Geo-Environmental Site Investigation

Stanton's Yard, Larchwood Avenue, Havant PO9 3QL

Presented to **Tiger Developments**

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deltasimons

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Report Details

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About us

Delta-Simons is a trusted, multidisciplinary environmental consultancy, focused on delivering the best possible project outcomes for customers.

Specialising in Environment, Health & Safety and Sustainability, Delta-Simons provide support and advice within the property development, asset management, corporate and industrial markets. Operating from nine locations - Lincoln, Birmingham, Dublin, Durham, Leeds, London, Manchester, Norwich and Nottingham - we employ over 70 environmental professionals, bringing experience from across the private consultancy and public sector markets.

Delta-Simons is proud to be a founder member of the Inogen® Environmental Alliance, enabling us to efficiently deliver customer projects worldwide by calling upon over 4,330 resources in our global network of consultants, each committed to providing superior EH&S and sustainability consulting expertise to our customers. Inogen Environmental Alliance offers its clients more consultants, with more services in more countries than the traditional multinational consultancy.

Executive Summary

Brief	Delta-Simons Environmental Consultants Limited ('Delta-Simons') was instructed by Legge Consulting on the behalf of Tiger Developments (the 'Client') to undertake a Geo-Environmental Site Investigation for land at Stantons Yard, Larchwood Avenue, Havant PO9 3QL (hereafter referred to as the 'Site'). The proposed development is understood to comprise a hotel development with associated car parking. The purpose of this assessment is to identify the potential for land contamination issues to be present at the Site in the context of the proposed development, to support the planning application and to provide a geotechnical assessment.
Site Setting	The Site was previously an unspecified works and, with the exception of the radio mast in the south-eastern corner of the Site, all previous buildings have now been demolished. Currently the Site is predominantly covered with hardstanding, with a stockpile present at the centre. The western side of the Site has become overgrown, with trees and other vegetation. There is a raised slab, which runs along the south of the Site, with a slope leading up towards the adjacent supermarket car park.
Ground Conditions	The current ground investigation recorded a variable thickness of Made Ground, which is in turn underlain by Head Deposits and London Clay. Monitoring of standpipes indicates that groundwater is within the Head Deposits.
Land Contamination Assessment	<u>Human Health</u> Asbestos was identified in the shallow Made Ground in the south west of the Site. The main exposure pathway is direct contact, ingestion and inhalation of dust/fibres. Prior to any redevelopment works, appropriate method statements and risk assessments should be created to ensure safety to ground workers, end users and adjacent Site users. A topsoil capping system in landscaped areas will be sufficient to mitigate potential risk to Site end users. <u>Controlled Waters</u> Potential risks to controlled waters has been identified. Given the presence of cohesive superficial deposits at the Site, it is considered that the contamination sources have a limited mobility to controlled water receptors, and given only marginal exceedances have been recorded, remedial measures are not considered necessary. <u>Built Environment</u> The detailed investigation of each utility route was not within the scope of this investigation, however, given the presence of petroleum hydrocarbon contaminants at the Site, it is considered likely /prudent to consider the use of barrier pipe materials. In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the conditions of the soils at the Site would be classified as Design Sulphate Class DS-3 and ACEC Class AC-2s in order to resist chemical attack from elevated sulphate present in the soils (assuming static groundwater in potentially pyritic soils). <u>Ground Gas</u> Preliminary ground gas monitoring indicates the Site can be provisionally classified as CS2. As such, ground gas protection measures will need to be incorporated into the proposed development.

Geotechnical Assessment	Shallow strip/pad foundations are considered to be suitable at the Site, founded at a minimum depth of 1.2 m bgl within the Head Deposits, however, should the proposed building loads exceed the allowable bearing capacities calculated, consideration may need to be given to alternative founding option, such as ground improvement or piles. Ground bearing floor slabs are likely to be suitable following removal of Made Ground / soft spots, replacement with engineered fill and thorough proof rolling.Earthworks are likely to be required although their nature and extent will be dependent on the layout and finished levels of the chosen scheme. Based on the results of the plate load tests undertaken at the Site, it is recommended that a conservative CBR value of 6% should be adopted for shallow soils, for preliminary pavement design for external areas.
Recommendations	Based on the findings of this report, the following recommendations are made; ▲ It is recommended that a layer of certified suitable for use topsoil should be incorporated into landscaped areas at a minimum thickness of 300 mm; ▲ Ground gas protection measures complying with a CS2 rating will be required within the proposed building; ▲ Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process; ▲ As with all brownfield development sites, groundworkers who are required to perform sub-surface work at the Site should be made aware of the known contaminants in soil and groundwater and the possibility of encountering additional localised low levels of contamination. Therefore, good standards of personal hygiene should be observed, and appropriate levels of PPE utilised where necessary; ▲ Suitable dust suppression techniques will need to be implemented by the groundworkers during construction and demolition works; and ▲ Confirmation should be sought from the Local Water Authority as to whether they will require upgraded pipework to be installed for new service installations, although this is not considered to be likely.
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 Legge Consulting on the behalf of Tiger Developments (the "Client") to prepare a Geo-Environmental Site Investigation for Stantons Yard, Larchwood Avenue, Havant PO9 3QL (the "Site").

1.2 Context & Purpose

The aim of the investigation is to complete a Geo-Environmental Site Investigation of the proposed development area. The investigation will obtain information regarding ground conditions, from which risks to end-users, the environment and structures can be assessed, with mitigation measures outlined, if necessary.

The investigation will provide geotechnical information in order to comment on the preliminary design of foundations and infrastructure. The report will provide recommendations for further work based on the findings of the investigation, if required.

It is understood that the Site is to be developed for a hotel development with associated car parking.

1.3 Scope of Works

The scope of the investigation and layout of this report has been designed with consideration of *CLR11* (Environment Agency, 2004a) and *BS 10175: 2013 Investigation of Potentially Contaminated Sites – Code of Practice* (BSI, 2011) and guidance on land contamination reports issued by the Environment Agency (EA) (2010a).

The project was carried out to an agreed brief as set out in Delta-Simons' proposal dated 1st May 2018 (ref.18-0609.01). The scope of works is outlined in Section 3.2.1.

1.4 Existing Information

The following information has been used within the assessment:

- Current and Historical Ordnance Survey (OS) maps;
- British Geological Survey (BGS) data;
- Coal Authority (CA) online data;
- A Landmark Envirocheck® Report for the Site (Ref. 167360372_1_1), dated May 2018;
- Historical Maps included as part of the Envirocheck® Report; and
- Information provided by South Gloucestershire Council.

1.5 Limitations

The assessment is limited to the issues agreed within the proposal for the works. Notes on limitations associated with this assessment are provided in Appendix A. In addition, there are the following specific limitations that apply to this assessment:

- The west, centre and southern boundary of the Site was inaccessible in some areas due to overgrown vegetation and the presence of a stockpile.
- No foundation loadings for the proposed development have been provided.

2.0 Site Details

2.1 Site Setting

A summary of the current Site status, environmental setting and key historical features is presented below.

Co-ordinates	Centred approximately at National Grid Reference 469530, 107600	Elevation	32 m AOD
		Area	0.5 Ha
Site Location	The Site is located approximately 2.4 km north west of the centre of Havant. A Site location map is provided as Figure 1. The Site is bound to the north by light industrial and commercial units. The Site is bound to the east by Larchwood Avenue, with fast food restaurants beyond. To the south and west, the Site is bound by an ASDA Supercentre and associated car parks.		
Current Site Use	The Site currently comprises hardstanding in areas of demolished historic buildings, associated access and parking areas. There is a radio mast in the south eastern corner of the Site. Along the southern edge of the Site, there is a raised concrete slab and tree covered slope, which rises to the level of the adjacent Asda car park. The western part of the Site is overgrown with vegetation, including trees.		
Surrounding Area	The Site is located in a predominantly commercial area. It is bound to the north by a development of light industrial and commercial units and to the east, Larchwood Avenue, with fast food restaurants beyond. To the south and west, the Site is bound by an ASDA Supercentre and associated car parks.		
Proposed Development	The proposed development comprises a hotel development with associated car parking areas. Proposed development plans are presented in Figure 2. Identified human and built environment receptors (R) relevant to the proposed development comprise: ▲ Construction workers. ▲ Third parties during construction (adjacent Site users and adjacent residents). ▲ Future Site users and maintenance workers. ▲ The Built Environment (new buildings and infrastructure / utilities).		

2.2 Environmental Setting

Published Geology	From the published British Geological Survey online mapping viewer, the Site is indicated as being underlain by superficial Head Deposits and bedrock of London Clay. Nearby BGS borehole records show underlying geology to be comprised entirely of cohesive deposits.
Hydrogeology	The EA classify the Head Deposits as a Secondary Aquifer (Undifferentiated). The London Clay is an Unproductive Strata. The EA data also indicates that the Site is designated as a Zone 1c groundwater Source Protection Zone. This relates to abstraction from geology at depth and overlying cohesive deposits will offer protection to this receptor from potential site bound contamination. According to the Envirocheck® Report, there are no licensed abstraction records from groundwater located within 500 m of the Site.

	The Envirocheck report indicates that there is a potential for groundwater flooding to occur at the surface.
Hydrology	The nearest surface water feature is a drain located approximately 80 m to the west of the Site. According to the Envirocheck® Report, there are no licensed abstraction records from surface water located within 500 m of the Site.
Coal Mining	The Site is not located in an area affected by coal mining.
Radon Gas	The Site lies within a lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). BRE211 (2007) indicates that no radon protective measures are necessary in the construction of new dwellings.
Ecological Receptors	It is understood from information provided within the Envirocheck® Report that the nearest ecological receptor to the Site is an area of Ancient Woodland, located approximately 215 m south. The Site also lies within a Nitrate Vulnerable Zone.
Heritage Interest	According to sketchmap.co.uk, the closest area of heritage interest is located approximately 450 m to the south west of the Site associated with a scheduled monument.
Flood Risk	According to information from the Environment Agency Flood Map for Planning online viewer indicates that the Site is located within a Flood Zone 1 – Low Probability of Flooding. Information included within the Landmark Envirocheck® indicates that the Site lies within an area that has a Potential for Groundwater Flooding to Occur. Overall, there is considered to be a low risk of flooding to occur at the Site.
Environmental Sensitivity	The Site is considered to be of a low to moderate environmental sensitivity given the presence of the Zone 1c groundwater Source Protection Zone.

2.3 Historical Use of the Site & Surrounding Area

Approach	The historical development of the Site and surrounding area has been assessed through a review of available historical OS maps and Google Earth historical satellite imagery. A summary of the key historical Site uses and developments in the surrounding area is presented below. Copies of pertinent historical maps are included as Appendix C.
Historical Features On-Site	The Site appears to contain woodland from the earliest map edition of 1868 until circa. 1975, when an unspecified works and warehouse is present, with buildings across the Site. A small stream is shown on the northern Site boundary on mapping from 1957. This was previously to the north of the Site but appears to have been diverted when several works buildings were constructed to the north of the Site. In 2006 an additional building is present in the south eastern corner of the Site, which is identified in the 2018 mapping as a Mast. In the mapping from 2018, all the buildings appear to have been demolished in the Site with the exception of the Mast.
Potentially Contaminative Historical Features Off-Site	Potential sources of contamination within 250 m of the Site include: ▲ By 1963, three buildings are located adjacent to the north of the Site, which are identified in mapping as an engineering works and an unidentified works. There are tanks identified adjacent to the engineering works;

	▲ By 1975, an electrical substation is located 50 m to the north of the Site. A garage and an additional electrical substation are located approximately 230 m to the east of the Site; and, ▲ From 1982, a Hypermarket is located approximately 40 m to the south of the Site. Associated sources of contamination with this development include a substation approximately 10 m to the south and tanks approximately 40 m to the south west of the Site. A Filling Station is also located approximately 120 m to the north east of the Site.

2.4 Environmental Database Review

Approach	The Landmark Envirocheck® Report provides a database of environmental information held by various statutory bodies including the EA, Local Authority (LA), Health & Safety Executive (HSE) and HPA amongst others. A full copy of the Envirocheck® Report is provided in Appendix B and the most relevant information is summarised below.
Features On-Site	The Landmark Envirocheck® Report includes two pertinent entries at the Site: ▲ Potentially Infilled Land (Water), which likely relates to a former stream in the far north of the Site; and ▲ A Point of Interest - Manufacturing and Production relating to an unspecified works. There is considered to be a Low Hazard Potential for Shrinking or Swelling Clay Ground Stability Hazards, Very Low Hazard Potential with regards to Collapsible Ground, Landslide Stability Hazards and Running Sand Ground at the Site, and No Hazard Potential with regards to Compressible Ground and Ground Dissolution Stability Hazards.
Potentially Contaminative Features Off-Site	Pertinent entries included within the Landmark Envirocheck® Report located within 250 m from the Site include: ▲ Two Pollution Incidents to Controlled Waters. The first incident in 1994 was located 180 m to the north of the Site and involved the spillage of an ammonia like, alkali substance. The second incident in 1995 was located 85 m to the south east of the Site and involved oil loss into drains. Both incidents were categorised as minor incidents; ▲ Two Fuel Station Entries. The closest entry is associated with the ASDA fuel station located 146 m to the north east of the Site. The second entry is associated with the garage located 230 m to the east of the Site located on Hulbert Road which is now obsolete; ▲ Eight Contemporary Trade Directory Entries, including a caravan servicing and repair centre, a window frame manufacturer, printers, a MOT testing centre, petrol filling stations, a car dealer and a garage; ▲ 10 Points of Interest, including a MOT testing centre, distribution and haulage, car wash, unspecified works or factories and petrol and fuel stations; and ▲ Three Sensitive Land Use entries associated with Ancient Woodland, the nearest of which is approximately 210 m to the south of the Site. There are no BSG, LA and EA registered landfill sites on or within 500 m of the Site.
Implications for Land Contamination Risk	Given the cohesive deposits indicated to be underlying the Site and wider site area, the risk from off-Site contamination impacting the Site is considered to be low.

2.5 Planning Review/Regulatory Enquiries

On-line Planning Portal	Havant Borough Council	**Date Accessed**	14/06/2018
Findings	No planning applications relating to the Site have been identified on the Havant Borough Council planning portal.		
Part 2A of the Environmental Protection Act (EPA) 1990	Information from the Environmental Control Officer at Havant Borough Council has indicated that the Site has not been prioritised for proactive inspection in connection with the Councils duties under Part 2A of the EPA 1990. They are unaware of any prior intrusive Site investigation or formal qualitative assessment of contamination risk which relates to this Site. The Environmental Control Officer stated that they were consulted as part of a pre-planning enquiry (ref: GEN/14/00664) for a proposed commercial development at this Site. At that time, it was concluded that there existed sufficient potential for contamination to be present at the Site as to make contamination a material planning consideration for any comprehensive redevelopment. The risk status of the Site would be ultimately dependent upon the scheme coming forward. The email correspondence between Delta-Simons and Havant Borough Council is included as Appendix I.		

2.6 Previous Reports

List of Reports	Delta-Simons has not obtained any previous reports relating to the Site.

3.0 Preliminary Conceptual Site Model

3.1 Introduction

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

3.2 Potential Contamination Sources

Identified potential contamination sources are presented in the following table:

Source	Location	Dates Present	Potential Associated Contaminants of Concern
Potential demolition Made Ground from previous development of the Site with 'Works' buildings.	Site-wide	Post-1975 to present	Asbestos, heavy metals, hydrocarbons, ground gas

3.3 Potential Receptors

Relevant potential receptors are considered to include:

- R1 - Construction workers.
- R2 - Third parties during construction (adjacent Site users and adjacent residents).
- R3 - Future Site users and maintenance workers.
- R4 - The underlying Aquifers.
- R5 - The Built Environment (new buildings and infrastructure / utilities).

The surface watercourse of the unnamed drain 80 m to the west is considered to be a plausible receptor given its proximity to the Site.

3.4 Potential Pathways

The potential pathways are considered to be as follows:

- P1 - Direct contact, ingestion or inhalation of soil bound contaminants / dust during or following redevelopment.
- P2 - Inhalation of organic vapours associated with contamination.
- P3 - Migration of ground gas / vapours into on-Site buildings causing asphyxiation, risk of explosion or harmful effects.
- P4 - Leaching of contamination into groundwater followed by migration of groundwater to the wider groundwater environment or discharge to surface waters.
- P5 - Direct contact between aggressive ground conditions and new infrastructure.

Pollutant Linkage Assessment					
Source(s)	**Pathway(s)**	**Receptor(s)**	**Risk Rating**	**Justification & Mitigation (if required)**	**Requires Investigation**
Potential On-Site Made Ground Deposits	P1, P2, P3, P4, P5	R1, R2, R3, R4, R5	**Low to Moderate Risk**	Given the demolition of previous on-Site buildings, it is likely that there are Made Ground Deposits on-Site. The presence and matrix of the Made Ground can be confirmed through a ground investigation at the Site. The risk posed to future Site users is considered low as the proposed development is likely to limit pathways via the incorporation of hardstand surfacing across the Site. The risk posed to construction workers and off-Site human receptors during the redevelopment of the Site is considered low as safe working procedures should be implemented, good standards of personal hygiene should be observed and appropriate levels of personal protective equipment (PPE) provided and utilised to reduce the potential risks. The risk posed by hazardous ground gases will depend on the extent of Made Ground and deleterious materials contained within, but based on the previous development of the Site, the risk is considered to be low to moderate. The ground investigation should include a suitable period of ground gas monitoring to confirm this risk. There is considered to be a low risk associated with the potential Made Ground deposits and risk to the underlying aquifer, given the likely cohesive impermeable deposits underlying the Site, which will reduce the mobility of potential contamination, if present, at the Site. This risk should be quantified during intrusive ground investigation works.	Y

4.0 Site Investigation

4.1 Intrusive Investigation

Delta-Simons carried out intrusive investigation work from 24th to 30th May 2018 to assess the potential linkages identified in the outline conceptual model (see Section 2.2 above) and to provide geotechnical information.

4.1.1 Health & Safety Considerations

A utilities clearance specialist attended the site on 24th May 2018 to trace services on and around the site prior to excavation of exploratory hole locations.

An initial assessment of the Site identified a Low risk in relation to Unexploded Ordnance (UXO) and so no specific precautionary measures were required for the works.

Future Contractors should undertake their own assessment of UXO risk in relation to their specific proposed scope of works.

4.2 Scope of Ground Investigation and Rationale

4.2.1 Scope

The ground investigation comprised the following items:

- Service avoidance exercise;
- Supervision of all works by a Delta-Simons Geo-Environmental engineer. All intrusive locations were logged to BS5930:2015 Code of Practice for Site Investigations;
- Excavation of four shallow trial pits for CBR testing (CBR01 to CBR04);
- Excavation of one trial pit (CBR03, following completion of the CBR test) to a maximum depth of 2.70 m bgl;
- Excavation of two trial pits into the raised slab in the south of the Site to determine the extent of infilled material (TP01 and TP02);
- Drilling of five dynamic sampler holes (DS01 to DS05) to a maximum depth of 4.0 m bgl; and,
- Drilling of one Cable Percussive Borehole (BH01) to a maximum depth of 15 m bgl.

4.2.2 Rationale

Location	Rationale	Key Contaminants of Concern
BH01, DS01 and DS02	Targeting the area within the proposed building footprint.	Asbestos, Heavy Metals, Hydrcarbons, PAHs
DS03 to DS05	Targeting the remainder of the Site to provide a representative coverage of the area.	Asbestos, Heavy Metals, Hydrcarbons, PAHs
CBR01 to CBR04	Provide factual data with relation to pavement design in proposed car parking areas.	-
TP01 and TP02	Determine the constituents beneath the raised slab along the south of the Site.	Asbestos, Heavy Metals, Hydrcarbons, PAHs

4.3 Ground Investigation Factual Data

An intrusive exploratory hole location plan is presented as Figure 3.

Delta-Simons engineer verified borehole logs are presented as Appendix D, the SPT Calibration Certificates, in accordance with *BS EN ISO 22476-3:2005 (incorporating corrigendum No. 1 2007), Geotechnical investigation and testing - Field testing - Part 3: Standard penetration test for SPT trip hammers* are provided in Appendix B.

4.4 In-Situ Testing and Sampling

SPT tests were undertaken in all boreholes at 1.00 m intervals until 6.00 m bgl, then every 1.5 m bgl thereafter. The results of these tests are presented in the borehole logs included as Appendix D.

California bearing ratio (CBR) was measured using a plate load test in trial pits. Results of the CBR testing are included within Appendix J.

Sampling comprised disturbed tub and jar samples as detailed on the borehole logs.

4.5 Geotechnical Laboratory Testing

A selection of soil samples were submitted to the UKAS accredited laboratory for a range of geotechnical testing, the results of which are included in Appendix E.

The programme of geotechnical testing undertaken on samples obtained from the natural soils is presented within the table below. The purpose of the laboratory testing was to assess the classification properties of the soils encountered in order to inform the outline geotechnical design advice.

Analysis	No. Tested	Rationale
Moisture content	10	To enable geotechnical assessment of cohesive soils
Atterberg limits	10	To enable geotechnical assessment of cohesive soils

4.6 Environmental Sampling, In-Situ Testing and Laboratory Analysis

Soils collected for laboratory analysis were placed in a variety of containers appropriate to the anticipated testing suite. Samples were stored in accordance with Delta-Simons' quality procedures to maintain sample integrity and preservation and to minimise the chance of cross contamination. Records of the samples taken as part of the site investigation works, including their depths and location, are included within the exploratory hole records in Appendix D.

Groundwater samples were collected from BH01, DS01 and DS02 on 30th May 2018 and one groundwater sample was collected from DS03 on 7th June 2018. The groundwater samples were collected using a dedicated disposable bailer.

Samples analysed for environmental purposes were placed in chilled cool boxes on site and transported to the laboratory for analysis on completion of the site investigation works / groundwater sampling visit.

