon by any party other than the named Client. Use of the Report by any other party is unauthorised and such use is at the sole risk of the user. Any party 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 Delta-Simons. Unless explicitly agreed otherwise, in writing, this Report has been prepared under Delta-Simons' Standard Terms and Conditions as included within our proposal to the Client.

The recommendations contained within this Report represent Delta-Simons professional opinions, based upon the information detailed within the Report, exercising the reasonable skill and care to be expected of a professional consultant holding itself out as having the competence, experience and resources necessary for the purpose of carrying out similar work in scope and character to the services performed. The Report needs to be considered in the light of the proposal and associated limitations of scope. The Report needs to be read and considered in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the Report.

Where Delta-Simons has obtained, reviewed and evaluated information in preparing this Report from the Client and others and Delta-Simons conclusions, opinions and recommendations has been reasonably determined using this information, Delta-Simons does not warrant the accuracy of the third-party information provided to it and cannot 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.

Site surveys document the conditions encountered at the time of survey only and conditions may change due to natural processes or human intervention. As such, surveys represent an assessment at a specific point in time and Delta-Simons cannot be responsible for adverse conditions which arise or become apparent after the time of the survey or for conditions which sit outside the scope for which the survey or Report was commissioned.

Where intrusive investigations have been completed, information, comments and opinions given in this report are based on the ground conditions encountered during the site work period and on the results of laboratory and field tests performed during the investigation. Ground conditions are inherently variable such that no investigation can be exhaustive to the extent that all adverse conditions are revealed. Conditions may therefore be present beneath the site that were not apparent in the data reviewed or obtained as part of this assessment. It should be noted that groundwater levels vary due to seasonal and other effects and may at times differ to those measured during the investigation. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions. Where risk assessment is undertaken, this is based upon the standards, guidance and common practice at the time of the assessment and Delta-Simons cannot be responsible for conditions which become apparent following changes in guidance or practice or advancements in scientific knowledge which change the position in relation to assessment of risk.

No aspect of this Report constitutes a design. Where this information is used in design, the designer should verify the information has been used appropriately.

Where budgets are prepared and presented within the Report, these are for information only to indicate the likely magnitude of a cost and do not represent an invitation to treat for the works. All budgets and programmes presented should be reviewed and verified by appropriately qualified and experienced independent Project Managers and Cost Consultants.

Appendix B – Data Sources

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 Agency (EA) online data;
- ▲ Coal Authority (CA) online data;
- ▲ A Landmark Envirocheck® Report for the Site (Ref. 282250486_1_1, dated July 2021);
- ▲ Historical Maps included as part of the Envirocheck® Report;
- ▲ Information provided by Cherwell District Council and Oxfordshire County Council;
- ▲ Ground Stability and Phase 1 Contaminated Land Desk Study (Ref: 26004/006) by Peter Brett Associates LLP, dated March 2012;
- ▲ Ground Conditions Desk Study (Ref: R/161279/001) by Hydrock, dated April 2016;
- ▲ Ground Investigation (Ref: R/161279/002) by Hydrock, dated July 2016;
- ▲ High level Peer Review of Selected Third-Party Information (70038703/TA/Final) by WSP, dated October 2017;
- ▲ Tank Investigation (Ref: 70041591) by WSP, dated January 2018;
- ▲ Pre-Construction Phase CDM Information Record and Client Requirements by RPS (undated); and
- ▲ Post Contract Health and Safety Information File for the Demolition Works (Ref: C11281) by DSM dated February 2019.

Appendix C – Photo Record

21-1553.03 - Site Photographs



Photograph 1 – Access road to warehouse off Southam Road.



Photograph 2 – Warehouse extents looking north-west.



Photograph 3 – Second access point to the warehouse.



Photograph 4 – Warehouse building looking north.



Photograph 5 – Southern elevation of warehouse with HGV loading bays.



Photograph 6 – Car parking within warehouse area looking north.



Photograph 7 – Substation with wooden enclosure in the north-eastern corner of the warehouse area (outside of Site boundary).



Photograph 8 – Pedestrian access walkway along northern elevation of warehouse.



Photograph 9 – Levels of the adjacent plot (in the right of the photo) approximately 0.5 m higher than the subject Site. Looking north-west along the northern warehouse boundary.