The rationale for chemical analysis is presented in the table below and the results of the chemical laboratory testing are included in Appendix F and G.

Analytes	No. of Samples Tested		Rationale
	Soil	Ground-water	
Asbestos	8	-	Common potential contaminant - Analysed in all samples of Made Ground.
pH, As, Cd, Cu, Cr, Hg, Pb, Ni, Zn, Hexavalent Chromium, speciated Polycyclic Aromatic Hydrocarbons (PAH)	8	4	Potential contaminants of concern, common to many sites.
Total Petroleum Hydrocarbons, Criteria Working Group Method (TPHCWG), Benzene, Toluene, Ethylbenzene and Xylene (BTEX)	12	4	Specific analysis to target identified hydrocarbon sources at DS01, BH203 and TP209 and identified hydrocarbon odour in TP03 (see Section 5.3).
(pH, water soluble sulphate), acid soluble sulphate and total sulphur	5	(4)	To assess potential for chemical attack on buried concrete.

4.7 Monitoring Programme

Four rounds of groundwater level and ground gas monitoring were undertaken on the newly installed wells (BH01 and DS01 to DS03) between 30th May and 20th June 2018. Measurements of the depth to groundwater within the monitoring wells were taken using an electronic dip meter. The groundwater level monitoring sheets are included as Appendix H.

To characterise the ground gas regime at the site, an infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO2), methane (CH4) and oxygen (O2) in percentage by volume. Initial and steady state concentrations were recorded. The atmospheric pressure before and during monitoring, together with the weather conditions, was recorded. All monitoring results obtained to date together with the temporal conditions are contained within Appendix H.

5.0 Ground Summary

5.1 Introduction

The sections below summarise the ground and groundwater conditions encountered during the site investigation.

5.2 Ground Model

A summary of the observed ground conditions at the Site is provided below.

Summary of Observed Ground Conditions				
Strata	**Typical Strata Description**	**Depth Range of Strata Base (m)**	**Maximum Proven Thickness (m)**	**Comments**
Concrete	The surface of the Site comprised concrete.	*0.13 – 0.30*	*0.30*	Concrete was encountered in all locations.
Made Ground	Made Ground generally comprised black/brown sand/gravel, with gravel comprising flint, sandstone, brick, concrete, clinker and slate.	*0.3 – 1.10 (proven)*	*0.8*	Made Ground was only identified in DS01, TP01 and TP02. Cement, slate, metal and plastic fragments were encountered in TP01 and TP02.
Head Deposits	The Head Deposits were predominantly described as cohesive deposits, generally comprising white/brown orange and grey mottled silty sandy gravelly clay with gravel of flint and chalk.	*2.7 – 4.6 (not proven)*	-	Plant remains were recorded in all locations except DS03, TP01, TP02 and CBR03.
London Clay	The London Clay formation was described as grey silty sandy clay.	*15.00 (not proven)*	-	Shell fragments were recorded in BH01.

5.3 Visual and Olfactory Evidence of Contamination - Soils

Black staining was observed within the Head Deposits in DS03, DS05 and CBR03 with an accompanying hydrocarbon odour.

5.4 Groundwater

5.4.1 Strikes During Investigations

Groundwater strikes recorded as excavation progressed during the Site investigation ranged from 4 to 12 m bgl. Groundwater was not encountered in any trial pit. The groundwater strikes during drilling are summarised below.

Exploratory Hole	Water strike during drilling (m bgl)	Stratum	Comment
BH01	5.00	London Clay	Strike recorded by drillers. Water cut off at 5.50 m bgl.
BH01	12.00	London Clay	Strike recorded by drillers
DS01	4.00	London Clay	Seepage
DS02	4.00	London Clay	Seepage
DS03	4.00	London Clay	Seepage
DS04	4.00	Head Deposits	Seepage
DS05	4.00	London Clay	Seepage

5.4.2 Levels During Monitoring Programme

Groundwater levels were monitored on a total of four occasions between 30th May and 20th June 2018. Monitoring data is provided in Appendix H and summarised in the table below.

Exploratory Hole	Response Zone	Water level during monitoring (m bgl)		Stratum
	m bgl	Min	Max	
BH01	0.5 – 6.0	1.53	1.80	Head Deposits and London Clay
DS01	0.5 – 4.0	1.57	1.92	Head Deposits and London Clay
DS02	0.5 – 4.0	1.55	1.98	Head Deposits and London Clay
DS03	0.5 – 4.0	1.32	2.53	Head Deposits and London Clay

Groundwater levels during monitoring varied between 1.32 and 2.53 m bgl within the Head Deposits.

5.5 Visual and Olfactory Evidence of Contamination - Groundwater

No visual or olfactory evidence of potential gross contamination was observed during the investigation.

5.6 Material Properties

The table below summarises the factual material properties based upon the results of in-situ and laboratory test data and where appropriate provides derived geotechnical parameters.

Parameter	Made Ground	Head Deposits	London Clay
Moisture Content – w	7.9% - 12%	22% - 29%	25% - 28%
Liquid Limit - wL	-	44% - 55%	55% - 65%
Plastic Limit - wP	-	19% - 24%	22% - 23%
Plasticity Index - IP	-	20% - 33%	33% - 42%
Uncorrected SPT N Value	-	6 – 11	6 - 42
Corrected1 SPT (N60)	-	7 – 12	7 - 47

1. SPT N values corrected for energy delivered to drive rods utilising the determined energy ratio (E_r): $N_{60} = (E_r \times N) / 60$ after BS EN ISO 22476-3:2005 [Ref. 5]

2. From laboratory test results

5.7 Geochemical Testing

Geochemical analysis was undertaken on five soil samples of Made Ground, Head Deposits and London Clay, tested for selective contaminants (BRE Special Digest 1:2005 (3rd Edition), Concrete in Aggressive Ground, the results of which are summarised in the table below.

Tests	No. of Tests	Minimum	Maximum
Soil - pH	5	7.4	11.2
Soil - Total Sulphur	5	0.013%	0.61%
Soil – Acid Soluble Sulphate	5	<0.01%	0.1%
Soil - Water Soluble Sulphate	5	<0.01 g/L	0.073 g/L
Water – pH	4	7.5	8.5
Water - Sulphate	4	42 mg/L	120 mg/L

5.8 Ground Gas Data

Gas monitoring results are presented in Appendix H and are summarised in the table below, a total of four rounds of gas monitoring was undertaken over a period of 4 weeks.

Barometric pressures ranged from 1009mB (visit 1) to 1018mB (visit 4).

Exploratory Hole	Steady Gas Concentration (%v/v)						Peak Gas Concentration (ppm)	Steady Flow Rate (l/hr)		Response Zone (m bgl)		Stratum
	Methane		Carbon Dioxide		Oxygen		VOC					
	Min	Max	Min	Max	Min	Max	Max	Min	Max	From	To	
BH01	<0.1	<0.1	0.4	2.8	5.9	19.4	1.5	<0.1	0.3	0.5	6.0	Head Deposits and London Clay
DS01	<0.1	<0.1	<0.1	6.7	10.8	21.2	1.6	<0.1	0.4	0.5	4.0	Head Deposits and London Clay
DS02	<0.1	<0.1	<0.1	5.4	15.4	21.1	2.2	<0.1	0.1	0.5	4.0	Head Deposits and London Clay
DS03	<0.1	<0.1	<0.1	3.5	13.9	21.3	2.0	<0.1	0.3	0.5	4.0	Head Deposits and London Clay

6.0 Geotechnical Assessment

6.1 Summary of Development Proposals

The Site has outline planning permission for a proposed redevelopment comprising the construction of a hotel with associated infrastructure and soft landscaping. A proposed development plan is provided as Figure 2.

At the time of writing, structural and floor loadings and final levels were unknown. Consequently, the information provided below should be treated as preliminary and will be subject to review once a scheme and levels have been finalised.

6.2 Foundations

6.2.1 Spread Foundations

The Made Ground is considered to be too unpredictable, variable, weak and compressible in its existing condition for conventional shallow foundations at the Site.

Based on the Site investigation undertaken shallow pad foundations are considered to be suitable for the Site, founded at a minimum depth of 1.2 m bgl within the clay of the Head Deposits. It will be important that foundations are founded on a consistent medium to avoid issues of differential settlement.

Subject to the findings of further investigation, using judgement and experience with check calculations, initial assessments indicate that a presumed allowable bearing pressure of no more than 90 kN/m^2 would be appropriate for a 1mx1m or 2mx2m pad at a minimum depth of 1.2 m below existing ground level and beneath any Made Ground. For a 1mx1m or 2mx2m pad at a minimum depth of 2m, an allowable bearing pressure of 100 kN/m^2 would be appropriate. For a 600mm or 1m strip foundation at a minimum depth of 1.2m, an allowable bearing pressure of 80 kN/m^2 would be appropriate, increasing to 90 kN/m^2 at 2m depth. All settlement has been calculated to be limited to 25mm.

All foundation excavations should be inspected by a suitably qualified geotechnical engineer prior to casting to ensure the appropriate depth, founding medium and strength characteristics have been achieved.

6.2.2 Volume Change Potential

The volume change potential should be considered in any foundation schedule for structures and services located within the influence zone of trees or bushes (proposed, existing or to be removed) and appropriate precautions and/or founding depths should be designed accordingly. In cohesive soils, foundations will therefore need to be designed in accordance with NHBC Standard Chapter 4.2 *'Building Near Trees'* (2016).

The liquid limit and plasticity index results suggest that the Head Deposits have a potential swell classification of medium.

6.2.3 Ground Improvement Techniques

It is considered that where the achievable bearing capacity of shallow soils is not sufficient, a ground improvement solution may provide a suitable option for foundation loads. Any ground improvement proposed at the Site should be designed and warranted by a suitably experienced and qualified ground improvement contractor.

<u>Vibro Replacement</u>

Vibro replacement involves the use of a long and heavy vibrating poker to form stone columns over the depth of soil requiring treatment (likely to the full depth of the Made Ground). Structural loads may then be supported,

on shallow, nominally reinforced pad and strip footings. The placement of columns under the slabs may allow a traditional ground bearing construction to be adopted. Such a programme may be more economical than a piled scheme.

Excavation and Replacement

This is considered to be an unfeasible ground improvement method at the Site.

6.2.4 Piling

A piled foundation solution using traditional bored or continuous flight auger (CFA) piles transferring loads to competent geology may be suitable for the expected design loads, utilising both skin friction and end bearing capacity.

The precise method of pile installation and applicability of proprietary systems, diameters and depths required would need to be informed based on the results of this investigation, by discussions with a piling contractor with suitable experience in clay. Additional deeper boreholes may be required by a piling contractor to inform pile design.

Individual pile/pile group loads will be a function of the surface area of the piles to be employed at the Site and their method of construction.

It is recommended that during redevelopment works, all relict basements (if encountered), foundations, piles caps and other obstructions are removed and the locations of existing piles (if present) recorded to avoid in-ground obstructions during piling.

Normal static and dynamic load testing (including uplift tests) should be considered to achieve satisfactory quality control/assurance in accordance with good practice.

There will be a requirement for the placement of a suitably engineered piling mat, which should be designed and validated by a suitably qualified and experienced engineer.

6.2.5 Floor Slabs

Following removal of unsuitable Made Ground deposits, thorough proof rolling and removal of soft spots, and replacement with granular engineered fill, a lightly loaded ground bearing floor slab loaded to 10kN/m2 could be adopted at the Site. Alternatively, should ground improvement be undertaken, then this is also likely to result in a ground bearing slab being feasible, subject to confirmation from a suitably qualified ground improvement contractor.

6.3 Roads and Pavements

Based on the results of the plate load tests undertaken at the Site, it is recommended that a conservative CBR value of 6% should be adopted for shallow soils, for preliminary pavement design for external areas. The plate load test results are included as Appendix J.

6.4 Excavations & Obstructions

It is expected that conventional mechanical excavators will readily remove the Made Ground, Head Deposits and London Clay likely to be encountered in shallow excavations although a breaker may be required to remove any existing concrete hardstanding.

All shallow foundation or services excavations at the Site should be considered unstable, therefore, temporary support of all excavations should be considered when excavating on-Site.

6.5 Groundwater

Groundwater would be anticipated during any excavations required as part of the proposed development should they be progressed beyond circa 1.3 m depth below ground level. Should any perched groundwater be encountered above this level, then local dewatering via sump and pump should be suitable given ingress is likely to be slow based on the cohesive ground conditions encountered, however, treatment prior to disposal to sewer may be required.

6.6 Slopes & Retaining Features

There is a slope along the southern Site boundary, rising towards the south. There is a retaining wall at the toe of the slope, within the Site. Due to access restrictions, the slope did not form part of this assessment.

There is a retaining wall along the northern boundary of the Site, where ground levels fall towards the north.

6.7 Earthworks

At the time of writing, finished levels were unclear although, it is understood that to some degree earthworks will be required as part of the proposed development, which will include the slope and raised slab in the south of the Site. A significant cut and fill operation is not anticipated.

Materials used as fill will need to be placed to a suitable engineering specification with the degree of compaction required will be dependent on end usage and serviceability criteria. For example, a lesser degree of compaction may be suitable for paved areas than for building platforms supporting foundations and ground bearing slabs. Uplift in areas where vibro replacement is to be used should comprise granular fill placed loosely, or with nominal compaction.

Further earthworks testing will be required prior to completion of a suitably detailed earthworks specification for the works.

6.8 Chemical Attack on Buried Concrete

In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the conditions of the soils at the Site would therefore be classified as Design Sulphate Class DS-3 and ACEC Class AC-2s for soils and groundwater, when considering the most appropriate type of concrete to be used at the Site in order to resist chemical attack from elevated sulphate present in the soils (assuming static groundwater in potentially pyritic soils).

7.0 Generic Quantitative Risk Assessment

7.1 Introduction

The presence of hazardous substances in or on a site is generally only of concern if an actual or potential unacceptable risk exists. Legislation and guidance on the assessment of contaminated sites, consistent with UK best practice, acknowledges the need for a tiered risk-based approach. A Preliminary Risk Assessment is presented in Section 3.0. This section represents a Generic Quantitative Risk Assessment (GQRA) being a comparison of site contaminant levels against Generic Assessment Criteria.

7.2 Human Health GQRA

The assessment of risks in relation to human health has been undertaken using Generic Assessment Criteria as detailed within the appropriate tables. Risks from soil, groundwater and Non-Aqueous Phase Liquids (NAPL) have been considered.

The end use scenario adopted for the assessment is a Commercial end use, considered appropriate based on the proposed development.

7.2.1 Risks from Soil Sources

Based on the proposed use of the Site for light industrial use, the soil and groundwater chemical data has been compared against a commercial end use GAC for 1% soil organic matter (SOM) content.

The laboratory results for contaminants exceeding detection limit compared to their respective GAC are presented in the table below.

The primary exposure pathways considered in the risk assessment are as follows:

- Ingestion of soil and indoor dust and / or oral background exposure;
- Consumption of home-grown produce and attached soil;
- Inhalation of dust (background and indoor);
- Direct dermal contact; and
- Inhalation of vapour (background and indoor).

Contaminant	No. Samples	Max Conc. (mg/kg)	GAC (mg/kg)	GAC Source	No. Exceed GAC	Volatile	Location of Exceedances (depth) = Concentration (mg/kg)	Area of Site of Exceedance
Asbestos	8	Detected	Detected	DS	1	N	DS01 (0.15m) – Chrysotile cement	South west of the Site
Metals and metalloids								
Arsenic	8	31	640	LQM	0	N	-	-
Cadmium	8	0.48	190	LQM	0	N	-	-
Chromium	8	49	8600	LQM	0	N	-	-
Copper	8	34	68000	LQM	0	N	-	-
Lead	8	160	2300	C4SL	0	N	-	-
Nickel	8	30	980	LQM	0	N	-	-
Zinc	8	270	730000	LQM	0	N	-	-
Petroleum Hydrocarbons								
Aliphatic TPH >C8-C10	12	7.7	2000	LQM	0	Y	-	-
Aliphatic TPH >C10-C12	12	78	9700	LQM	0	Y	-	-
Aliphatic TPH >C12-C16	12	320	59000	LQM	0	N	-	-
Aliphatic TPH >C16-C21	12	990	1600000	LQM	0	N	-	-
Aliphatic TPH >C21-C35	12	340	1600000	LQM	0	N	-	-
Aromatic TPH >C10-C12	12	33	16000	LQM	0	Y	-	-
Aromatic TPH >C12-C16	12	300	36000	LQM	0	N	-	-
Aromatic TPH >C16-C21	12	630	28000	LQM	0	N	-	-
Aromatic TPH >C21-C35	12	8700	28000	LQM	0	N	-	-
Aromatic TPH >C35-C44	12	390	28000	LQM	0	N	-	-

Asbestos was identified in DS01 (0.115 m bgl) in the south west of the Site.

None of the other site-specific contaminants of concern were recorded at concentrations in excess of their respective detection limits.

The soil analysis results are considered further in the Conceptual Site Model (CSM) presented in Section 9.0 with regard to potential pollutant linkages.

7.2.2 Risks from Groundwater Sources

Based on the proposed use of the Site for light industrial use, the soil and groundwater chemical data has been compared against a commercial / industrial end use GAC to assess risks from groundwater sources to indoor air and subsequent vapour inhalation indoors.

None of the site-specific contaminants of concern were recorded at concentrations in excess of their detection limits / respective GAC.

The water analysis results are considered further in the Conceptual Site Model (CSM) presented in Section 7.2 with regard to potential pollutant linkages.

7.2.3 Risks from Non-Aqueous Phase Liquids (NAPL)

Soil and groundwater exposure models used in generating Generic Assessment Criteria do not account for the potential for NAPL to represent a source of risk to human health, principally due to the production of vapours. Whilst it is possible to calculate theoretical soil saturation limits, in reality, due to co-solubility effects, these are not an appropriate indicator of the presence of NAPL. In order to assess the presence of NAPL, for petroleum hydrocarbons, an assessment criteria of 5000 mg/kg has been applied based on professional experience.

The following has been identified in relation to NAPL at the Site:

- No observations of NAPL were made within the soils observed during drilling;
- Concentrations of Total Petroleum Hydrocarbons in excess of 5000 mg/kg were recorded;
- No NAPL was measured during groundwater monitoring works.

On this basis, there is evidence of NAPL being present on the Site, however, not at significantly elevated concentrations which are likely to require significant remedial measures to be protective of human health. The TPH encountered was predominantly longer chain hydrocarbons, which will not represent a risk to end users via a vapour inhalation pathway, due to the low volatility of the longer chain fraction encountered.

7.3 Controlled Waters / Water Environment GQRA

7.3.1 Groundwater Results

The approach adopted to assessing risks to Controlled Waters / Water Environment is based principally on considering the concentrations of contaminants identified within the groundwater samples obtained in comparison to relevant GAC.

Given the 'prevent and limit' approach of the Water Framework Directive (2000/60/EC) and the identified receptors, a range of Water Quality Standards (WQS) have been applied as Generic Assessment Criteria (GAC), these include Water Framework Directive standards and thresholds (WFD), the Freshwater Environmental Quality Standards (EQS), the UK Drinking Water Quality Standards (DWQS), WHO Guidelines for Drinking Water Quality or SEPA resource protection values which have been used as initial conservative GAC to assess whether groundwater contamination requires further assessment or discussion in terms of the

risks to controlled waters. Where specific water quality standards are not available, Delta-Simons has adopted surrogate values based on professional judgement (DS GAC).

Groundwater contaminant concentrations that exceed the applied GAC are then considered in the context of the Site's environmental setting as to whether further qualitative or quantitative assessment is required as described in subsequent sections. Laboratory results above relevant detection limits are summarised in the table below with a comparison to the GAC applied.

Contaminant	No. Samples	Max Conc. (µg/l)	GAC (µg/l)	GAC Source	No. Exceed GAC	Location of Exceedances	Area of Site of Exceedance
Metals and Metalloids							
Arsenic	1	2.2	10	DWQS 2016	0	-	-
Boron	3	36	1000	DWQS 2016	0	-	-
Chromium	1	2.1	50	DWQS 2016	0	-	-
Copper	2	1.4	2000	DWQS 2016	0	-	-
Nickel	4	**30**	20	DWQS 2016	1	DS02	Centre of the Site
Selenium	4	4.6	10	DWQS 2016	0	-	-
Zinc	4	5	3000	WHO 2003	0	-	-
Petroleum Hydrocarbons							
Total Petroleum Hydrocarbons	1	**660**	300	WHO	1	BH01	South west of the Site

Localised, elevated concentrations of total petroleum hydrocarbons were identified in BH01 in the south west of the Site. No total petroleum hydrocarbons were detected in DS01 or DS02 which are located west and east of BH01 respectively. This would suggest that the contamination is localised to BH01 and the cohesive Head Deposits are limiting lateral migration due to their low permeability.

An elevated concentration of nickel was recorded in DS02 which is located in the centre of the Site. It is considered that the marginal exceedance recorded does not pose a significant risk to controlled waters on the basis that the Head Deposits are likely to be low-permeability, limiting lateral migration of on-Site groundwater to the drain approximately 80 m to the west. In addition to this, there are no groundwater abstraction points reported within 500 m and no on-Site potential source of nickel has been identified

The groundwater analysis results are considered further in the CSM presented in Section 7.2 with regard to potential pollutant linkages.

7.4 Built Environment

7.4.1 Potable Water Supply Pipes

The investigation requirements for the selection of potable water pipe material are set out in UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010). This report has very specific and onerous investigation requirements and as such the detailed investigation of each utility route was not within the scope of this investigation.

However, given the presence of hydrocarbon contamination at the Site, it is considered likely /prudent to consider the use of barrier pipe materials.

It should be noted that at the time of this investigation the future routes of water supply pipes had not been established, hence the investigation and sampling strategy is not likely to be considered fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling/analytical strategy may be required at a later date once the route(s) of the supply pipe(s) are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

7.4.2 Building Materials

Risks to building materials associated with aggressive ground conditions is addressed in Section 5.9.