Photograph 10 – Concrete access road between warehouse and car park.



Photograph 11 – Bird Brook looking north-west.



Photograph 12 – Discharge point into Bird Brook.



Photograph 13 – Maintenance building within car park area.



Photograph 14 – Disused bike storage area – possible asbestos containing materials.



Photograph 15 – Access point leading into adjacent car parking area.



Photograph 16 – Van storage area to south of warehouse.



Photograph 17 – Potential Oil Interceptor in the south of warehouse area.



Photograph 18- Embankment (approx. 3 m high) between warehouse and car parking area.



Photograph 19- Wooden fencing atop the embankment in the south.



Photograph 20 – Earth mound in the south of the warehouse Site.



Photograph 21 – Soft landscaped area in warehouse area.



Photograph 22 – Electrical substation in south-west of the warehouse.



Photograph 23 – Temporary security hut.



Photograph 24 – Generator and oil tank associated with hut.



Photograph 25 – Off-Site water tank associated with the neighbouring Waitrose store.



Photograph 26 – Access road with an automatic barrier into car park in the west of the Site.



Photograph 27 – Metal access gate between car park and warehouse.



Photograph 28 – Wooden fencing along the south-eastern boundary.



Photograph 29 – Metal fencing along the southern and western boundary.



Photograph 30 – Asphalt with multiple patch repairs.



Photograph 31 – Evidence of wear and patch repair in asphalt surfacing in car park.



Photograph 32 – Cracks in asphalt possibly associated with nearby trees/vegetation.



Photograph 33 – Wear in the asphalt surfacing.



Photograph 34 – An informal trench with associated drainage along the eastern part of the car park.



Photograph 35 – Pedestrian walkway along the car park adjacent to entrance.



Photograph 36 – Fenced-off vegetated area with tree stumps and culverted stream in rear.



Photograph 37 – Culverted stream behind mesh fencing.



Photograph 38 – Pipe connecting to the stream with organic residue.



Photograph 39 – Pipe above the stream.



Photograph 40 – A small maintenance building in the north-east.



Photograph 41 – Overhead service from bike shelter to the small maintenance building.



Photograph 42 – Above-ground (presumably) electric cables running to the maintenance building.



Photograph 43 – Vegetated retaining wall (approx. 4.5 m high); lower ground is the adjacent warehouse.



Photograph 44 – Fenced off bike shelter with possible asbestos containing materials.



Photograph 45 – Fragments of suspected corrugated sheets containing asbestos.



Photograph 46 – Damaged manhole cover in south-east of car park.

Appendix D – Selected 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
- 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
- Glasshouse
- Sloping Masonry
- Pylon
- Electricity Transmission Line
- Pole
- Cutting
- Embankment
- 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
Shown only when not coincident with other boundaries
- Civil Parish
Shown alternately when coincidence of boundaries occurs
- BP, BS Boundary Post or Stone
- Ch Church
- CH Club House
- F E Sta Fire Engine Station
- FB Foot Bridge
- Fn Fountain
- GP Guide Post
- MP Mile Post
- MS Mile Stone
- Pol Sta Police Station
- PO Post Office
- PC Public Convenience
- PH Public House
- SB Signal Box
- Spr Spring
- TCB Telephone Call Box
- TCP Telephone Call Post
- W Well

1:10,000 Raster Mapping

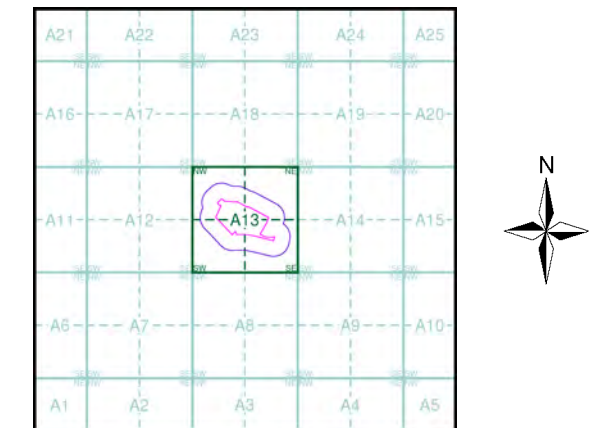
- Gravel Pit
- Rock
- Boulders
- Shingle
- Sand
- Slopes
- General detail
- Overhead detail
- Multi-track railway
- County boundary (England only)
- District, Unitary, Metropolitan, London Borough boundary
- Area of wooded vegetation
- Non-coniferous trees (scattered)
- Coniferous trees (scattered)
-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