7.5 Waste Classification

This investigation was not undertaken to classify materials in terms of waste disposal. Where waste disposal then a specific and detailed investigation in accordance with Environment Agency Guidance WM3 would typically be required.

Should soils be required to be disposed of from Site, the results of the chemical analysis should be forwarded to the proposed receiving facility who will determine what criteria they will accept the waste from Site as. Further investigation in addition to specific waste acceptance criteria (WAC) analysis may be required.

Considering the nature of the materials encountered, more cost efficient and sustainable methods of removing the material should be considered prior to disposal at landfill (e.g. registering with the CL:AIRE Register of Materials) in an attempt to find a site with a requirement for import of materials.

8.0 Bulk Ground Gas Risk Assessment

8.1 Ground Gas Conceptual Site Model

8.1.1 Sources

Historically the Site has been subjected to a commercial / industrial land uses, including phases of demolition. Furthermore, the Site is situated on a slope which has previously required creation of development platforms, comprising cut and fill operations and construction of retaining walls. This has led to thicknesses of Made Ground across some parts of the site, proven to a maximum thickness of 1.1 m in the area of the raised slab. Made ground was not recorded across the majority of the Site, with the concrete being directly underlain by Head Deposits.

The Made Ground generally comprises sand and gravel mixtures. The gravel content included flint, sandstone, mudstone, brick and clinker. Frequent / abundant plastic, slag and wood fragments were also recorded. The Made Ground is therefore considered to represent a potential source of ground gas, although the volume of putrescible material appears to be low.

Plant remains were identified in the Head Deposits, which may represent a source of ground gas due to the decomposition of organic material.

Surrounding historical land uses, which include an engineering works, may represent localised off-site sources of ground gases, however given underlying cohesive deposits, migration of ground gas to the Site from off-Site sources is considered unlikely.

No current or former waste management facilities (landfills) have been identified within a 250m radius of the Site.

8.1.2 Receptors

The principal receptors under consideration are future Site users. Other receptors include adjacent Site users and future maintenance / construction workers.

8.1.3 Pathways

The underlying geology is likely to be of low permeability with respect to ground gases. The Made Ground is heterogeneous and likely to allow preferential migration locally. The underlying Head Deposits are predominantly clay and likely to limit vertical migration from below and also lateral migration.

Based on the above, migration from off-site sources, including current and historical industrial land uses is considered unlikely due to the presence of Head Deposits.

The most significant pathways with respect to future residents relates to the potential for gases to enter future buildings. At present, no gas protections measures are assumed. Consequently, ingress into buildings may be possible through voids in the floor including service entry points and cracks.

Future maintenance / construction workers may come into contact with hazardous ground gases via entry into below ground confined spaces such as excavations or service entries / inspection points.

8.2 Duration & Extent of Monitoring

Tables 5.5a and 5.5b within CIRIA C665 detail current recommended monitoring duration and frequency for sites in the UK. Based on the identification of potential sources in the preceding section, the gas generation

potential is considered to be low, with the the sensitivity of the proposed development considered to be low to moderate. On this basis, CIRIA C665 recommends between 4 visits over a minimum period of 1 month.

Gas monitoring has been carried out upon the Site on 4 separate occasions over 1 months between May 2018 and June 2018.

During the monitoring periods, gas concentrations have been recorded in a total of four monitoring positions. The locations of the monitoring wells are shown on Figure 3 and indicate representative coverage across the area of the proposed building footprint. One monitoring well (DS03) has been positioned in the area where potential hydrocarbon contamination was identified in the soil.

Barometric pressures during the gas monitoring period ranged from 1009 mBar to 1018 mBar. 2 of the 4 visits were completed during periods of falling pressure.

8.3 Ground Gas Risk Assessment

8.3.1 Background

Based on the proposed residential end use, the following documents have been consulted when assessing the gas regime at the site:

- NHBC/RSK Group PLC (2007), Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present, Report Edition No. 4.
- British Standards Institute (BSI, 2015): Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings, BS:8485.

The presence of a source of hazardous gas within the ground does not necessarily indicate a risk will be present. Consideration of recorded gas flows together with source concentrations can allow an initial assessment to be made of the potential both for generation and subsequent migration of gas. A Characteristic Situation (CS) is derived from an assessment of the ground gas data and forms the basis of determining mitigation measures.

8.3.2 Gas Screening Value (GSV)

The Gas Screening Value (gas concentration as a fraction x maximum recorded flow) is used to provide an initial assessment of risks to future site users. The GSVs calculated for the monitoring wells are presented in the following table.

Location	Maximum Methane (%v/v)	Maximum Carbon Dioxide (%v/v)	Maximum Flow Rate (l/hr)	GSV / Characteristic Situation				Flooded well (Frequency)
				Methane		Carbon Dioxide		
				GSV	CS	GSV	CS	
BH01	<0.1	2.8	0.3	0.000	CS1	0.000	CS1	N
DS01	<0.1	6.7	0.4	0.000	CS1	0.007	CS2	N
DS02	<0.1	5.4	0.1	0.000	CS1	0.000	CS2	N
DS03	<0.1	3.5	0.3	0.000	CS1	0.004	CS1	N

Notes:
CS1+ = Calculated GSV is CS1; however, peak methane exceeds 1%v/v and / or peak carbon dioxide exceeds 5%v/v, therefore, consider increase in CS value.

The preliminary data indicates that the Site can be provisionally classified as CS2 (low hazard potential) in accordance with BS 8485:2015 Table 2.

8.4 Ground Gas Risk Mitigation

It is recommended that a CS2 rating is assumed for design purposes.

BS:8485 provides a scoring system to determine the appropriate protection measures for a proposed development in accordance with the identified ground gas regime. Table 3 of BS:8485 summarises typical UK building types, which for this development will comprise Type B (private / commercial). Table 4 details the points required for the Characteristic Situation, which for CS2 is 3.5. This can be achieved by a combination of the following:

- Structural barriers (Table 5)
- Ventilation (Table 6)
- Gas Membrane (Table 7)

The above should be considered in conjunction with the proposed foundation / floorslab design to achieve the minimum score required within BS:8485.

The above assessment relates solely to future Site users. Given the nature of the ground gas regime at the Site, no further works are considered necessary to protect 3rd parties / surrounding occupiers. Entry to excavations / confined spaces should be restricted to personnel with relevant Confined Spaces training and with prior conformation of atmospheric conditions.

8.5 Radon

The Site is located within an area where radon protective measures are not required.

8.6 Organic Vapours

No organic contamination has been encountered above relevant GACs, and so risk to end users from volatile vapours is considered to be low.

9.0 Revised Conceptual Site Model

A revised CSM is presented in the table below and has been formulated taking into account all of the available data from the Delta-Simons intrusive investigation, suitable for a Site with a proposed commercial end-use.

Revised Conceptual Site Model				
Source	**Pathways**	**Receptors**	**Confirmed Risk?**	**Mitigation**
Elevated levels of heavy metal and TPH contaminants within the groundwater	Migration of contaminants into groundwater	Secondary Aquifer (Undifferentiated)	Yes	The identified cohesive deposits underlying the Site are likely to significantly limit the migration of contamination towards off-Site receptors. Given the marginally elevated TPH concentrations recorded, further risk assessment or remedial measures are not considered necessary. Furthermore, groundwater contamination is limited to BH01 No total petroleum hydrocarbons were detected in DS01 or DS02 which are located west and east of BH01 respectively. This would suggest groundwater contamination is very localised to the area of BH01.
	Migration of contaminants into surface waters	Drain (80 m west)	Yes	
	Direct infiltration in water supply pipes	Drinking water supply pipes	Yes	Hydrocarbons, especially aromatics, are known to permeate plastic pipes. Assessment of the risk to water pipes for any new supply will have to be undertaken as a requirement of the statutory undertakers, who should be provided with a copy of this Assessment and provide recommendations for upgrading of potable water supply pipes, if considered necessary.
ACMs in Made Ground	Direct contact/ingestion and inhalation of dust/fibres.	Human health – construction workers, future Site users, adjacent Site users and residents	Yes	Given the identification of ACMs in Made Ground deposits, it is considered that a topsoil capping layer 300mm thick in any landscaped areas, will mitigate potential risk to end users of the development. Prior to any redevelopment works, appropriate method statements and risk assessments should be created to ensure safety to ground workers, end users and adjacent site users.
	Release of fibres to air			
Ground gas	Indoor exposure via enclosed space accumulation of ground gas	Human health – future Site users and construction workers	Yes	Ground gas monitoring results have identified elevated concentrations of carbon dioxide. Ground gas protection measures are required at the Site in accordance with BS:8485. proposed development to mitigate potential risk from the identified.

Potentially unidentified 'hotspots' of contamination, which may be present in areas of the Site that have not been directly investigated	All pathways	All receptors	Unknown	As with all redevelopment works, a 'hotspot' protocol should be in place for groundworkers to act upon during any future redevelopment of the Site. Safe working procedures should be implemented, good standards of personal hygiene should be observed, and appropriate levels of PPE provided and utilised. This recommendation should be captured in Site health and safety documentation and in maintenance plans.

10.0 Conclusions & Recommendations

10.1 Geotechnical Summary

Shallow strip/pad foundations are considered to be suitable at the Site, founded at a minimum depth of 1.2m bgl within the Head Deposits, however, should the proposed building loads exceed the allowable bearing capacities calculated, consideration may need to be given to alternative founding option, such as ground improvement or piles. Ground bearing floor slabs are likely to be suitable following removal of Made Ground / soft spots, replacement with engineered fill and thorough proof rolling.

10.2 Contamination Issues

The investigation has been carried out in order to provide information on the quality of the soil and groundwater beneath the Site in the context of land contamination and provide information on the ground gas regime beneath the Site for a residential end use. The assessment is being completed prior to the proposed redevelopment of the Site.

10.2.1 Human Health

Asbestos containing materials (ACMs) were identified in one of the samples analysed, taken from the south west of the Site. Groundworkers and sub-surface maintenance workers should be made aware of the possibility of encountering contaminated soils through toolbox talks and in particular the potential presence of asbestos and an appropriate protocol to mitigate exposure of the workforce and general public should be in place. The Contractor will need to prepare a risk assessment which identifies a safe system of work to handle the asbestos containing soils which is likely to include asbestos awareness training, a protocol for unexpected finds (should gross asbestos material be identified) as well as safe working procedures such as damping down of excavations and stockpiles in line with general dust generation mitigation. The risk assessment will need to identify the appropriate levels of PPE and/or RPE required. This recommendation should be captured in Site health and safety documentation and in maintenance plans.

It is recommended a 300mm layer of imported clean topsoil is incorporated into proposed landscaped areas, in order to mitigate potential risk to Site end users from the identified asbestos contamination.

The results of the ground gas monitoring indicate the Site can be provisionally classified as CS2 and that ground gas protection measures are likely to be required in accordance with BS:8485.

10.2.2 Controlled Waters

Elevated heavy metal and TPH concentrations were recorded in the groundwater at the Site. The elevated TPH concentration (BH01) was located in the centre of the proposed building footprint. As no detectable concentrations of TPH were recorded in either DS01 or DS02 which are located to the west and east of BH01 respectively, the contamination appears to be localised to this area. The contamination is located in the Head Deposits which are classified as a Secondary Aquifer (Undifferentiated).

Due to the cohesive deposits in the Head Deposits, it is considered that migration of contaminants to the off-Site drain / aquifer will be limited, and given that the TPH contamination was recorded at marginally elevated concentrations, further remedial measures are not considered necessary.

10.3 Recommendations for Supplementary Work

- It is recommended that a layer of certified suitable for use topsoil should be incorporated into landscaped areas at a minimum thickness of 300 mm;
- Ground gas protection measures complying with a CS2 rating will be required within the proposed building;

- Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process;
- As with all brownfield development sites, groundworkers who are required to perform sub-surface work at the Site should be made aware of the known contaminants in soil and groundwater and the possibility of encountering additional localised low levels of contamination. Therefore, good standards of personal hygiene should be observed, and appropriate levels of PPE utilised where necessary;
- Suitable dust suppression techniques will need to be implemented by the groundworkers during construction and demolition works; and
- Confirmation should be sought from the Local Water Authority as to whether they will require upgraded pipework to be installed for new service installations, although this is not considered to be likely.

Figure 1 – Site Location Plan



LEGEND

Site Boundary

Scale: 1 / 10,000 @ A4

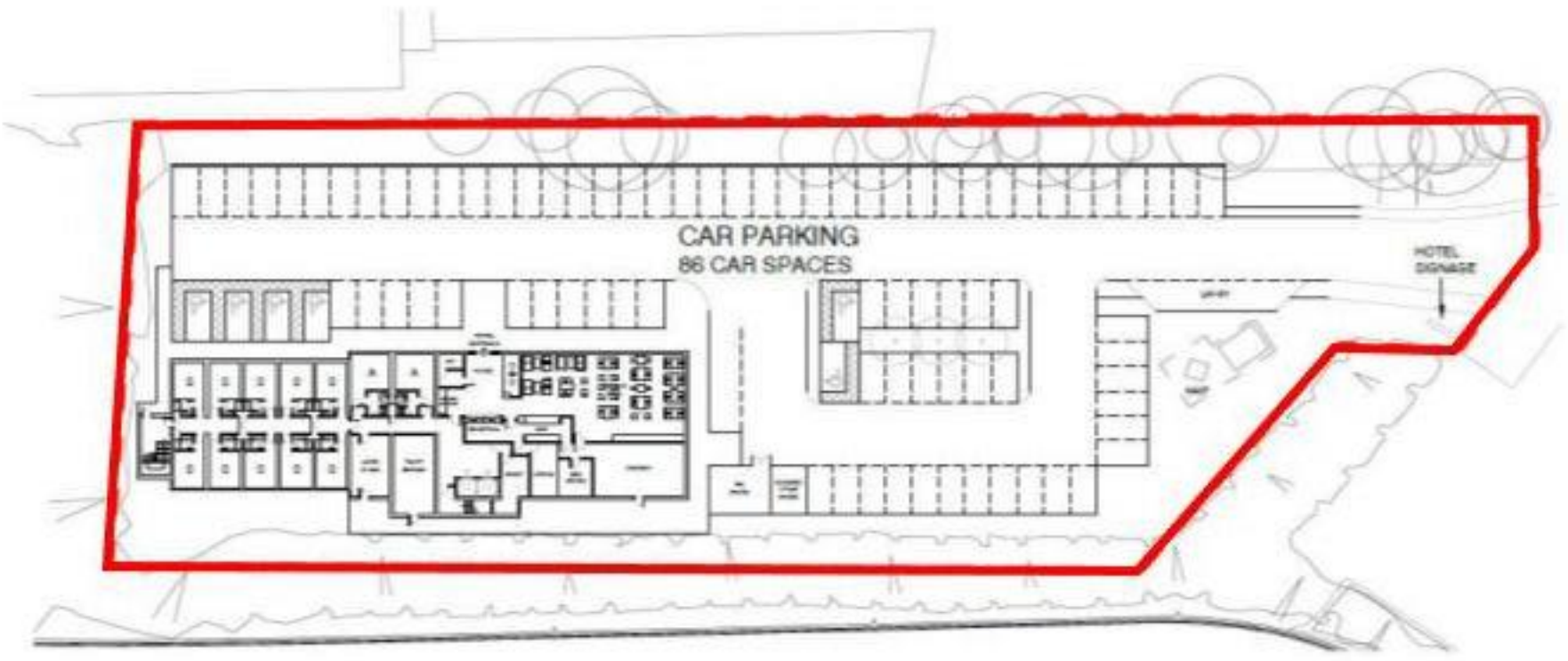
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deltasimons
Environment - Health & Safety - Sustainability

TITLE:
Site Location Plan
Larchwood Avenue
Havant

DRAWN BY:	SCALE	PROJECT NO:
EN	To Scale@A4	18-0609.01
CHECKED BY:	REVISION:	FIGURE NO:
AN	1	1
DATE:		
18 June 2018		

Figure 2 – Proposed Development Plan



LEGEND

Site Boundary



HOLMES MILLER

Architects

Proposed Ground Floor Plan

HOTEL ROOM MIX

GROUND	FIRST	SECOND	THIRD	TOTAL
10 S	10 S	10 S	10 S	40 S
	11 F	13 F	12 F	36 F
2 A	2 A			4 A
				80

WORK IN PROGRESS

PROJECT: HAVANT TRAVELODGE

DRAWING: PROPOSED GROUND FLOOR

SCALE: 1:500 @ A2

NUMBER: 4231-104

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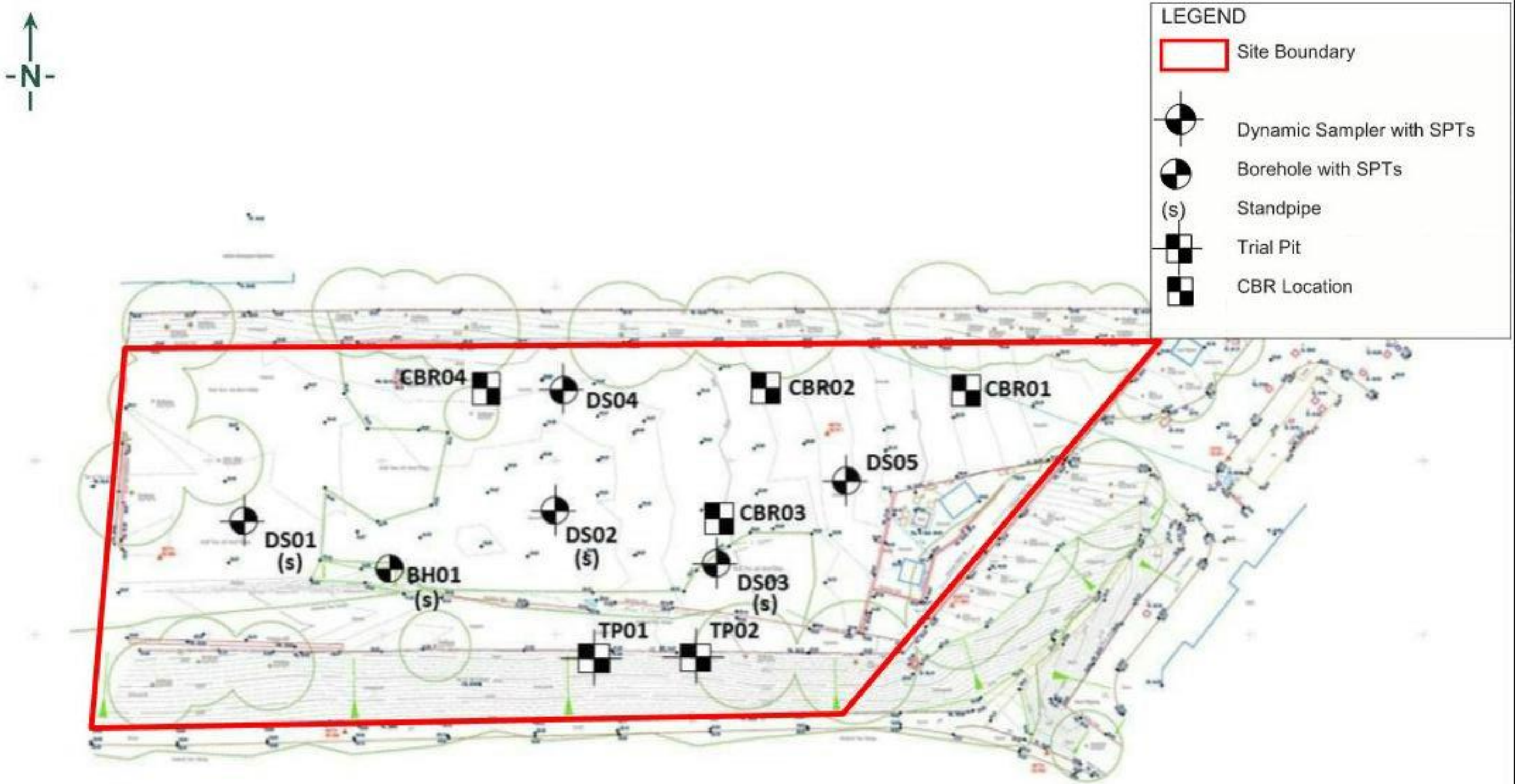
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Environment - Health & Safety - Sustainability

TITLE:
Proposed Development Plan
Stanton's Yard, Larchwood Avenue, Havant PO9 3QL

DRAWN BY:	SCALE:	PROJECT NO:
AN	NTS	18-0609.01
CHECKED BY: TH	REVISION: -	FIGURE NO: 2
DATE: 18th June 2018		

Figure 3 – Exploratory Hole Location Plan



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Environment - Health & Safety - Sustainability

TITLE:
Exploratory Hole Location Plan
Stanton's Yard, Larchwood Avenue, Havant PO9 3QL

DRAWN BY:	SCALE:	PROJECT NO:
AN	NTS	18-0609.01
CHECKED BY:	REVISION:	FIGURE NO:
TH	-	3
DATE: 14th June 2018		

Appendix A – Limitations

Limitations

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

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

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Appendix B – Envirocheck Report

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
167360372_1_1

Customer Reference:
18-0609.01

National Grid Reference:
469530, 107600

Slice:
A

Site Area (Ha):
0.5

Search Buffer (m):
1000

Site Details:

Eaton Corporation, Larchwood Avenue
Bedhampton
HAVANT
PO9 3QL

Client Details:

Ms J Trevelyan
Delta Simons
3 Henley Office Park
Doddington Road
Lincoln
LN6 3QR

Contents

Report Section	Page Number
Summary	-
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Data Suppliers	32
Useful Contacts	33

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2			2	2
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 3		1	1	1
Local Authority Pollution Prevention and Control Enforcements	pg 3		1		1
Nearest Surface Water Feature	pg 3		Yes		
Pollution Incidents to Controlled Waters	pg 4		2		5
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 5				2
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 5				(*9)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 7	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Source Protection Zones	pg 7	1			1
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 8		1	27	24

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 14				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 14	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 14				1
Potentially Infilled Land (Water)	pg 14	1		2	8
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 15	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 15	Yes			Yes
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 15	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 17		8	4	21
Fuel Station Entries	pg 19		2		1
Points of Interest - Commercial Services	pg 20		3	1	10
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 21	1	4		
Points of Interest - Public Infrastructure	pg 21		3		4
Points of Interest - Recreational and Environmental	pg 22				16
Gas Pipelines					
Underground Electrical Cables					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 24		3	3	9
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 25	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (N)	0	1	469525 107600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	0	1	469525 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	20	1	469450 107600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	39	1	469450 107650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	49	1	469600 107550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	69	1	469400 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (S)	71	1	469525 107500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	109	1	469700 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	119	1	469350 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	120	1	469350 107550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	171	1	469450 107400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	219	1	469250 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	220	1	469250 107600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	249	1	469250 107450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	259	1	469850 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	269	1	469200 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	277	1	469200 107500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	319	1	469150 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	320	1	469525 107250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	320	1	469150 107600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	380	1	469100 107700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	384	1	469650 107200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	392	1	469200 107900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (SE)	399	1	469700 107200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	400	1	469250 107950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (E)	408	1	470000 107600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	408	1	470000 107599
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	472	1	469000 107650
1	**Discharge Consents** Operator: B & Q Plc Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Site At Purbrook Way, Hubert Rd, Havant, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: N01079 Permit Version: 2 Effective Date: 28th September 2000 Issued Date: 28th September 2000 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A18SE (N)	333	2	469550 107950
1	**Discharge Consents** Operator: B & Q Plc Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Site At Purbrook Way, Hubert Rd, Havant, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N01079 Permit Version: 1 Effective Date: 15th November 1984 Issued Date: 15th November 1984 Revocation Date: 28th September 2000 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A18SE (N)	333	2	469550 107950
2	**Discharge Consents** Operator: Havant & Waterloo U.D.C. Property Type: WTW/WATER COLLECTION/TREATMENT/SUPPLY Location: Bedhampton Storm Water Overflows, Storm Water Overflows, Bedhampton, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: H01485 Permit Version: 1 Effective Date: 12th October 1962 Issued Date: 12th October 1962 Revocation Date: 31st March 1997 Discharge Type: Unknown Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	685	2	470170 107250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Dr F A Stowell Property Type: Undefined Or Other Location: Hulbert Road, Bedhampton Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: H01000 Permit Version: 1 Effective Date: 13th April 1962 Issued Date: 13th April 1962 Revocation Date: 31st March 1997 Discharge Type: Non Water Company (Private) Sewage Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	694	2	470000 107040
4	**Local Authority Pollution Prevention and Controls** Name: Asda Stores Ltd Pfs Location: Larchwood Avenue, Purbrook Way, Bedhampton, HAVANT, Hampshire, PO7 3QW Authority: Havant Borough Council, Environmental Health Department Permit Reference: PERM09-00328 Dated: 9th December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	58	3	469536 107514
5	**Local Authority Pollution Prevention and Controls** Name: Little Park Service Station Location: Hulbert Road, BEDHAMPTON, Hampshire, PO9 Authority: Havant Borough Council, Environmental Health Department Permit Reference: 23 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorisation has varied** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (E)	266	3	469858 107632
6	**Local Authority Pollution Prevention and Controls** Name: Bp Park Lane Service Station Location: 97 Park Lane, Bedhampton, HAVANT, Hampshire, PO9 3HQ Authority: Havant Borough Council, Environmental Health Department Permit Reference: PERM15-00173 Dated: 22nd December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	879	3	470470 107659
7	**Local Authority Pollution Prevention and Control Enforcements** Location: Larchwood Road, Bedhampton, Havant, Hampshire, Po7 3qw Type: Air Pollution Control Enforcement Notice Reference: HBC/EPA1/5/98 Date Issued: 19th September 2000 Enforcement Date: Not Supplied Details: Not Supplied Positional Accuracy: Manually positioned to the address or location	A13SE (S)	58	3	469536 107514
8	**Local Authority Pollution Prevention and Control Enforcements** Location: Westleigh Service Station, Petesfield Road, Havant, Hampshire, Po9 5ha Type: Air Pollution Control Enforcement Notice Reference: HBC/EPA1/10/98 Date Issued: 27th October 2001 Enforcement Date: Not Supplied Details: Not Supplied Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	755	3	470278 107933
	Nearest Surface Water Feature	A13NW (W)	80	-	469391 107614

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: Vickers Systems Authority: Environment Agency, Southern Region Pollutant: Oils - Other Oil Note: Oil Loss Into Drains; Industrial: Other Incident Date: 8th February 1995 Incident Reference: 1678 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	85	2	469600 107500
10	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: B & Q, Purbrook Way, HAVANT Authority: Environment Agency, Southern Region Pollutant: Chemicals - Alkali Note: Spillage Of Ammonia Like Substance; Industrial: Other Incident Date: 23rd August 1994 Incident Reference: 1437 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Industrial Chemicals Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (N)	183	2	469500 107800
11	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: HAVANT Authority: Environment Agency, Southern Region Pollutant: Oils - Other Oil Note: Milky Substance Going Into River Lavant From Culvert; Engineering Incident Date: 28th June 1995 Incident Reference: 1917 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Industrial Chemicals Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	736	2	470100 108150
12	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: New Road, HAVANT Authority: Environment Agency, Southern Region Pollutant: Oils - Diesel (Including Agricultural) Note: Oil/Petrol On The Surface Of The Stream Incident Date: 25th November 1998 Incident Reference: 798559 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Poor Operational Practice Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	914	2	470200 108300
13	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Other Location: Hermitage Stream, Keyhaven Drive, LEIGH PARK Authority: Environment Agency, Southern Region Pollutant: Oils - Unknown Note: Oil On Stream; Water Company Sewage: Surface Water Outfall Incident Date: 18th April 1995 Incident Reference: 1799 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	917	2	470300 108200
14	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Sewage Treatment Works Location: Adjacent To 435 Middlepark Way, HAVANT Authority: Environment Agency, Southern Region Pollutant: Oils - Petrol Note: Car In River Bed Leaking Petrol Incident Date: 5th August 1998 Incident Reference: 798388 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Poor Operational Practice Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (E)	985	2	470500 108000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Pollution Incidents to Controlled Waters** Property Type: Wholesale & Retail Trade Location: Park House Farm Way, LEIGH PARK Authority: Environment Agency, Southern Region Pollutant: Organic Chemicals : Diesel Fuels Note: Not Supplied Incident Date: 4th March 1999 Incident Reference: 81 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	991	2	470200 108400
	River Quality Name: Hermitage Strm GQA Grade: River Quality C Reach: Tidal Limit - Source Estimated Distance (km): 14.8 Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A19SW (NE)	675	2	470080 108084
	River Quality Name: Potwell Trib GQA Grade: River Quality C Reach: Wallington Conf - Purbrook Estimated Distance (km): 6.6 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A12SW (W)	914	2	468567 107418
	Water Abstractions Operator: Portsmouth Water Ltd Licence Number: 11/42/36.2/1 Permit Version: 101 Location: Bedhampton Ps Spring No 1 Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1580	2	470580 106370
	Water Abstractions Operator: Portsmouth Water Ltd Licence Number: 11/42/36.2/1 Permit Version: 102 Location: Bedhampton Ps Spring No 1 Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1580	2	470580 106370

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Portsmouth Water Co Licence Number: 11/42/36.2/1 Permit Version: 100 Location: Bedhampton Ps Spring No 1 Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 164565 Yearly Rate (m3): 42732400 Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 1977 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A5NW (SE)	1580	2	470580 106370
	Water Abstractions Operator: Portsmouth Water Ltd Licence Number: 11/42/36.2/1 Permit Version: 101 Location: Havant Ps Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NE (SE)	1597	2	470480 106270
	Water Abstractions Operator: Portsmouth Water Ltd Licence Number: 11/42/36.2/1 Permit Version: 102 Location: Havant Ps Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NE (SE)	1597	2	470480 106270
	Water Abstractions Operator: Portsmouth Water Co Licence Number: 11/42/36.2/1 Permit Version: 100 Location: Havant Ps Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 1977 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NE (SE)	1597	2	470480 106270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Portsmouth Water Ltd Licence Number: 11/42/36.2/1 Permit Version: 101 Location: Bedhampton Ps Spring No 2 Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NE (SE)	1895	2	471020 106370
	Water Abstractions Operator: Portsmouth Water Ltd Licence Number: 11/42/36.2/1 Permit Version: 102 Location: Bedhampton Ps Spring No 2 Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NE (SE)	1895	2	471020 106370
	Water Abstractions Operator: Portsmouth Water Co Licence Number: 11/42/36.2/1 Permit Version: 100 Location: Bedhampton Ps Spring No 2 Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 1977 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NE (SE)	1895	2	471020 106370
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 52 Southern Hampshire Scale: 1:100,000	A13NW (NW)	0	2	469525 107599
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (NW)	0	1	469525 107599
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NW (NW)	0	1	469525 107599
16	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone Ic (Inner Protection Zone): Travel time of 50 days or less to the groundwater source - subsurface activity only.	A13NW (NW)	0	2	469525 107599
17	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A8SW (S)	871	2	469472 106697

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A13NW (W)	80	4	469391 107614
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 281.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A13NW (NW)	319	4	469246 107844
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 446.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SE (N)	341	4	469542 107958
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	342	4	469138 107695
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 38.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	342	4	469138 107695
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 142.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8NW (S)	342	4	469468 107226
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 76.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8NW (SW)	345	4	469347 107247

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8NW (S)	347	4	469484 107224
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8NW (S)	353	4	469515 107218
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 36.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SW (NW)	354	4	469334 107944
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8NW (S)	356	4	469528 107215
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A13SW (SW)	358	4	469274 107269
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 697.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8NE (S)	368	4	469577 107205
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SW (NW)	378	4	469351 107975
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 75.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SW (NW)	379	4	469350 107976
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	433	4	469059 107751

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 116.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 2	A12NE (W)	434	4	469056 107743
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 58.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	434	4	469056 107743
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SW (NW)	435	4	469283 108009
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 62.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	442	4	469034 107688
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	442	4	469034 107686
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	446	4	469025 107637
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SW (NW)	447	4	469273 108018
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	450	4	469021 107636
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 182.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A19SW (NE)	450	4	469870 107972

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 608.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A19SW (NE)	464	4	469890 107974
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 24.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SE (NE)	465	4	469752 108054
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 117.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SE (NE)	481	4	469740 108075
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 57.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A12NE (W)	503	4	468972 107683
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A17SE (NW)	535	4	469183 108068
48	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 68.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A17SE (NW)	551	4	469162 108073
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SE (N)	558	4	469674 108170
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SE (N)	569	4	469610 108186
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 276.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18SE (N)	587	4	469620 108204

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 94.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A17SE (NW)	590	4	469103 108079
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 78.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18NW (N)	710	4	469396 108323
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 71.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18NW (N)	732	4	469319 108333
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 391.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18NE (N)	744	4	469689 108356
56	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 54.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18NW (N)	764	4	469249 108347
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A18NW (NW)	792	4	469199 108361
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 162.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A7NE (SW)	828	4	468939 106933
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 78.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8SW (S)	843	4	469477 106727
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8SW (S)	843	4	469477 106727

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 454.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8SE (S)	854	4	469579 106719
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 289.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A8SW (S)	860	4	469400 106713
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A7SE (SW)	874	4	469040 106807
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 818.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hermitage Stream Catchment Name: East Hampshire Primacy: 1	A19NW (NE)	874	4	470132 108307
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A7SE (SW)	886	4	469117 106756
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 264.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A7SE (SW)	886	4	469117 106756
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A7SE (SW)	890	4	469119 106751
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: East Hampshire Primacy: 1	A19SE (E)	977	4	470498 107982
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hermitage Stream Catchment Name: East Hampshire Primacy: 1	A19SE (E)	980	4	470501 107983

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	**Historical Landfill Sites** Licence Holder: Gleeson Civil Engineering Limited Location: Bedhampton, Hampshire Name: Scratchface Lane Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD20966 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Inert Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: FHA16, 13/4	A8NE (SE)	524	2	469765 107092
	Local Authority Landfill Coverage Name: Havant Borough Council - Has supplied landfill data		0	3	469525 107599
	Local Authority Landfill Coverage Name: Hampshire County Council - Had landfill data but passed it to the relevant environment agency		0	5	469525 107599
71	**Potentially Infilled Land (Non-Water)** Bearing Ref: NW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A17SE (NW)	780	-	469023 108256
72	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1963	A13NW (N)	0	-	469525 107621
73	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1898	A13NE (E)	263	-	469853 107646
74	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1898	A19SW (NE)	478	-	469908 107977
75	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1898	A7NE (SW)	777	-	468918 107022
76	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1870	A18NW (NW)	782	-	469204 108352
77	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A12SW (W)	825	-	468659 107410
78	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A9NW (SE)	831	-	470110 106953
79	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1898	A7NW (SW)	848	-	468784 107068
80	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1898	A14SE (E)	911	-	470435 107271
81	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1898	A12SW (W)	928	-	468556 107405
82	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1963	A14NE (E)	965	-	470516 107898

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Thames Group	A13NW (NW)	0	1	469525 107599
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (NW)	0	1	469525 107599
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19SW (NE)	559	1	470000 108000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A8SW (S)	928	1	469499 106640
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	944	1	469000 106750
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	42	1	469515 107680
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	469519 107586
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	48	1	469534 107670
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	138	1	469361 107483
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	126	1	469343 107588
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	139	1	469359 107484
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	247	1	469257 107442
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	1	469525 107599

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
83	**Contemporary Trade Directory Entries** Name: Mitchell & James Caravans Ltd Location: Unit 4, 6, Larchwood Avenue, HAVANT, Hampshire, PO9 3BE Classification: Caravans - Servicing & Repairs **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	63	-	469581 107680
83	**Contemporary Trade Directory Entries** Name: Window Maker Location: Unit 1, 6, Larchwood Avenue, Havant, Hampshire, PO9 3BE Classification: Window Frame Manufacturers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	66	-	469621 107677
83	**Contemporary Trade Directory Entries** Name: Printer Graphics Ltd Location: Unit 6, 6, Larchwood Avenue, Havant, Hampshire, PO9 3BE Classification: Printers **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (N)	67	-	469555 107684
83	**Contemporary Trade Directory Entries** Name: Printer Graphics Ltd Location: Unit 6, 6, Larchwood Avenue, Havant, PO9 3BE Classification: Printers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A13NE (N)	72	-	469556 107690
83	**Contemporary Trade Directory Entries** Name: C & S M O T Testing Ltd Location: Unit 5, 6, Larchwood Avenue, Havant, PO9 3BE Classification: Mot Testing Centres **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	72	-	469569 107690
84	**Contemporary Trade Directory Entries** Name: Asda Petrol Location: Larchwood Avenue, Havant, Hampshire, PO9 3QW Classification: Petrol Filling Stations **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	146	-	469712 107702
85	**Contemporary Trade Directory Entries** Name: Sparshatts Of Havant Location: Hulbert Road, Havant, Hampshire, PO9 3RH Classification: Car Dealers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	202	-	469791 107650
85	**Contemporary Trade Directory Entries** Name: Victory Vauxhall Location: Hulbert Road, Havant, Hampshire, PO9 3RH Classification: Garage Services **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	230	-	469822 107617
86	**Contemporary Trade Directory Entries** Name: John Inkster Littlepark Ltd Location: Littlepark House, Oakwood Avenue, Havant, Hampshire, PO9 3RB Classification: Builders' Merchants **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	265	-	469507 107305
86	**Contemporary Trade Directory Entries** Name: Headline Printers Ltd Location: The Villa, Littlepark House, Oakwood Avenue, Havant, Hampshire, PO9 3RB Classification: Printers **Status:** **Active** Positional Accuracy: Manually positioned to the address or location	A13SW (S)	266	-	469506 107305
87	**Contemporary Trade Directory Entries** Name: Hmd Domestics Location: 28, Littlepark Avenue, Havant, Hampshire, PO9 3QY Classification: Domestic Appliances - Servicing, Repairs & Parts **Status:** **Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	394	-	469839 107299
88	**Contemporary Trade Directory Entries** Name: The Hampshire Joinery Company Location: 8, Hazelwood Avenue, Havant, Hampshire, PO9 3RE Classification: Homefurnishings - Manufacturers **Status:** **Active** Positional Accuracy: Automatically positioned to the address	A8NE (S)	420	-	469659 107165

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
89	**Contemporary Trade Directory Entries** Name: M J Rose Location: 65, Hillmead Gardens, Havant, Hampshire, PO9 3NN Classification: Power Flushing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	617	-	469564 106955
90	**Contemporary Trade Directory Entries** Name: Sue'S Ace Cleaning Team Ltd Location: 34, St. Christophers Road, Havant, Hampshire, PO9 3TP Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SE (E)	643	-	470227 107518
91	**Contemporary Trade Directory Entries** Name: Amark Catering Equipment Ltd Location: 32, Apollo Drive, Waterlooville, Hampshire, PO7 8AD Classification: Catering Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	744	-	468773 107305
91	**Contemporary Trade Directory Entries** Name: Haymark Catering Equipment Ltd Location: 32, Apollo Drive, Waterlooville, Hampshire, PO7 8AD Classification: Catering Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	744	-	468773 107305
92	**Contemporary Trade Directory Entries** Name: Budgens Vehical Movements Location: 42, Penhurst Road, Havant, Hampshire, PO9 3NX Classification: Breakdown and Recovery **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	745	-	469741 106851
93	**Contemporary Trade Directory Entries** Name: Wilson Flyer Location: 26, Scratchface Lane, Havant, Hampshire, PO9 3NG Classification: Boatbuilders & Repairers **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	762	-	470027 106974
94	**Contemporary Trade Directory Entries** Name: J C B Motorcycle Services Location: 14, Covert Grove, Waterlooville, PO7 8EY Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	766	-	469129 108302
95	**Contemporary Trade Directory Entries** Name: Woodsedge Upholstery Location: 42, Woodsedge, Waterlooville, Hampshire, PO7 8EX Classification: Seating Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A18NW (N)	814	-	469315 108416
96	**Contemporary Trade Directory Entries** Name: Steam Lady Location: 21, Bransgore Avenue, Havant, Hampshire, PO9 4BH Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	839	-	470393 107868
97	**Contemporary Trade Directory Entries** Name: Ian Golds Tackle Developments Ltd Location: 4, Scratchface Lane, Havant, Hampshire, PO9 3NG Classification: Fishing & Angling Equipment - Manufacturers & Distributors **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	862	-	470167 106965
98	**Contemporary Trade Directory Entries** Name: Spx Location: 13, Park Side, Havant, Hampshire, PO9 3PJ Classification: Air Compressors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	871	-	470028 106841
98	**Contemporary Trade Directory Entries** Name: J W Blunden Location: 14, Park Side, Havant, Hampshire, PO9 3PL Classification: Coal & Smokeless Fuel Merchants & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	874	-	469996 106818

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	**Contemporary Trade Directory Entries** Name: B P Service Station Location: 97, Park Lane, Bedhampton, Havant, PO9 3HQ Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	879	-	470470 107659
99	**Contemporary Trade Directory Entries** Name: B P Express Shopping Location: 97, Park Lane, Bedhampton, Havant, PO9 3HQ Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	879	-	470470 107659
100	**Contemporary Trade Directory Entries** Name: Cleaning Services For U Location: 42, Keyhaven Drive, Havant, Hampshire, PO9 4BY Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	882	-	470346 108076
101	**Contemporary Trade Directory Entries** Name: Warrior Animal Feeds Ltd Location: 2, Brooklands Road, Havant, Hampshire, PO9 3NS Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	915	-	469775 106684
102	**Contemporary Trade Directory Entries** Name: Kacimac Location: 21, Betula Close, Waterlooville, Hampshire, PO7 8EG Classification: Metal Finishing Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18NW (N)	923	-	469271 108519
103	**Contemporary Trade Directory Entries** Name: Worth A Clean Location: 4, Zeus Lane, Waterlooville, Hampshire, PO7 8AG Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	941	-	468539 107422
103	**Contemporary Trade Directory Entries** Name: Worth A Clean Ltd Location: 4, Zeus Lane, Waterlooville, Hampshire, PO7 8AG Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	941	-	468539 107422
104	**Contemporary Trade Directory Entries** Name: Beer Clear Cellar Services Ltd Location: 39, Middle Park Way, Havant, Hampshire, PO9 4AB Classification: Catering Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	949	-	470490 107926
105	**Contemporary Trade Directory Entries** Name: Tudor Blinds Location: 50, Park Lane, Bedhampton, Havant, PO9 3HL Classification: Blinds, Awnings & Canopies **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	979	-	470435 107119
106	**Fuel Station Entries** Name: Asda Havant Location: Willowdene Close , Bedhampton , Havant, Hampshire, PO9 3QP Brand: ASDA Premises Type: Hypermarket **Status: Open** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	146	-	469712 107702
107	**Fuel Station Entries** Name: Victory Garage Location: Hulbert Road , Bedhampton , Havant, Hampshire, PO9 3RH Brand: Texaco Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A13NE (E)	230	-	469822 107612