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Northamptonshire	1:10,560	1883 - 1884	2
Oxfordshire	1:10,560	1885 - 1887	3
Warwickshire	1:10,560	1889	4
Oxfordshire	1:10,560	1900	5
Oxfordshire	1:10,560	1923	6
Northamptonshire	1:10,560	1923	7
Northamptonshire	1:10,560	1938	8
Oxfordshire	1:10,560	1938	9
Oxfordshire	1:10,560	1938	10
Historical Aerial Photography	1:10,560	1948	11
Ordnance Survey Plan	1:10,000	1955	12
Ordnance Survey Plan	1:10,000	1968	13
Ordnance Survey Plan	1:10,000	1978	14
Ordnance Survey Plan	1:10,000	1980	15
Ordnance Survey Plan	1:10,000	1994 - 1995	16
10K Raster Mapping	1:10,000	1999	17
10K Raster Mapping	1:10,000	2006	18
VectorMap Local	1:10,000	2021	19

Historical Map - Slice A



Order Details

Order Number: 282250486_1_1
 Customer Ref: 21-1553.03
 National Grid Reference: 445120, 241430
 Slice: A
 Site Area (Ha): 5.3
 Search Buffer (m): 1000

Site Details

Mondelez UK International, Jacobs Douwe Edberts, Ruscote Avenue, BANBURY, OX16 2QU



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

Northamptonshire

Published 1883 - 1884

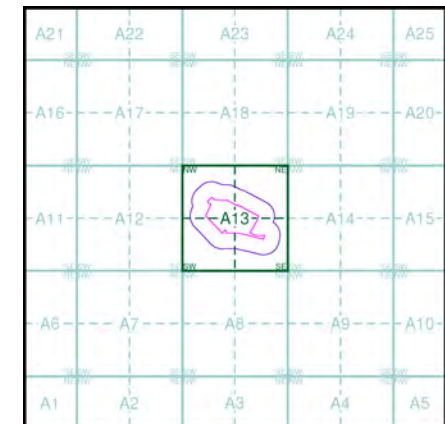
Source map scale - 1:10,560

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)