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
108	**Fuel Station Entries** Name: Park Lane Service Station Location: 97, Park Lane Purbrook Way, Bedhampton , Havant, Hampshire, PO9 3HQ Brand: BP Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A14NE (E)	879	-	470470 107659
109	**Points of Interest - Commercial Services** Name: C & S M O T Testing Ltd Location: Unit 5 Larchwood Avenue, Havant, PO9 3BE Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13NE (NE)	65	6	469568 107682
109	**Points of Interest - Commercial Services** Name: Chasmood Ltd Location: Unit 6 6, Larchwood Avenue, Havant, PO9 3BE Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13NE (N)	67	6	469555 107684
110	**Points of Interest - Commercial Services** Name: Car Wash Location: Willowdene Close, Bedhampton, Havant, Hampshire, PO9 3QP Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13NE (NE)	150	6	469711 107709
111	**Points of Interest - Commercial Services** Name: Jack & Splat Mobile Mechanic & Welding Ltd Location: 416 Purbrook Way, Havant, PO9 3SH Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	405	6	469945 107817
112	**Points of Interest - Commercial Services** Name: Budget Car Valeting Location: 34 St. Christophers Road, Havant, PO9 3TP Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14SE (E)	643	6	470227 107518
113	**Points of Interest - Commercial Services** Name: Tasc 2 Location: 11 Laurus Close, Waterlooville, PO7 8EZ Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A17SE (NW)	711	6	469141 108247
113	**Points of Interest - Commercial Services** Name: J C B Motorcycle Services Location: 14 Covert Grove, Waterlooville, PO7 8EY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A17NE (NW)	766	6	469129 108302
114	**Points of Interest - Commercial Services** Name: Park Lane Service Station Location: 97, Park Lane, Bedhampton, Havant, PO9 3HQ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107658
114	**Points of Interest - Commercial Services** Name: B P Car Wash Location: 97 Park Lane, Bedhampton, Havant, PO9 3HQ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107658
114	**Points of Interest - Commercial Services** Name: Car Wash Location: 97 Park Lane, Bedhampton, Havant, PO9 3HQ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107659
115	**Points of Interest - Commercial Services** Name: Mobile Auto Repairs Location: 24 Hulbert Road, Havant, PO9 3TF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A9NE (SE)	915	6	470292 107028

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
116	**Points of Interest - Commercial Services** Name: Andys Mobile Towbars Location: 11 Trojan Way, Waterlooville, PO7 8AL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (W)	933	6	468575 107300
116	**Points of Interest - Commercial Services** Name: Andys Towbars Location: 11 Trojan Way, Waterlooville, PO7 8AL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (W)	934	6	468574 107300
117	**Points of Interest - Commercial Services** Name: D J F Mobile Engineering Services Ltd Location: 15 Midas Close, Waterlooville, PO7 5XR Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (W)	942	6	468528 107532
118	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NW (W)	0	6	469487 107605
118	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	21	6	469460 107635
118	**Points of Interest - Manufacturing and Production** Name: Works Location: PO9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	21	6	469460 107635
119	**Points of Interest - Manufacturing and Production** Name: Works Location: PO9 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	21	6	469569 107638
119	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	22	6	469575 107639
120	**Points of Interest - Public Infrastructure** Name: Havant Supercentre Location: Purbrook Way, Havant, PO9 3QW Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NE (NE)	122	6	469687 107695
120	**Points of Interest - Public Infrastructure** Name: Asda Petrol Location: Larchwood Avenue, Havant, PO9 3QW Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NE (NE)	146	6	469712 107702
120	**Points of Interest - Public Infrastructure** Name: Asda Havant Location: Willowdene Close, Bedhampton, Havant, PO9 3QP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NE (NE)	146	6	469712 107702
121	**Points of Interest - Public Infrastructure** Name: BP Service Station Location: 97 Park Lane, Bedhampton, Havant, PO9 3HQ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107659

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
121	**Points of Interest - Public Infrastructure** Name: BP Express Shopping Location: 97 Park Lane, Bedhampton, Havant, PO9 3HQ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107658
121	**Points of Interest - Public Infrastructure** Name: Park Lane Service Station Location: 97 Park Lane, Bedhampton, Havant, PO9 3HQ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107659
121	**Points of Interest - Public Infrastructure** Name: Park Lane Connect Location: 97 Park Lane, Bedhampton, Havant, PO9 3HQ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NE (E)	879	6	470470 107659
122	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	530	6	469984 107974
122	**Points of Interest - Recreational and Environmental** Name: Playground Location: Plaitford Grove, PO9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A19SW (NE)	535	6	469991 107975
123	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9NW (SE)	706	6	469929 106973
123	**Points of Interest - Recreational and Environmental** Name: Playground Location: Scratchface Lane, PO9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9NW (SE)	710	6	469937 106974
124	**Points of Interest - Recreational and Environmental** Name: Playground Location: Tor Close, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A12SW (W)	732	6	468749 107434
125	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	753	6	469299 108350
125	**Points of Interest - Recreational and Environmental** Name: Playground Location: Woodsedge, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	753	6	469299 108350
126	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	863	6	469038 108364
126	**Points of Interest - Recreational and Environmental** Name: Playground Location: Coltsfoot Drive, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	863	6	469038 108364

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
127	**Points of Interest - Recreational and Environmental** Name: Playground Location: Sage Close, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A18NW (N)	908	6	469272 108503
127	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	909	6	469271 108504
127	**Points of Interest - Recreational and Environmental** Name: Playground Location: Sage Close, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	909	6	469271 108504
127	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	934	6	469302 108536
127	**Points of Interest - Recreational and Environmental** Name: Playground Location: Sage Close, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	934	6	469302 108536
128	**Points of Interest - Recreational and Environmental** Name: Playground Location: Springwood Avenue, PO7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A17NE (NW)	973	6	469037 108488
128	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	978	6	469032 108491

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
129	**Ancient Woodland** Name: Not Supplied Reference: 1489389 Area(m²): 11336.1 Type: Ancient and Semi-Natural Woodland	A13SE (S)	214	7	469536 107357
130	**Ancient Woodland** Name: Not Supplied Reference: 1488333 Area(m²): 15356.02 Type: Ancient and Semi-Natural Woodland	A13SW (SW)	223	7	469414 107354
131	**Ancient Woodland** Name: Not Supplied Reference: 1487521 Area(m²): 49712.64 Type: Ancient and Semi-Natural Woodland	A13SW (W)	238	7	469239 107507
132	**Ancient Woodland** Name: Not Supplied Reference: 1489262 Area(m²): 32441.88 Type: Plantation on Ancient Woodland	A8NW (S)	344	7	469512 107227
133	**Ancient Woodland** Name: Not Supplied Reference: 1487374 Area(m²): 20019.65 Type: Plantation on Ancient Woodland	A12SE (W)	349	7	469120 107587
134	**Ancient Woodland** Name: Not Supplied Reference: 1489383 Area(m²): 68501.86 Type: Ancient and Semi-Natural Woodland	A12NE (W)	431	7	469062 107754
135	**Ancient Woodland** Name: Not Supplied Reference: 1488854 Area(m²): 4580.05 Type: Plantation on Ancient Woodland	A17SE (NW)	504	7	469106 107964
136	**Ancient Woodland** Name: Not Supplied Reference: 1489661 Area(m²): 4918.42 Type: Plantation on Ancient Woodland	A18SE (N)	542	7	469549 108159
137	**Ancient Woodland** Name: Not Supplied Reference: 1487795 Area(m²): 11747.05 Type: Ancient and Semi-Natural Woodland	A12SE (W)	555	7	468913 107593
138	**Ancient Woodland** Name: Not Supplied Reference: 1488467 Area(m²): 6374.51 Type: Ancient and Semi-Natural Woodland	A18SE (N)	598	7	469599 108216
139	**Ancient Woodland** Name: Not Supplied Reference: 1487890 Area(m²): 11964.43 Type: Ancient and Semi-Natural Woodland	A19SW (NE)	640	7	469908 108174
140	**Ancient Woodland** Name: Not Supplied Reference: 1487282 Area(m²): 5129.91 Type: Ancient and Semi-Natural Woodland	A18NE (N)	675	7	469645 108291
141	**Ancient Woodland** Name: Not Supplied Reference: 1488523 Area(m²): 57541.38 Type: Ancient and Semi-Natural Woodland	A18NE (N)	702	7	469582 108323
142	**Ancient Woodland** Name: Bushy Lease Reference: 1488631 Area(m²): 28716.02 Type: Ancient and Semi-Natural Woodland	A18NE (N)	755	7	469799 108344

Sensitive Land Use

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
143	**Ancient Woodland** Name: Not Supplied Reference: 1489660 Area(m²): 1312.4 Type: Ancient and Semi-Natural Woodland	A19NW (NE)	795	7	469992 108306
144	**Nitrate Vulnerable Zones** Name: Chichester,Langstone And Portsmouth Harbours Eutrophic Nvz (Trac) Description: Eutrophic Water Source: Environment Agency, Head Office	A13NW (NW)	0	8	469525 107599

deltasimons

Data Currency

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
East Hampshire District Council - Environmental Health Department	January 2015	Annual Rolling Update
Havant Borough Council - Environmental Health Department	January 2015	Annual Rolling Update
Chichester District Council - Environmental Health Department	July 2013	Annual Rolling Update
Portsmouth City Council - Health and Trading Standards	October 2014	Annual Rolling Update
Winchester City Council - Environmental Health Department	September 2014	Annual Rolling Update
Discharge Consents		
Environment Agency - Southern Region	April 2018	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Southern Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - Southern Region	October 2008	Variable
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - Solent & South Downs Area	April 2018	Quarterly
Environment Agency - Southern Region	April 2018	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Portsmouth City Council - Environmental Health Department	August 2014	Variable
East Hampshire District Council - Environmental Health Department	December 2014	Variable
Winchester City Council - Environmental Health Department	December 2014	Variable
Havant Borough Council - Environmental Health Department	December 2015	Variable
Chichester District Council - Environmental Health Department	October 2014	Variable
Local Authority Pollution Prevention and Controls		
Portsmouth City Council - Environmental Health Department	August 2014	Annual Rolling Update
East Hampshire District Council - Environmental Health Department	December 2014	Annual Rolling Update
Winchester City Council - Environmental Health Department	December 2014	Annual Rolling Update
Havant Borough Council - Environmental Health Department	December 2015	Annual Rolling Update
Chichester District Council - Environmental Health Department	October 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Portsmouth City Council - Environmental Health Department	August 2014	Variable
East Hampshire District Council - Environmental Health Department	December 2014	Variable
Winchester City Council - Environmental Health Department	December 2014	Variable
Havant Borough Council - Environmental Health Department	December 2015	Variable
Chichester District Council - Environmental Health Department	October 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	September 2017	
Pollution Incidents to Controlled Waters		
Environment Agency - Southern Region	December 1999	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - Southern Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - Southern Region	March 2013	As notified
Registered Radioactive Substances		
Environment Agency - Southern Region	January 2015	
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually

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Data Currency

Agency & Hydrological	Version	Update Cycle
Substantiated Pollution Incident Register		
Environment Agency - South East Region - Solent & South Downs Area	April 2018	Quarterly
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	April 2018	Quarterly
Environment Agency - Southern Region - Solent and South Downs	April 2018	Quarterly
Environment Agency - Southern Region - Sussex Area	April 2018	Quarterly
Water Abstractions		
Environment Agency - Southern Region	April 2018	Quarterly
Water Industry Act Referrals		
Environment Agency - Southern Region	October 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones		
Environment Agency - Head Office	January 2018	Quarterly
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	February 2018	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	February 2018	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	February 2018	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	February 2018	Quarterly
Flood Defences		
Environment Agency - Head Office	February 2018	Quarterly
OS Water Network Lines		
Ordnance Survey	January 2018	Quarterly
Surface Water 1 in 30 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability		
Environment Agency - Head Office	October 2013	As notified
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	As notified

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Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	April 2018	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Southern Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - Solent & South Downs Area	April 2018	Quarterly
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	April 2018	Quarterly
Environment Agency - Southern Region - Solent and South Downs	April 2018	Quarterly
Environment Agency - Southern Region - Sussex Area	April 2018	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - Solent & South Downs Area	April 2018	Quarterly
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	April 2018	Quarterly
Environment Agency - Southern Region - Solent and South Downs	April 2018	Quarterly
Environment Agency - Southern Region - Sussex Area	April 2018	Quarterly
Local Authority Landfill Coverage		
Chichester District Council - Environmental Health Department	May 2000	Not Applicable
East Hampshire District Council	May 2000	Not Applicable
Hampshire County Council - Minerals and Waste Planning	May 2000	Not Applicable
Havant Borough Council - Environmental Health Department	May 2000	Not Applicable
Portsmouth City Council - Environmental Health Department	May 2000	Not Applicable
West Sussex County Council - Environment & Development	May 2000	Not Applicable
Winchester City Council - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Chichester District Council - Environmental Health Department	May 2000	Not Applicable
East Hampshire District Council	May 2000	Not Applicable
Hampshire County Council - Minerals and Waste Planning	May 2000	Not Applicable
Havant Borough Council - Environmental Health Department	May 2000	Not Applicable
Portsmouth City Council - Environmental Health Department	May 2000	Not Applicable
West Sussex County Council - Environment & Development	May 2000	Not Applicable
Winchester City Council - Environmental Health Department	May 2000	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency - Southern Region - Hampshire Area	March 2003	Not Applicable
Environment Agency - Southern Region - Solent and South Downs	March 2003	Not Applicable
Environment Agency - Southern Region - Sussex Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Southern Region - Hampshire Area	March 2003	Not Applicable
Environment Agency - Southern Region - Solent and South Downs	March 2003	Not Applicable
Environment Agency - Southern Region - Sussex Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Southern Region - Hampshire Area	March 2003	Not Applicable
Environment Agency - Southern Region - Solent and South Downs	March 2003	Not Applicable
Environment Agency - Southern Region - Sussex Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	September 2017	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Variable
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Chichester District Council - Planning Department	February 2016	Variable
East Hampshire District Council	February 2016	Variable
Hampshire County Council - Minerals and Waste Planning	February 2016	Variable
Havant Borough Council - Commercial Team	February 2016	Variable
Portsmouth City Council - Planning Office	February 2016	Variable
West Sussex County Council - Environment & Development	October 2006	Annual Rolling Update
Winchester City Council - Planning Department	October 2015	Variable
Planning Hazardous Substance Consents		
Chichester District Council - Planning Department	February 2016	Variable
East Hampshire District Council	February 2016	Variable
Hampshire County Council - Minerals and Waste Planning	February 2016	Variable
Havant Borough Council - Commercial Team	February 2016	Variable
Portsmouth City Council - Planning Office	February 2016	Variable
West Sussex County Council - Environment & Development	October 2006	Annual Rolling Update
Winchester City Council - Planning Department	October 2015	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	May 2018	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	February 2018	Quarterly
Fuel Station Entries Catalist Ltd - Experian	April 2018	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	March 2018	Quarterly
Points of Interest - Education and Health PointX	March 2018	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2018	Quarterly
Points of Interest - Public Infrastructure PointX	March 2018	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2018	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	October 2017	Bi-Annually
Areas of Outstanding Natural Beauty Natural England	February 2018	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2018	Bi-Annually
Marine Nature Reserves Natural England	January 2018	Bi-Annually
National Nature Reserves Natural England	February 2018	Bi-Annually
National Parks Natural England	April 2017	Bi-Annually
Nitrate Vulnerable Zones Environment Agency - Head Office Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2017 October 2015	Bi-Annually
Ramsar Sites Natural England	February 2018	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2018	Bi-Annually
Special Areas of Conservation Natural England	January 2018	Bi-Annually
Special Protection Areas Natural England	February 2018	Bi-Annually

Data Suppliers

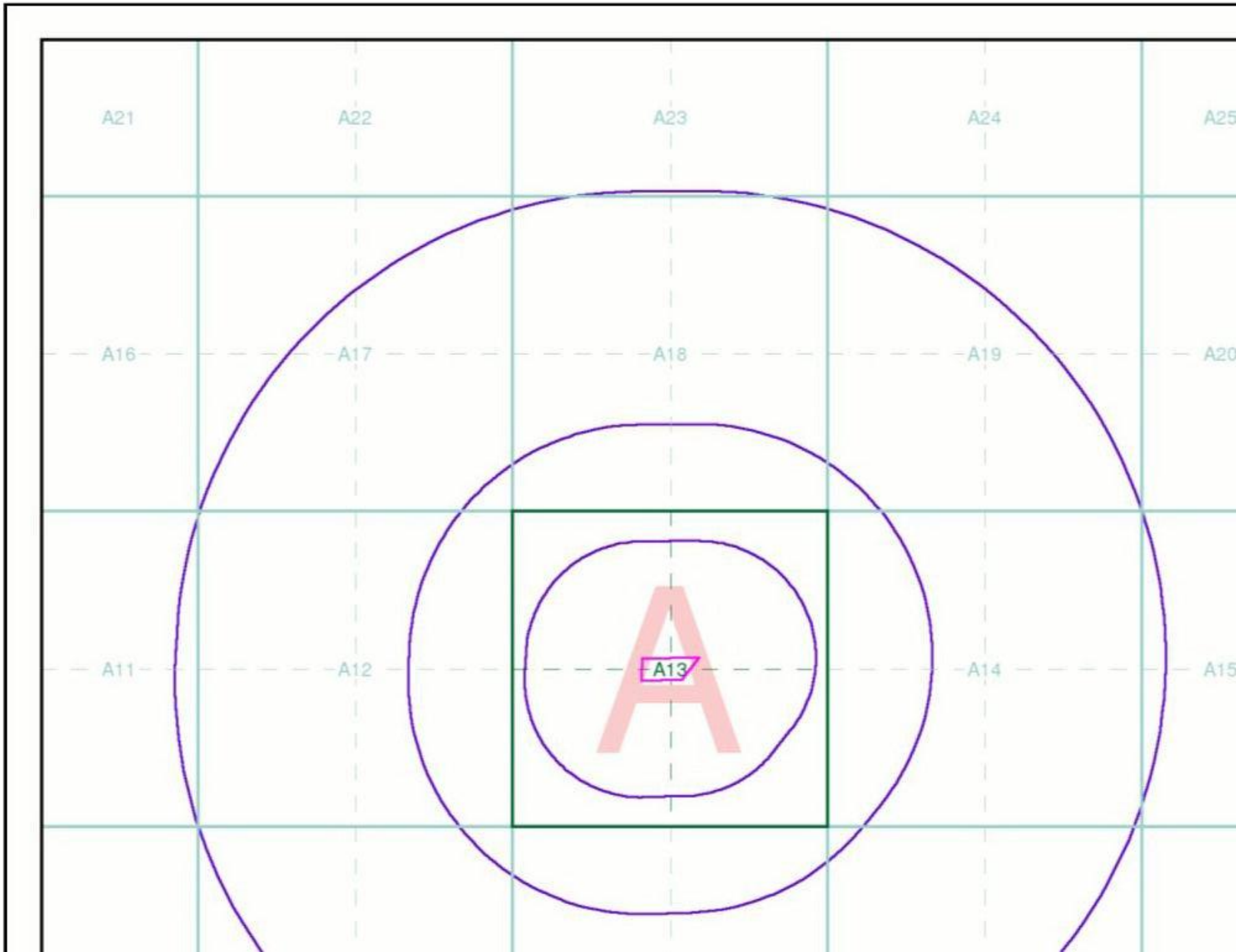
A selection of organisations who provide data within this report

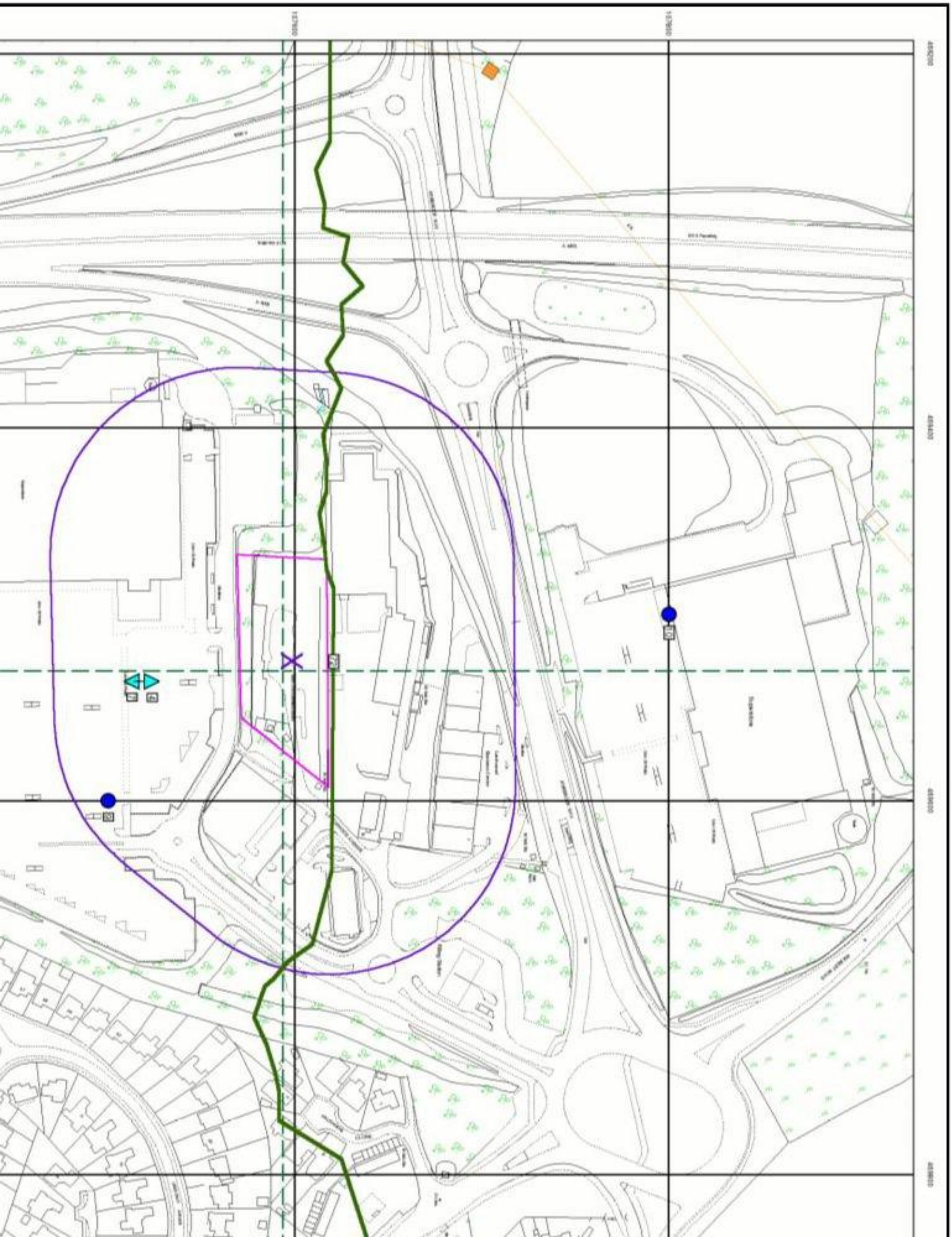
Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