058NW
1884
1:10,560
058SW
1883
1:10,560

Historical Map - Slice A

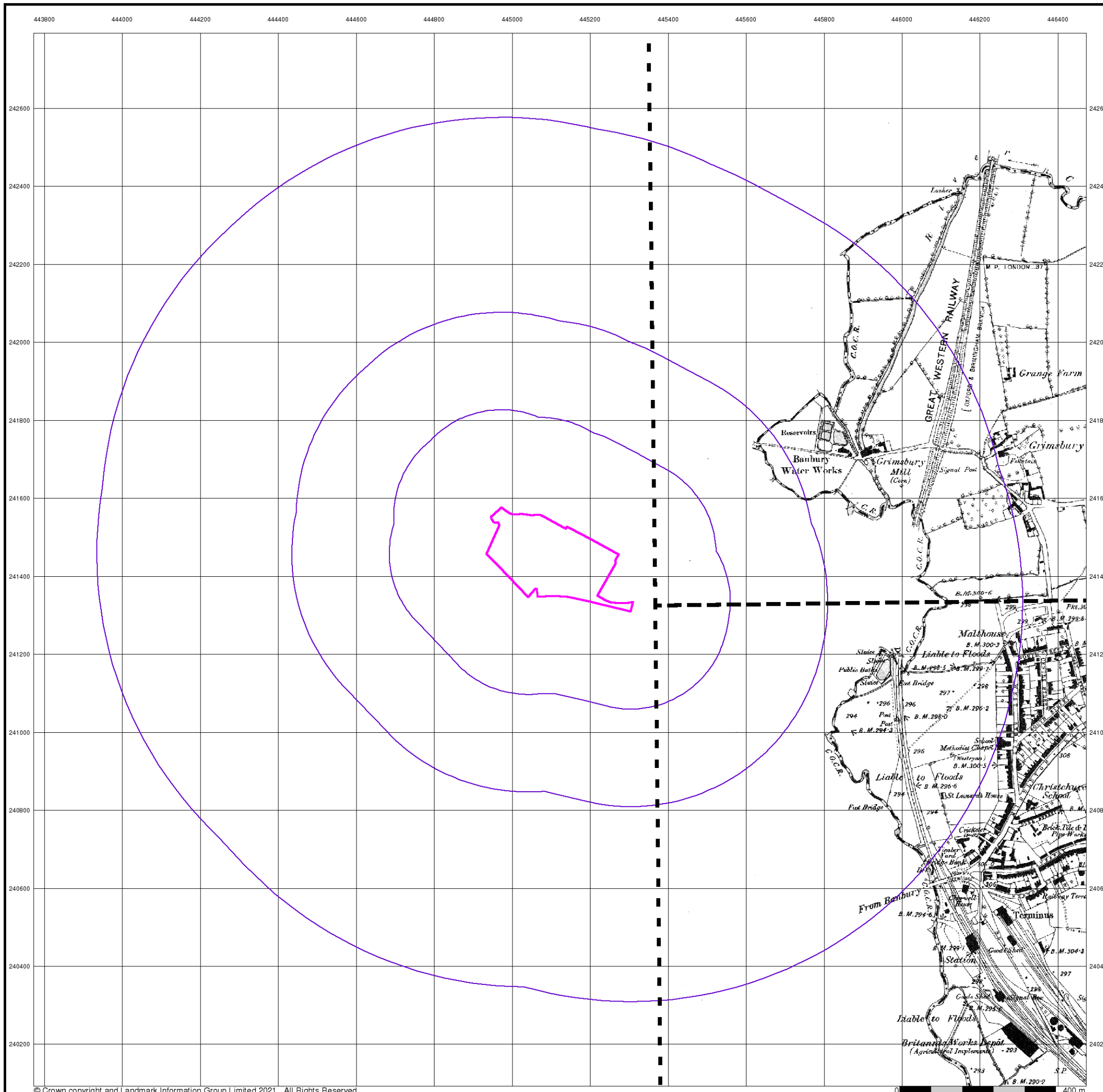


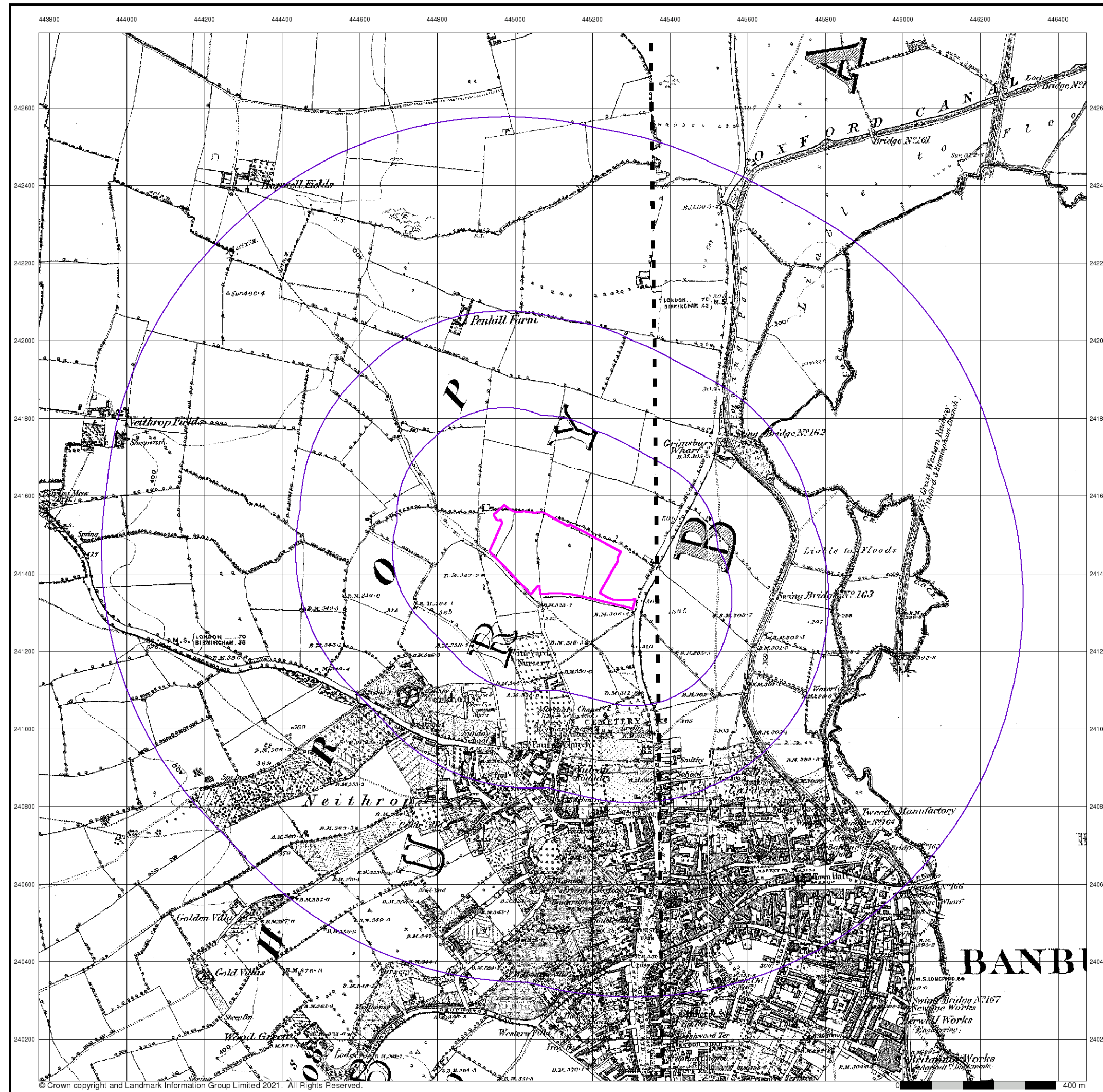
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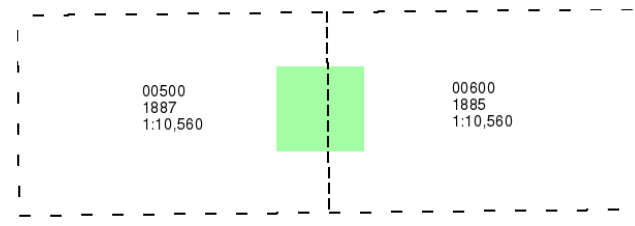




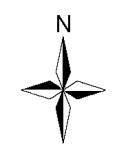
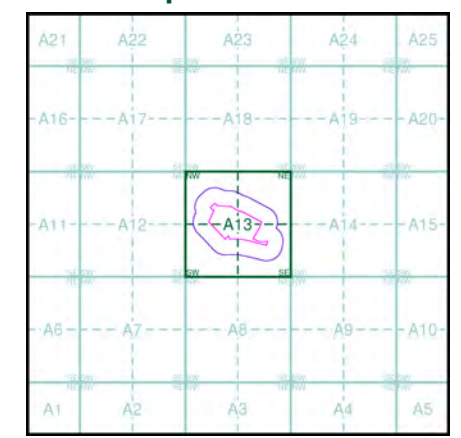
Oxfordshire
Published 1885 - 1887
Source map scale - 1:10,560

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)