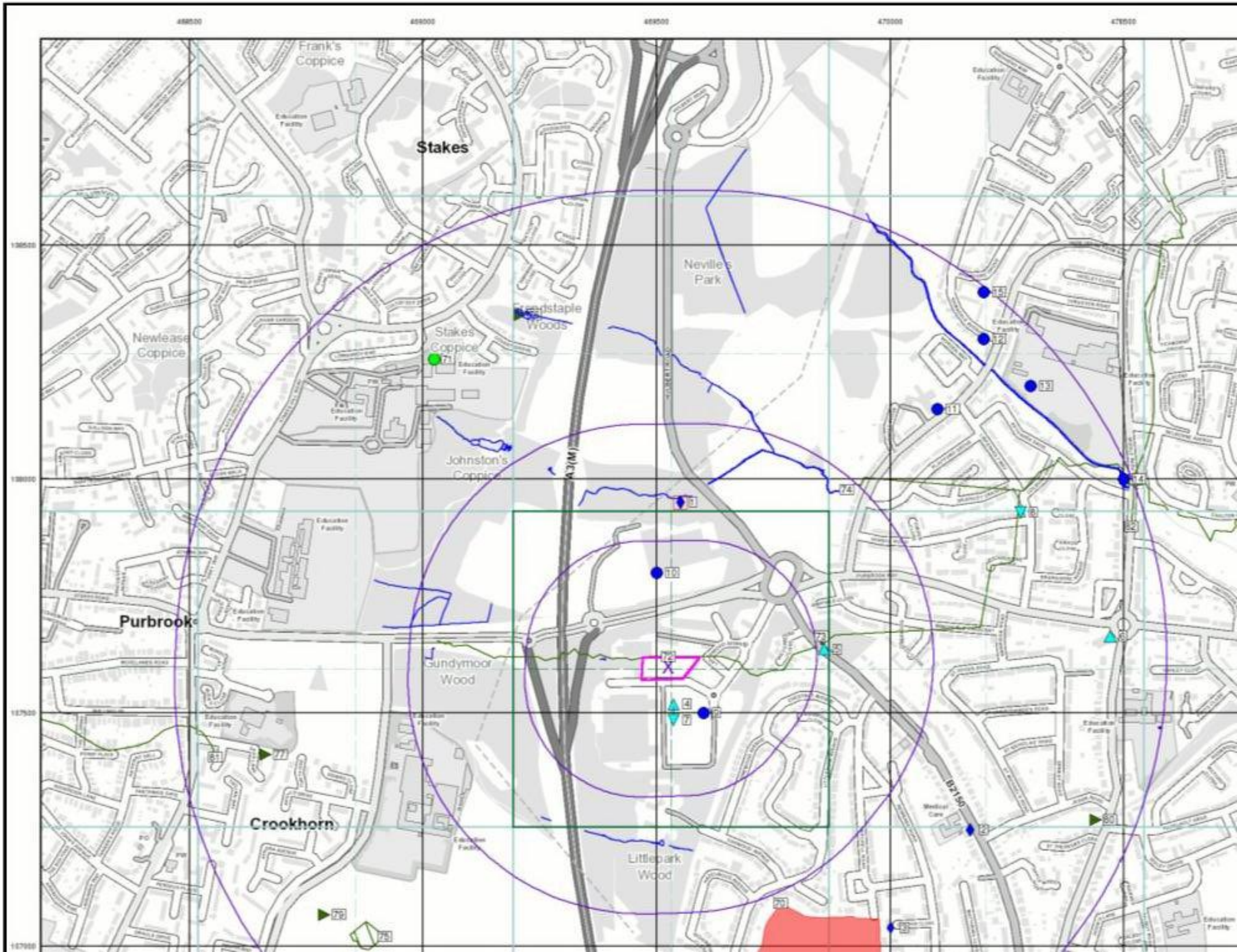
Useful Contacts

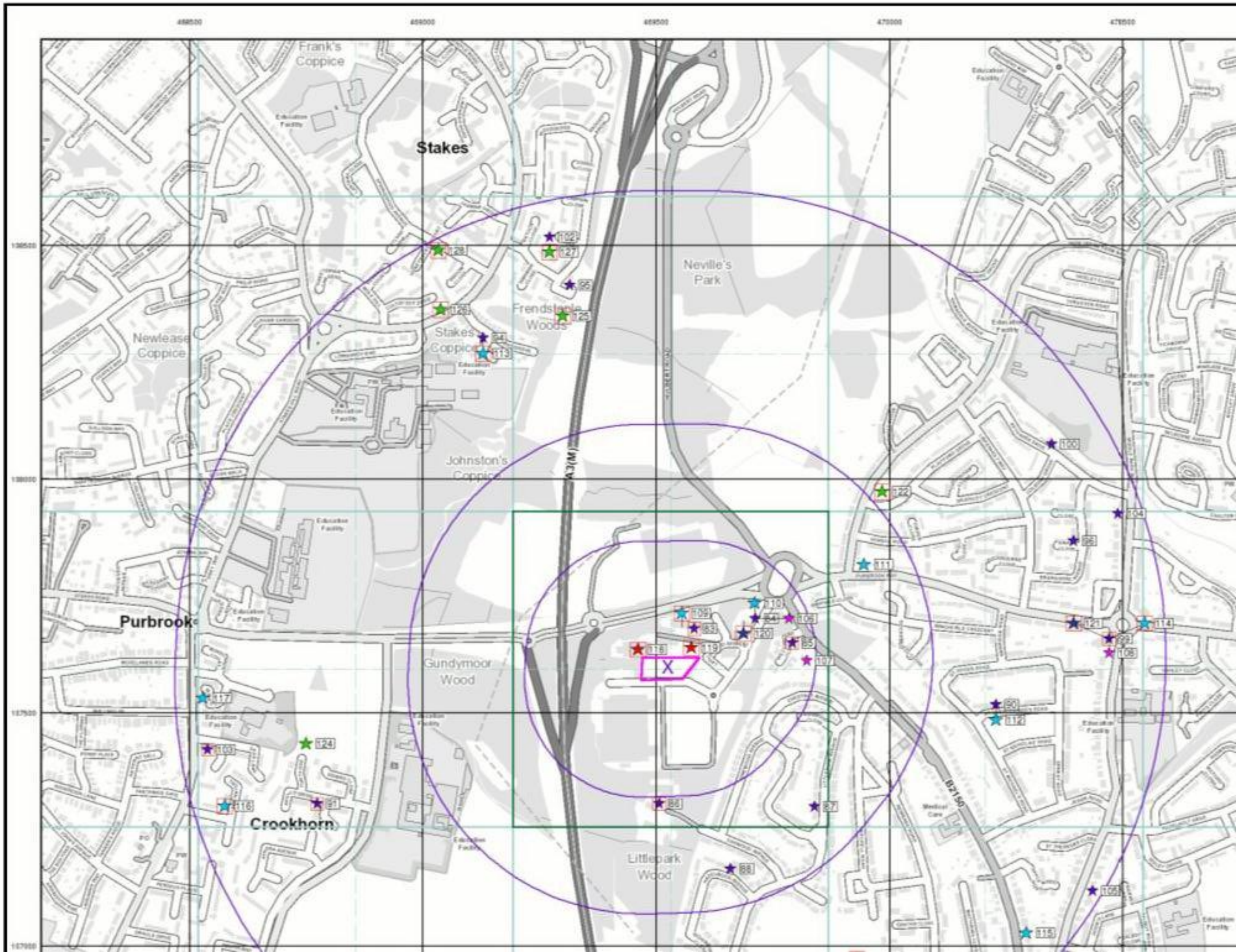
Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Havant Borough Council - Environmental Health Department** Public Service PLaza, Civic Centre Road, Havant, Hampshire, PO9 2AX	Telephone: 023 9244 6677 Email: env.services@havant.gov.uk Website: www.havant.gov.uk
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Hampshire County Council - Minerals and Waste Planning** Room 130, Ashburton Court West, The Castle, Winchester, Hampshire, SO23 8UD	Telephone: 01962 841841 Fax: 01962 847055 Website: www.hants.gov.uk
6	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
7	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
8	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

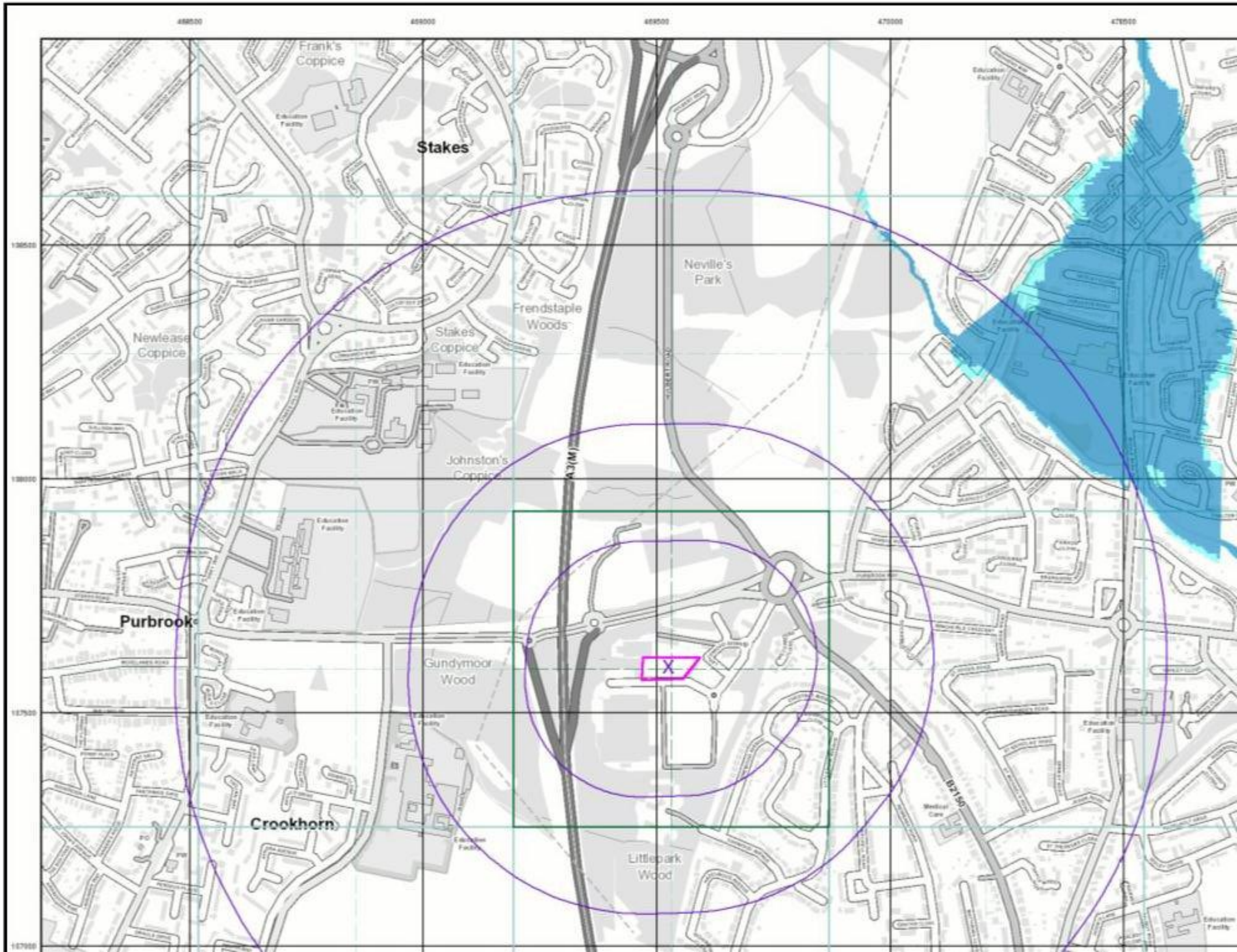
Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

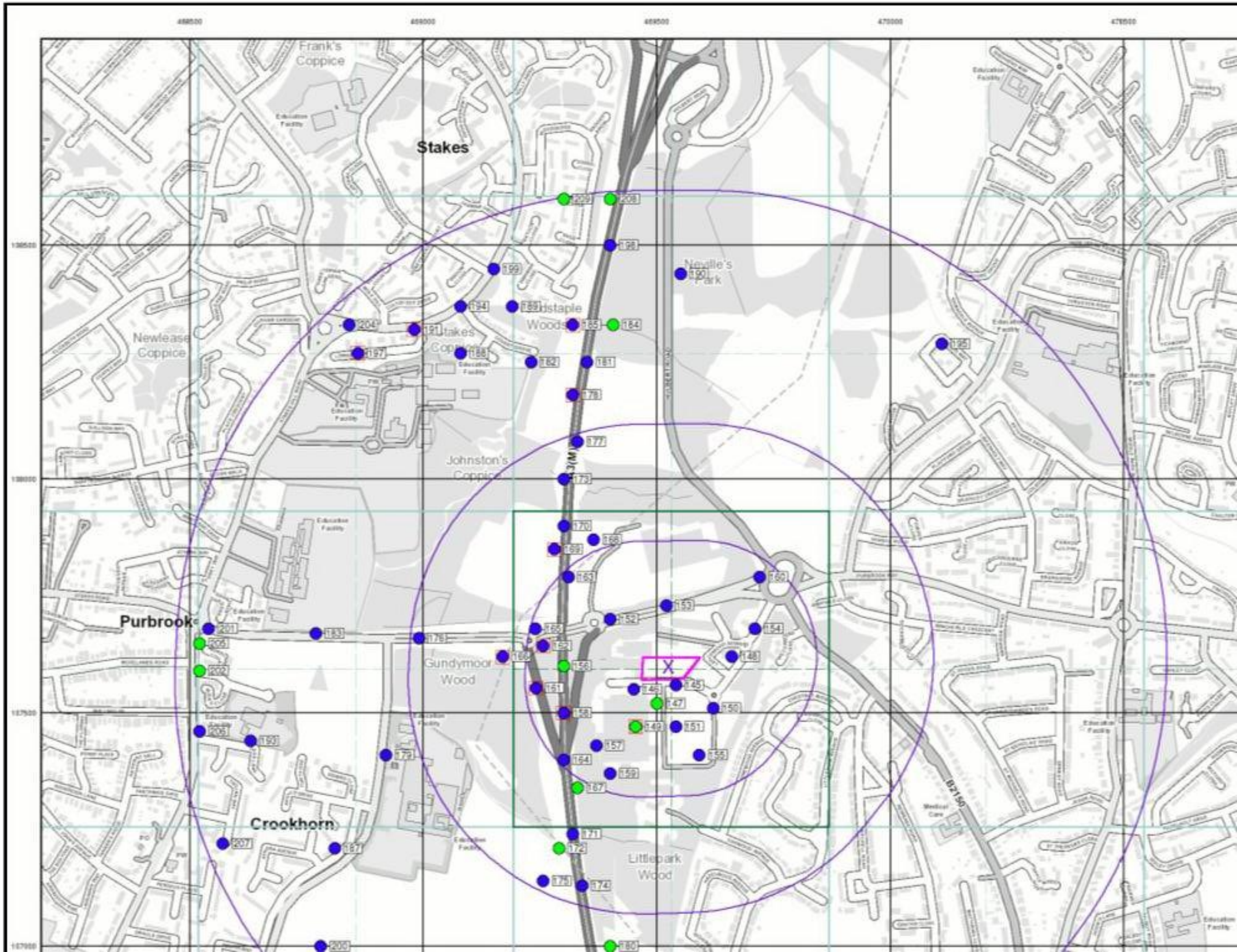

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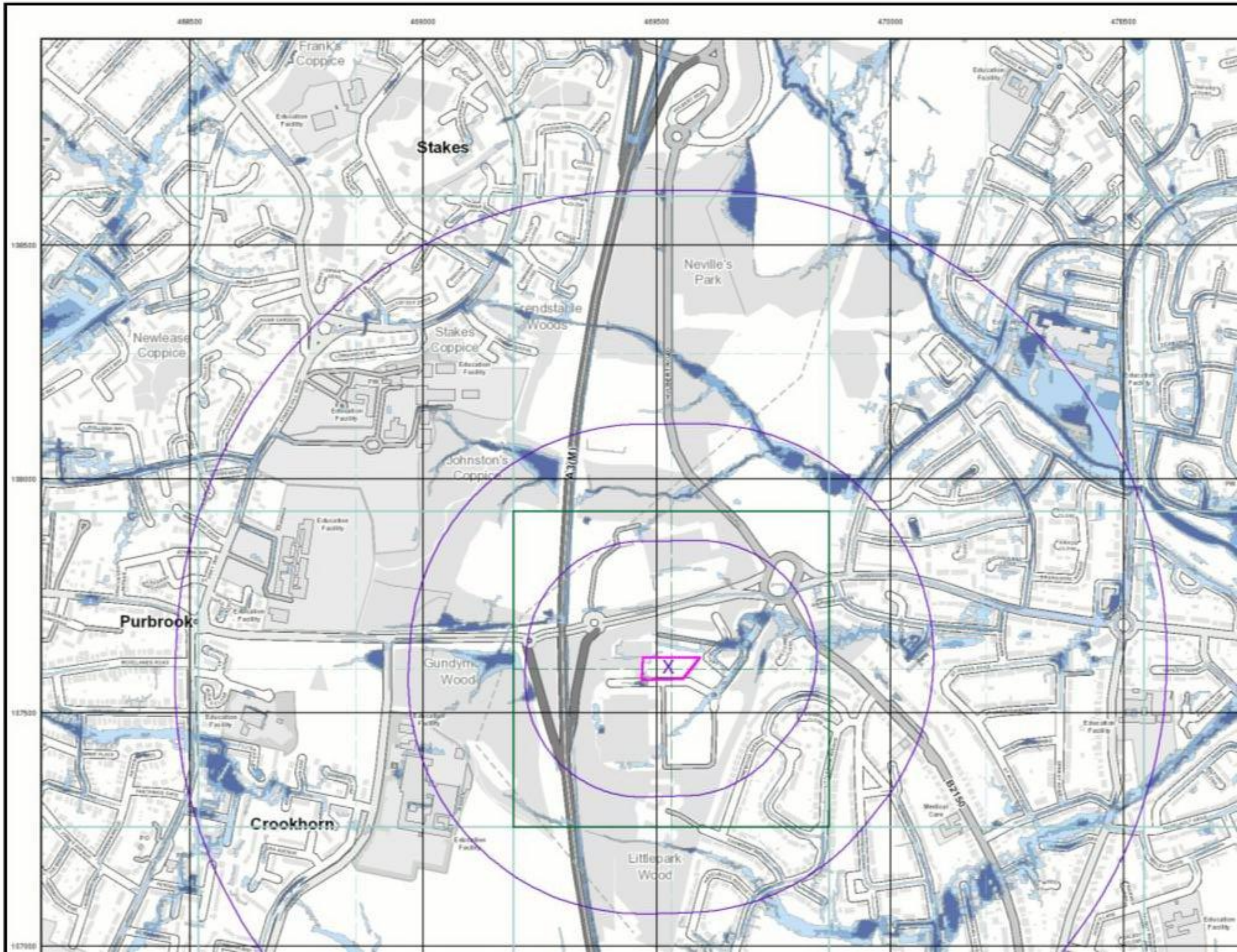

Frank's Coppice
Stakes
Neville's Park
Newlease Coppice
Stakes Coppice
Johnston's Coppice
Purbrook
Gundymoor Wood
Crookhorn
Littlepark Wood
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Education Facility

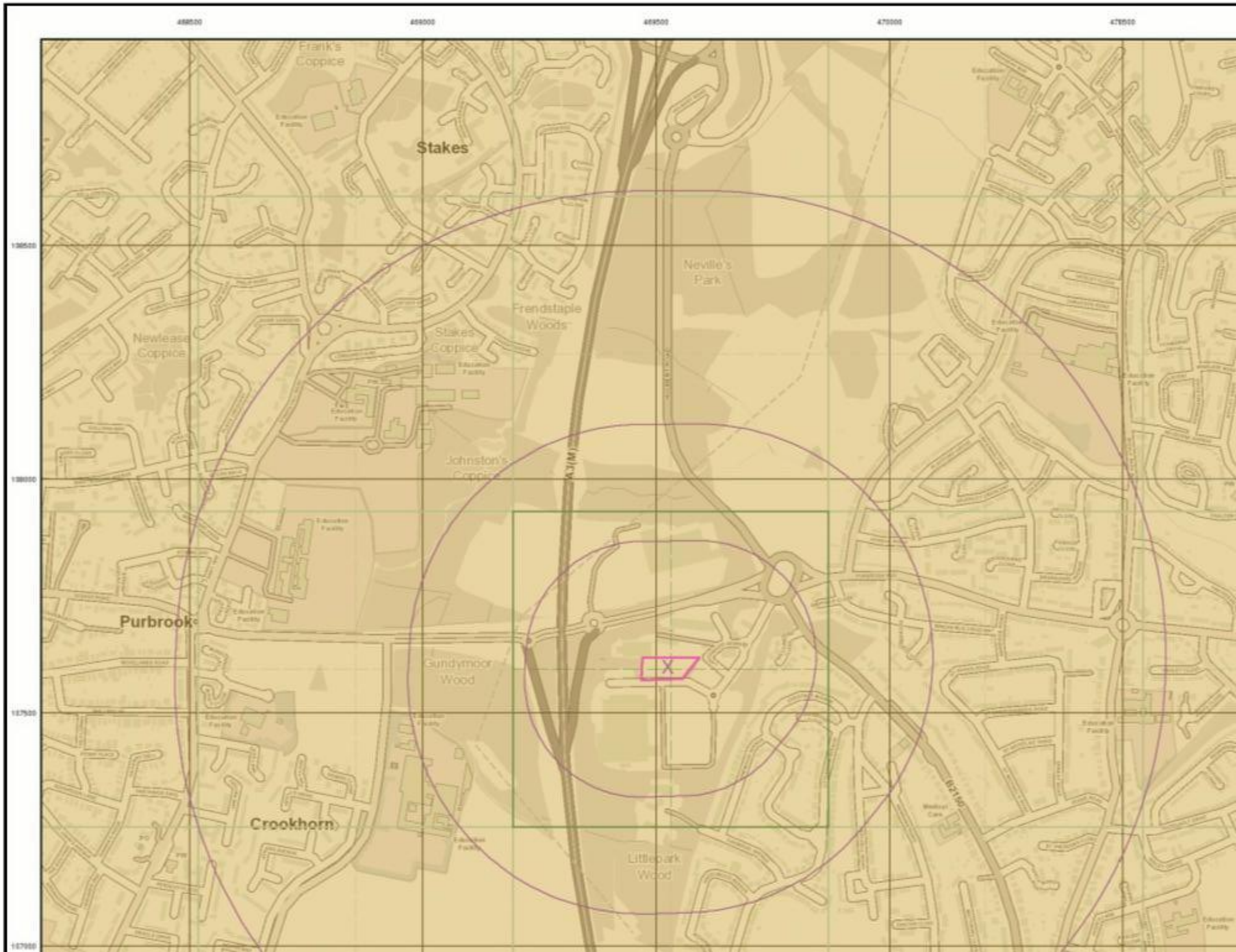

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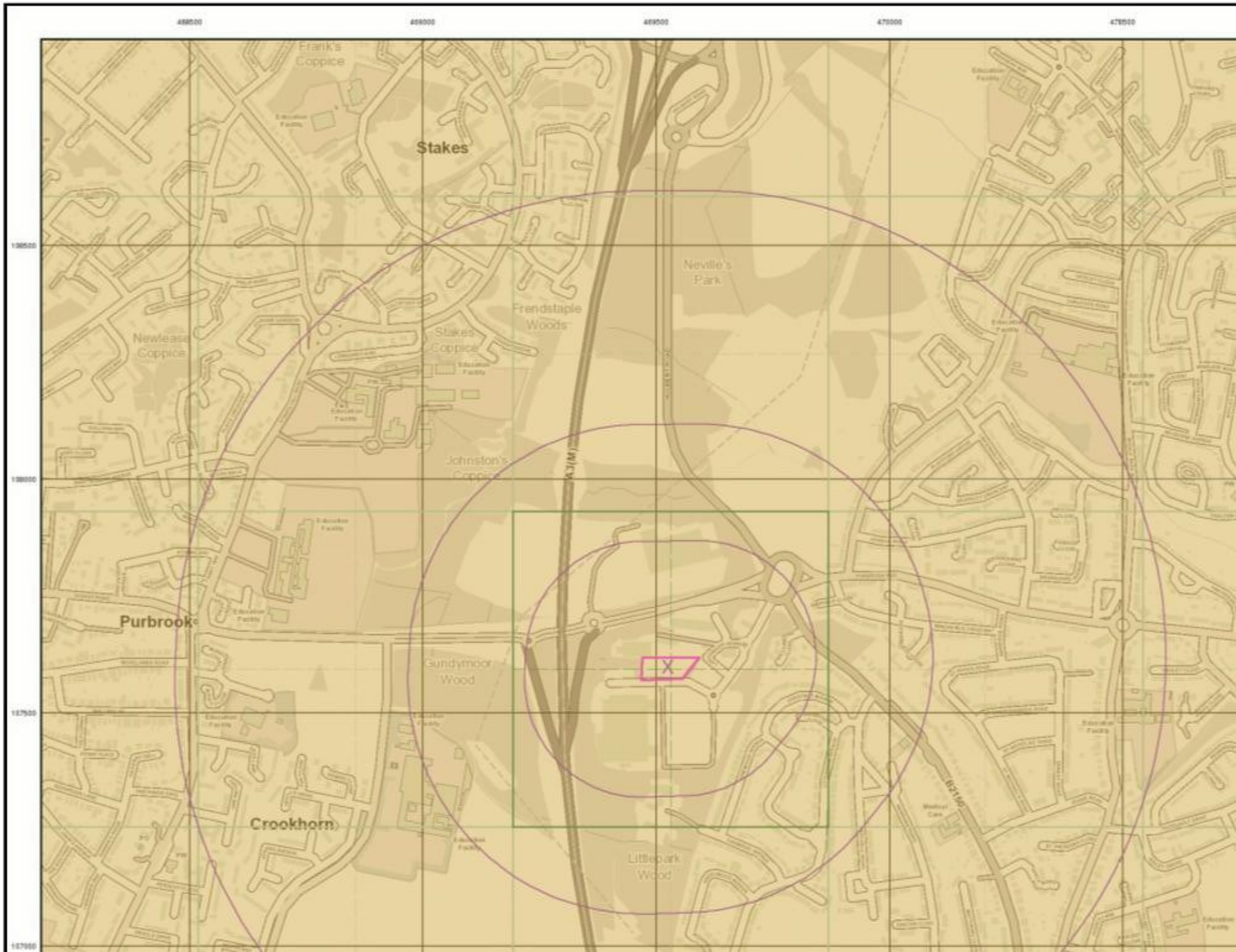

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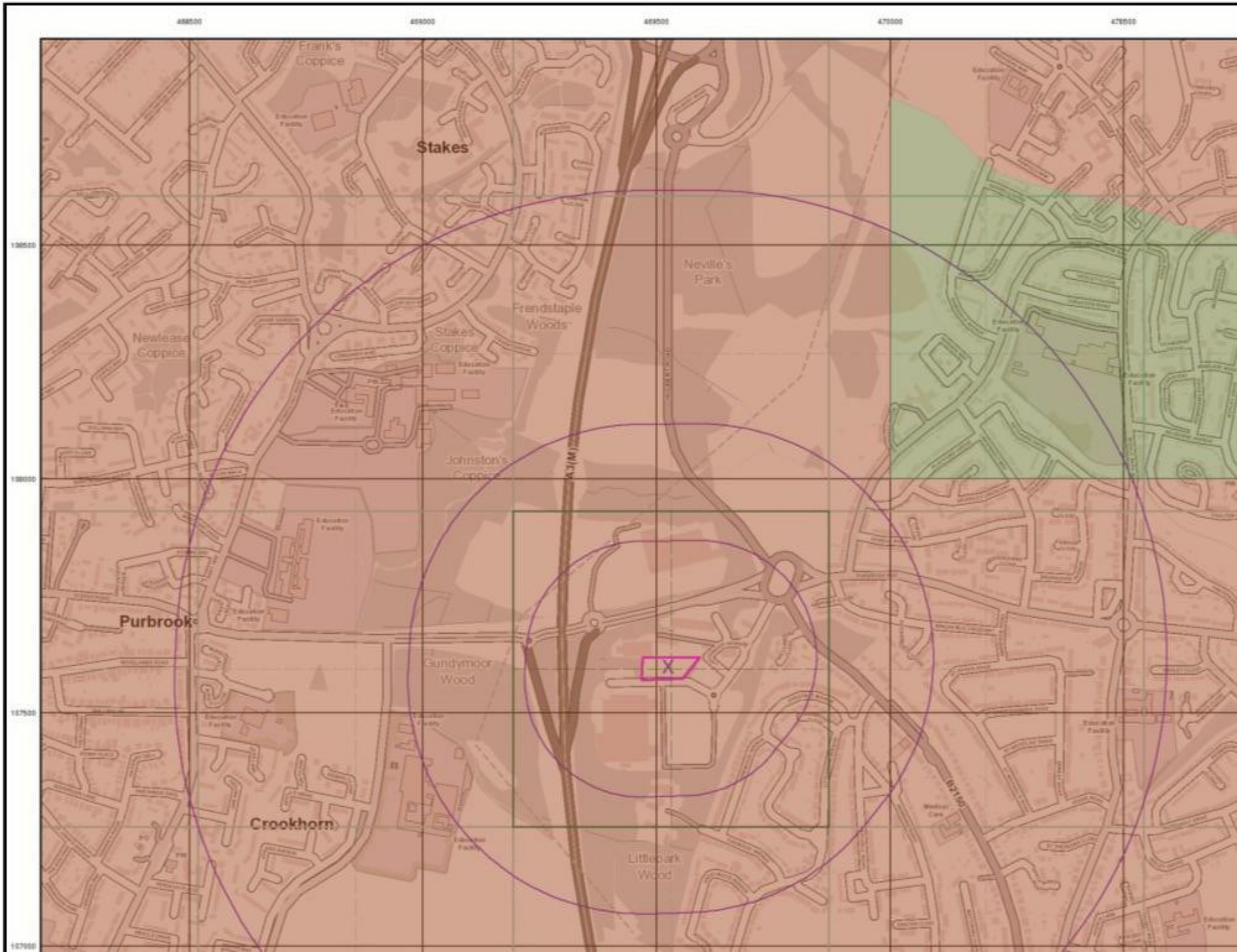

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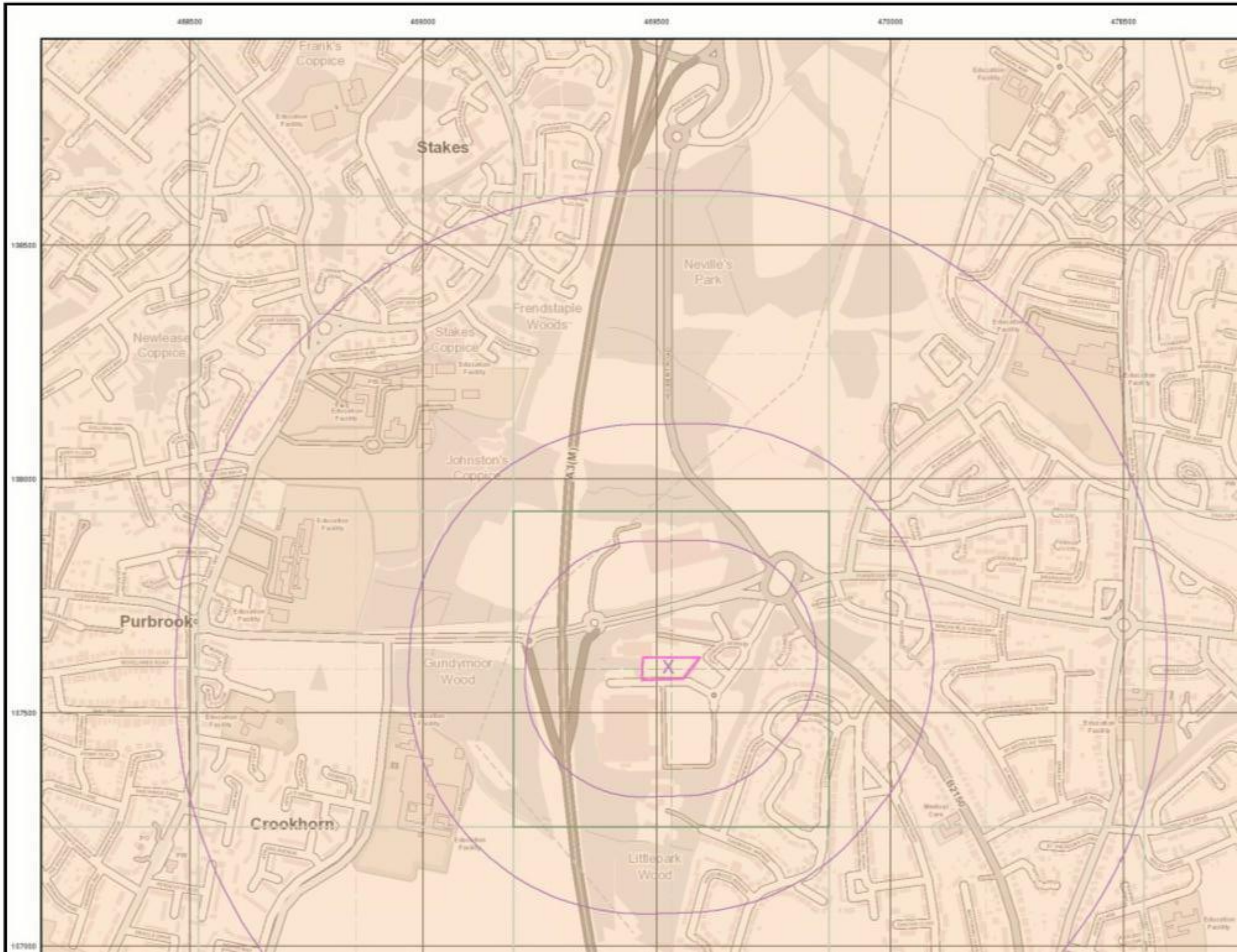

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Frank's Coppice
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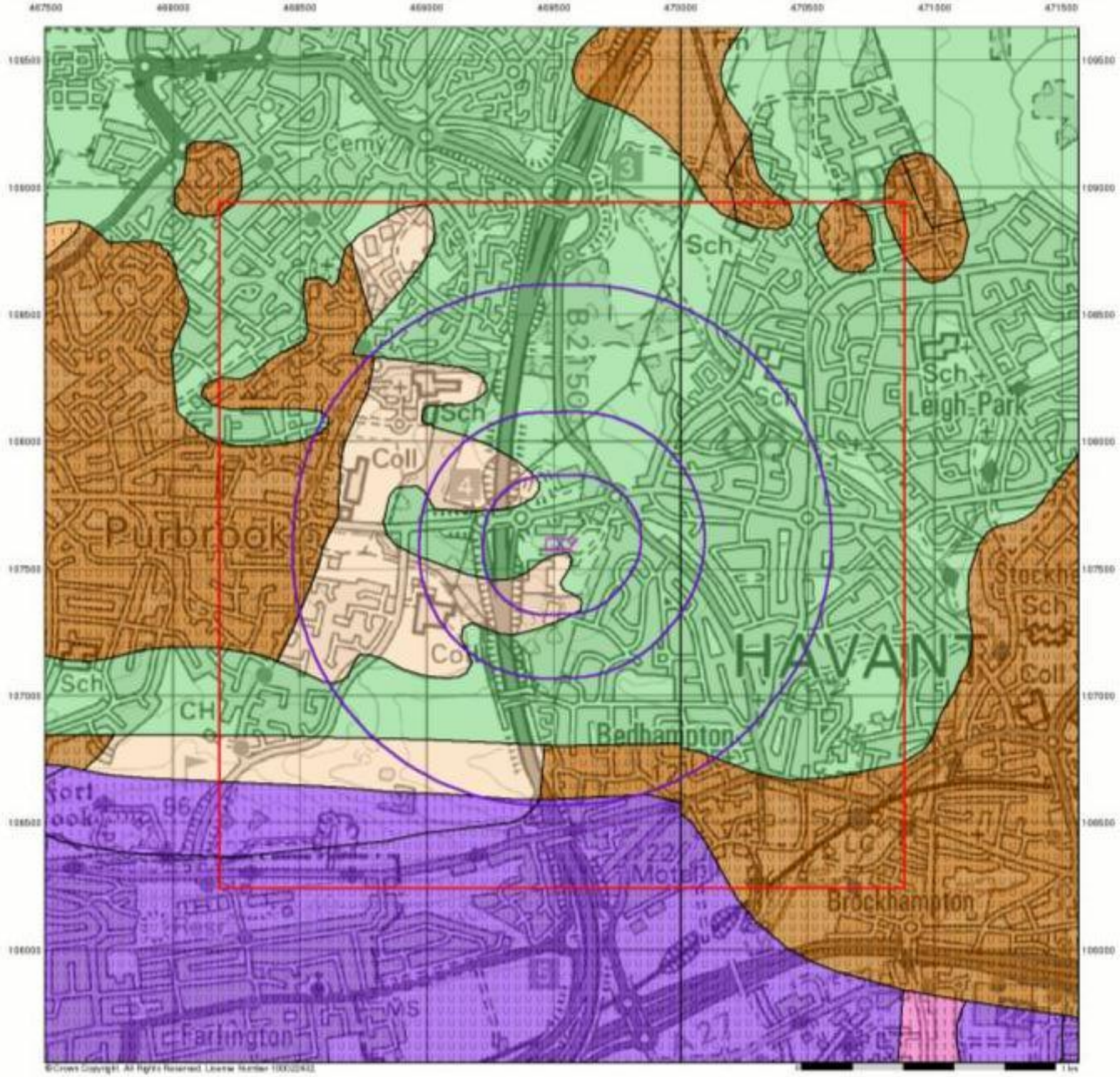

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Newlease Coppice
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Stakes Coppice
Johnston's Coppice
Purbrook
Gundymoor Wood
X
Crookhorn
Littlepark Wood



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Groundwater Vulnerability

General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A

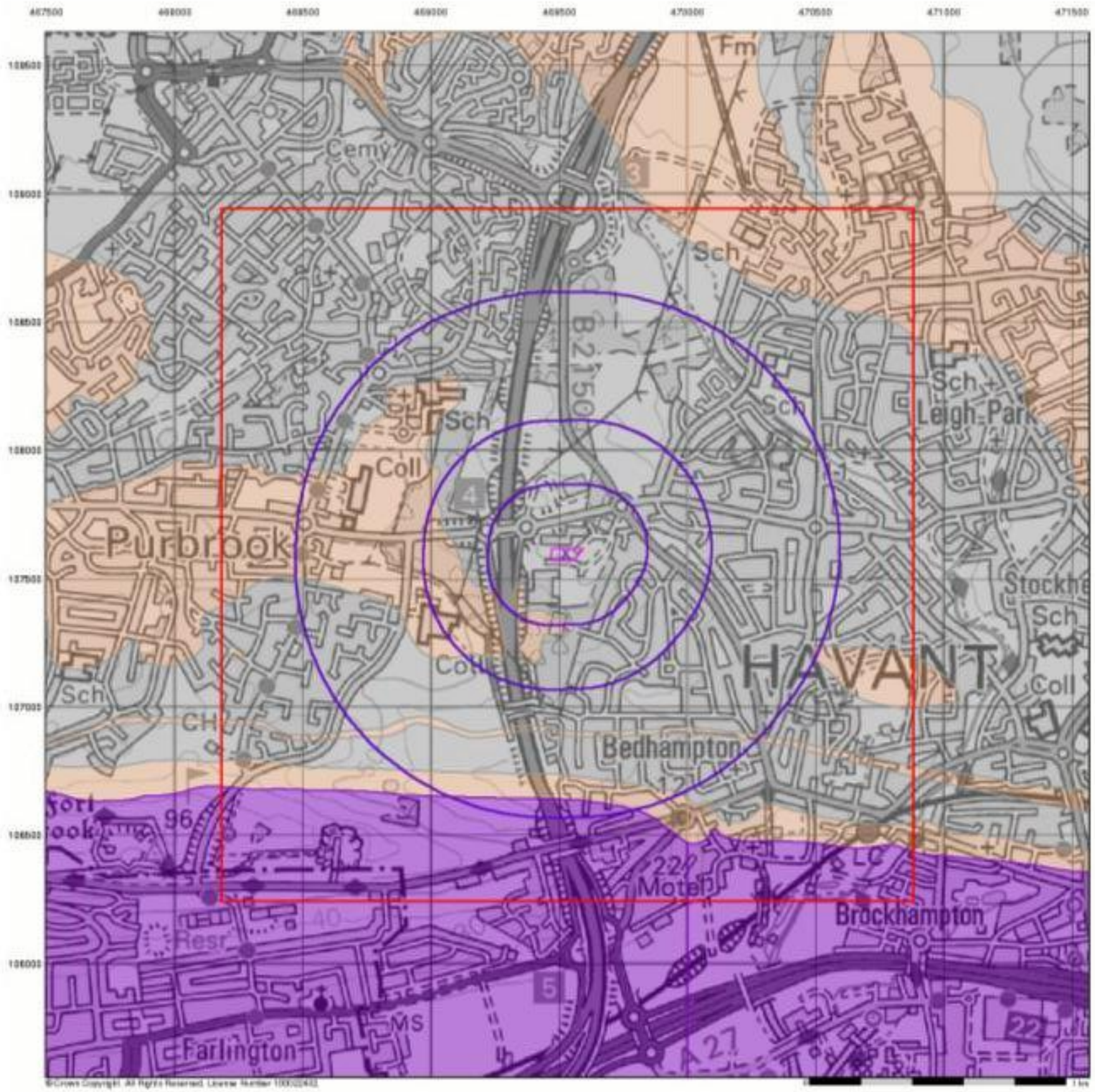


Order Details

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Customer Ref:	18-0609.01
National Grid Reference:	469530, 107600
Slice:	A
Site Area (Ha):	0.5
Search Buffer (m):	1000