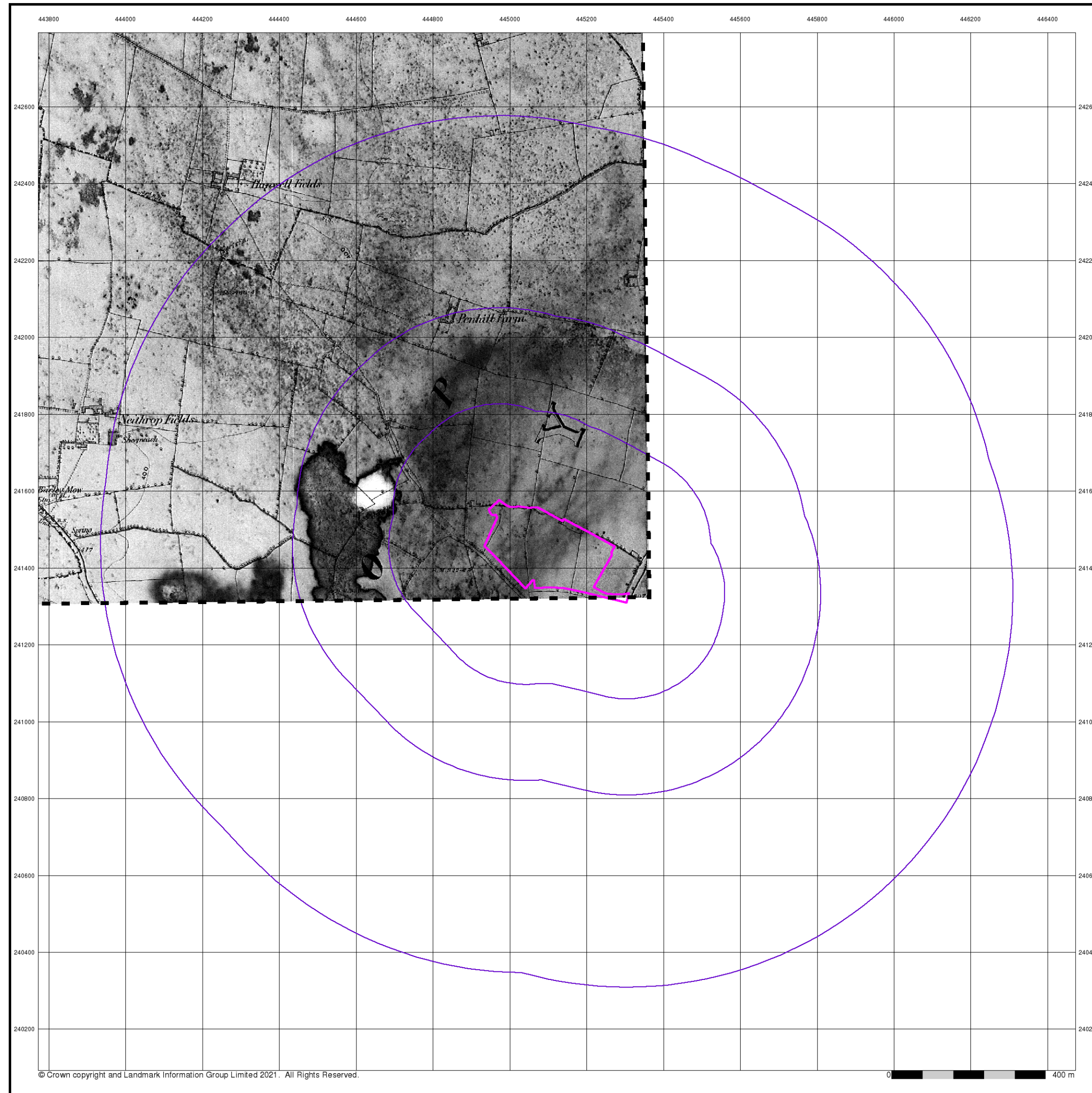
Historical Map - Slice A



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 Slice: A
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Site Details
 Mondelez UK International, Jacobs Douwe Edberts, Ruscote Avenue, BANBURY, OX16 2QU

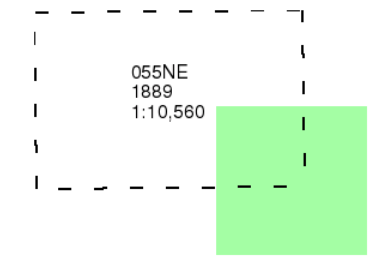
Landmark INFORMATION GROUP
 Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



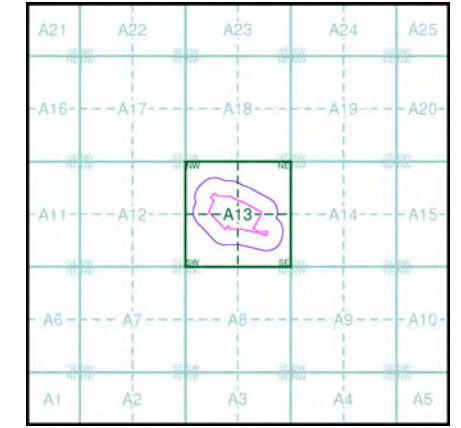
Warwickshire
Published 1889
Source map scale - 1:10,560

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



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