Site Details

Eaton Corporation, Larchwood Avenue, Bedhampton, HAVANT, PO9 3QL



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Bedrock Aquifer Designation

General

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

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A

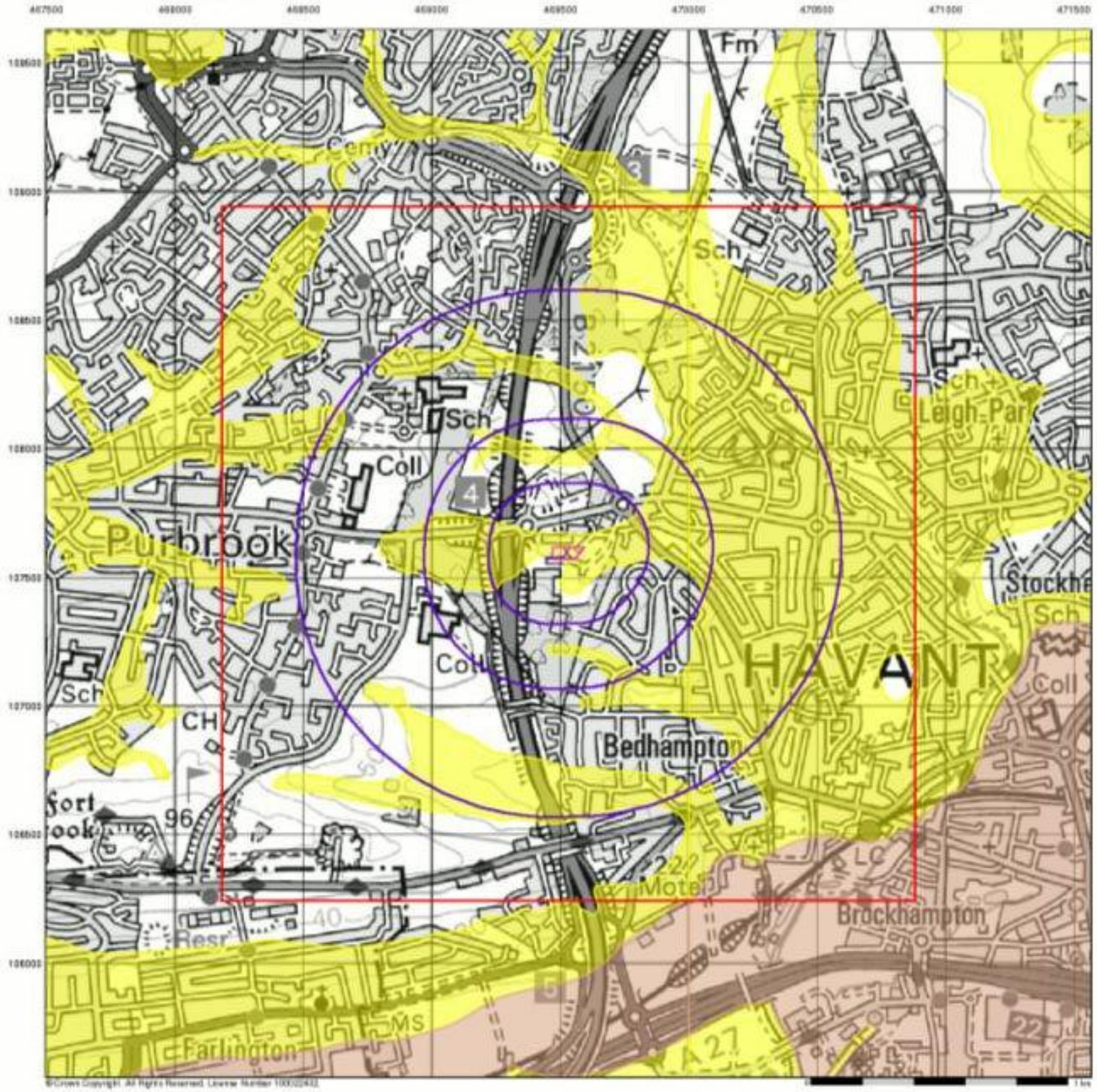


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Site Area (Ha):	0.5
Search Buffer (m):	1000

Site Details

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Superficial Aquifer Designation

General

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

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A

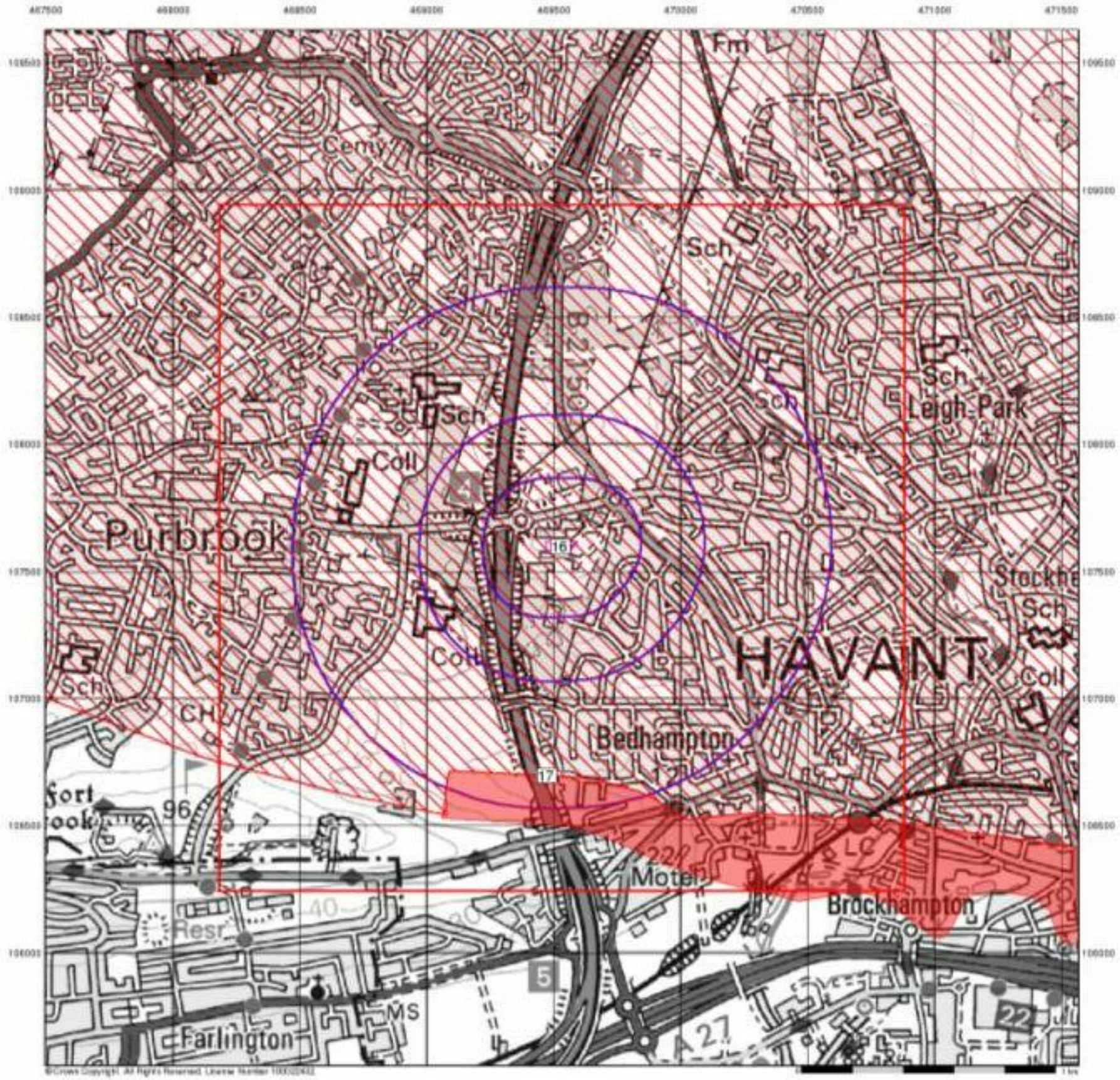


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Slice:	A
Site Area (Ha):	0.5
Search Buffer (m):	1000

Site Details

Eaton Corporation, Larchwood Avenue, Bedhampton, HAVANT, PO9 3QL



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Source Protection Zones

General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A

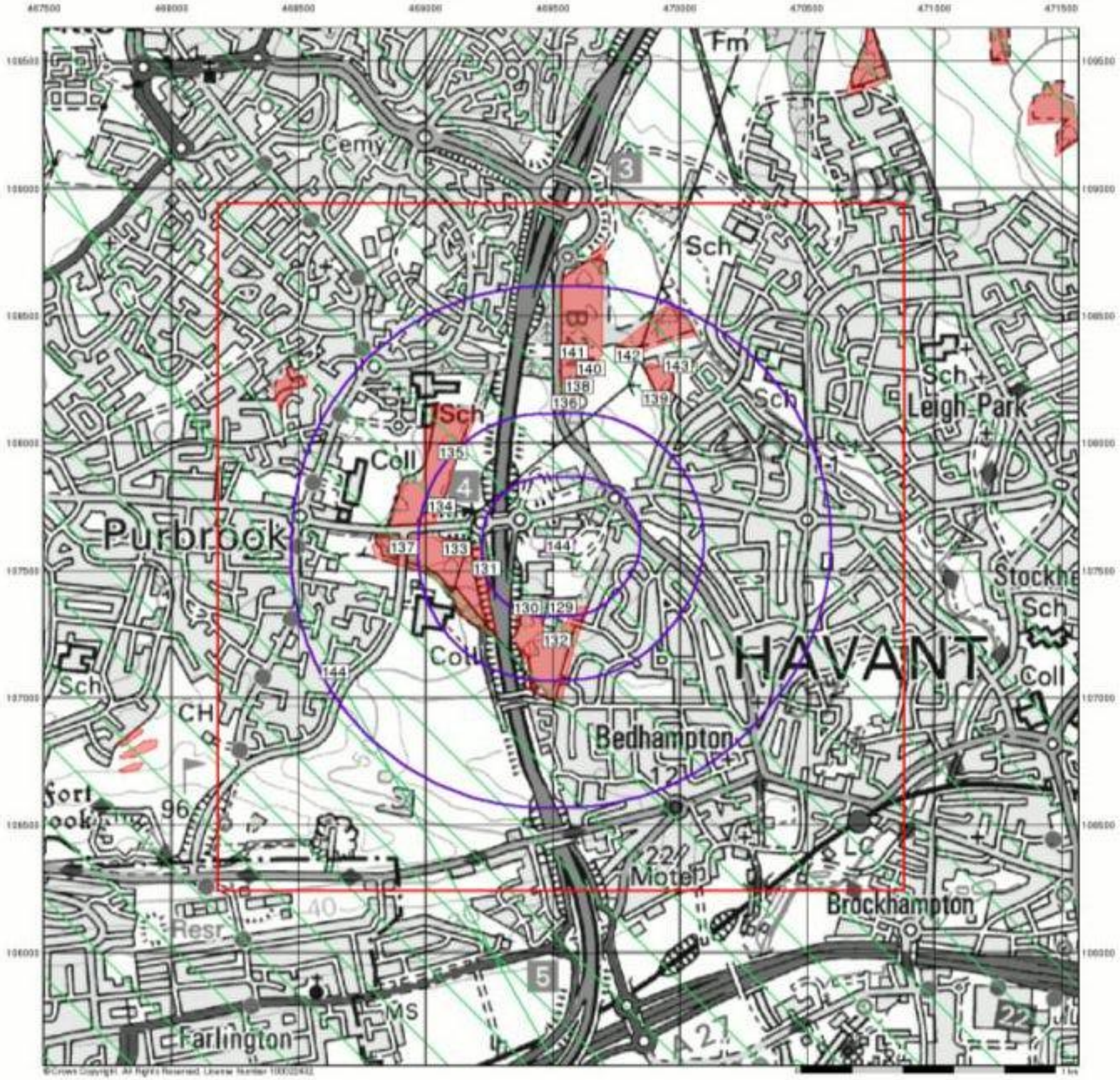


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Search Buffer (m):	1000

Site Details

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Sensitive Land Uses

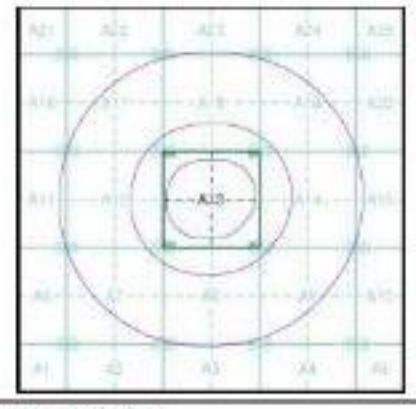
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A

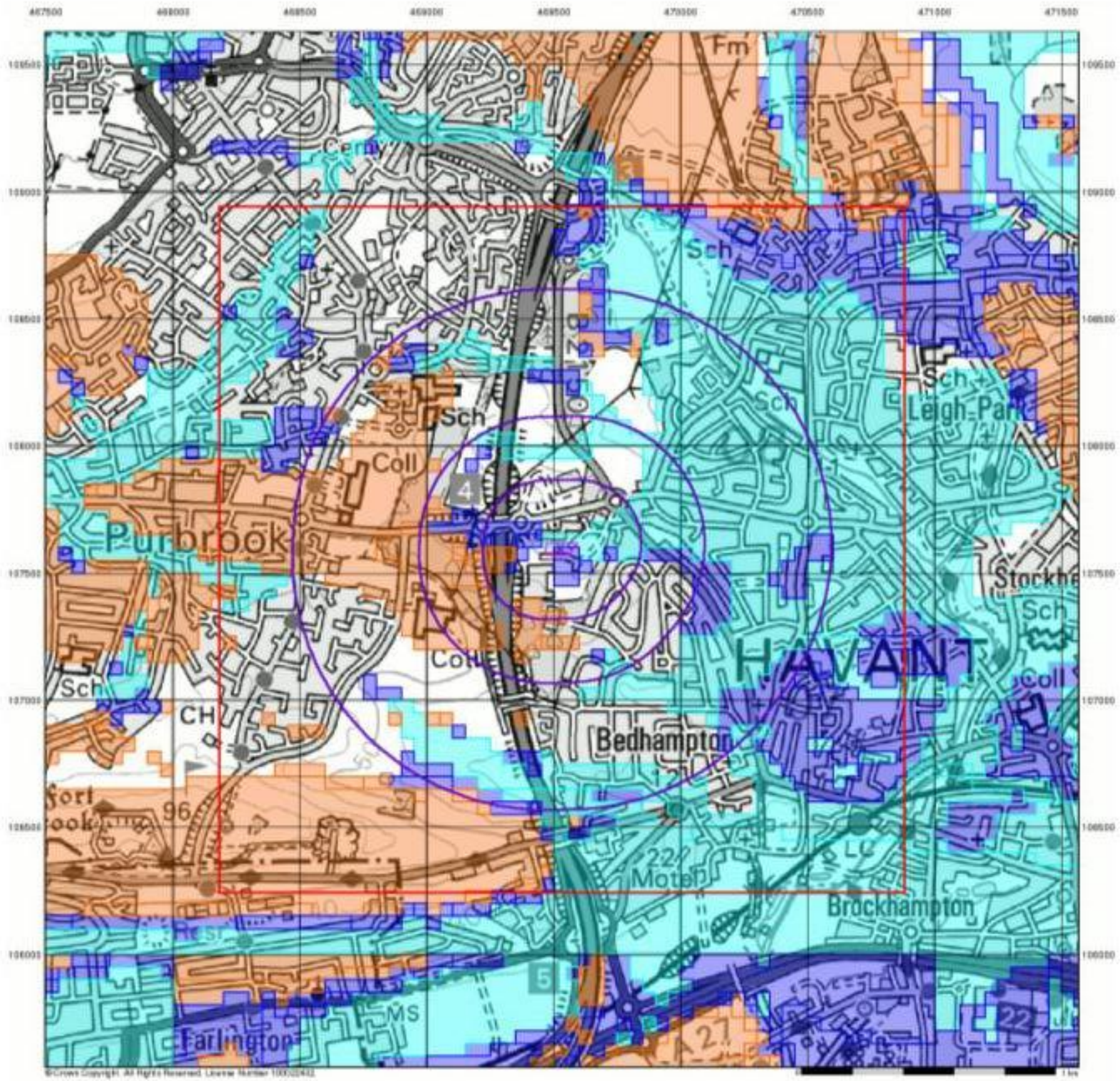


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Site Area (Ha):	0.5
Search Buffer (m):	1000

Site Details

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BGS Flood GFS Data

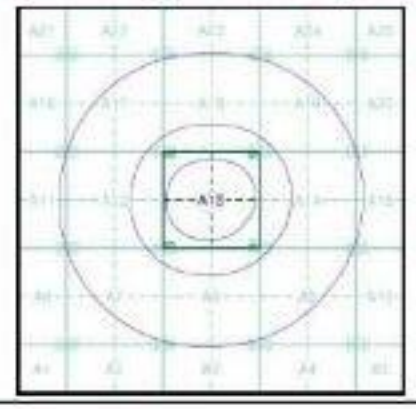
General

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

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	167360372_1_1
Customer Ref:	18-0609.01
National Grid Reference:	469530, 107600
Slice:	A
Site Area (Ha):	0.5
Search Buffer (m):	1000

Site Details

Eaton Corporation, Larchwood Avenue, Bedhampton, HAVANT, PO9 3QL

Appendix C – 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
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Sloping Masonry
Pylon
Pole
Electricity Transmission Line
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge

1:10,000 Raster Mapping

Gravel Pit
Refuse or slag
Rock
Rock (scatte
Boulders
Boulde (scatte
Shingle
Mud
Sand
Sand P
Slopes
Top of
General detail
Underg detail
Overhead detail
Narrow railway
Multi-track railway
Single railway
County boundary (England only)
Civil, p commu bounda
District, Unitary, Metropolitan, London Borough boundary
Consti bounda
Area of wooded vegetation
Non-co trees
Non-coniferous trees (scattered)
Conife trees
Coniferous trees (scattered)
Positio tree
Orchard
Coppic or Osie
Rough Grassland
Heath

Russian Military Mapping Legends

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

a. Not drawn to scale b. Drawn to scale

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

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney
- Factory or Mill without Chimney
- Mine or Open Pit Mine
- Operating Shaft or Mine
- Non-Operating Shaft or Mine
- Salt Mine
- Tailings Pile
- Pit
- Stone Quarry
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station
- Cemetery
- Burial Mound (height in metres)
- Triangulation Point on Burial Mound
- Triangulation Point
- Bench Mark
- Bench Mark (monumented)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Telegraph/Telephone Lines
- Main Highway
- Highway under Construction
- Improved Dirt Road

Key to Numbers on Mapping

Nevills Park

Stakes Coppice

Rosebank Stakes

Newleas Coppice

Bushy Lease

Simonds Hill

Johnstons Coppice

Park House

Sandhill Cottage

Grabbers Cottage

Moorland Cottage

Gundymoor Wood

Gooldhers Farm

Little park Wood

Middle Park

Park House

The Cottage

Smith's

Sublings Row

Newborn

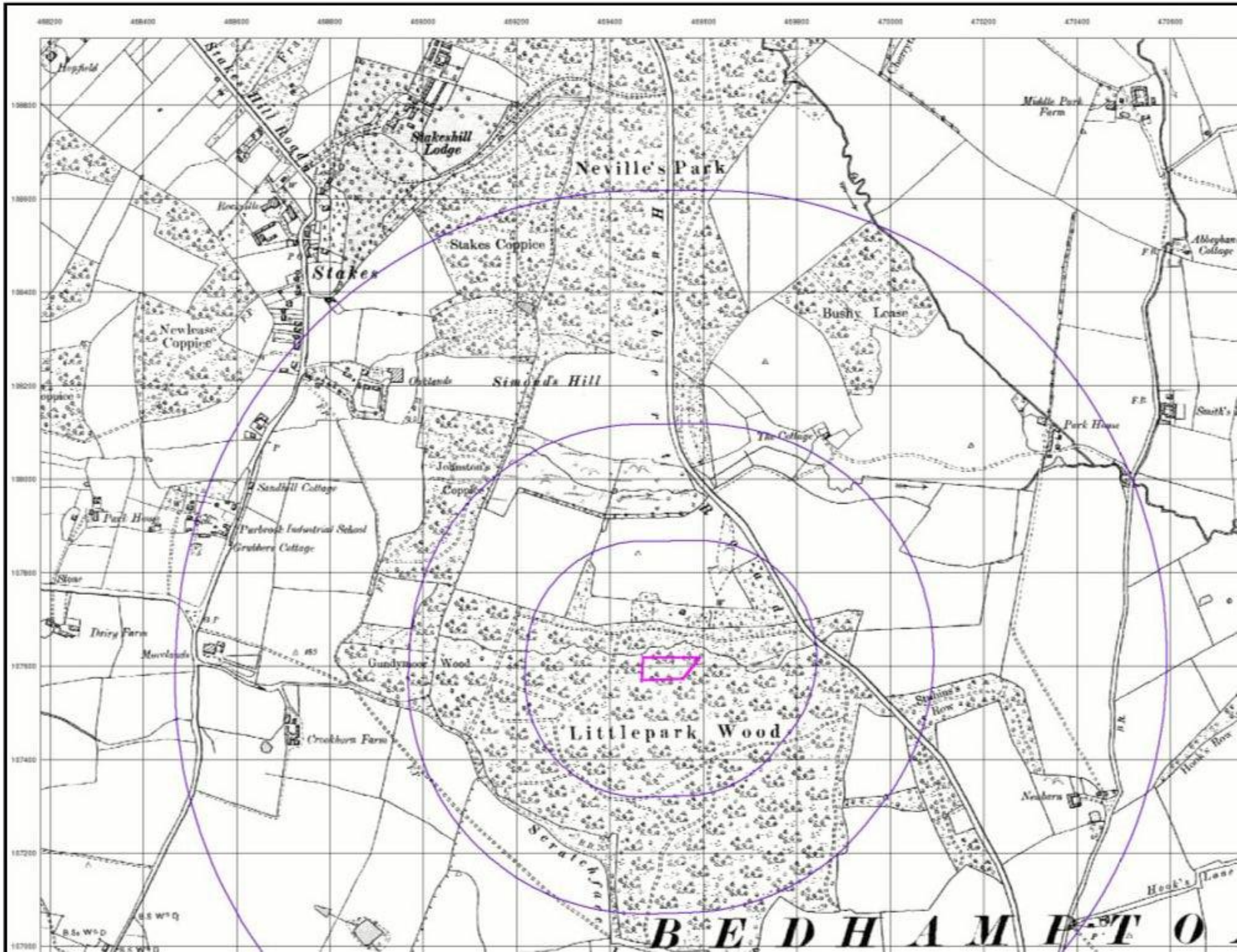
Scratchface

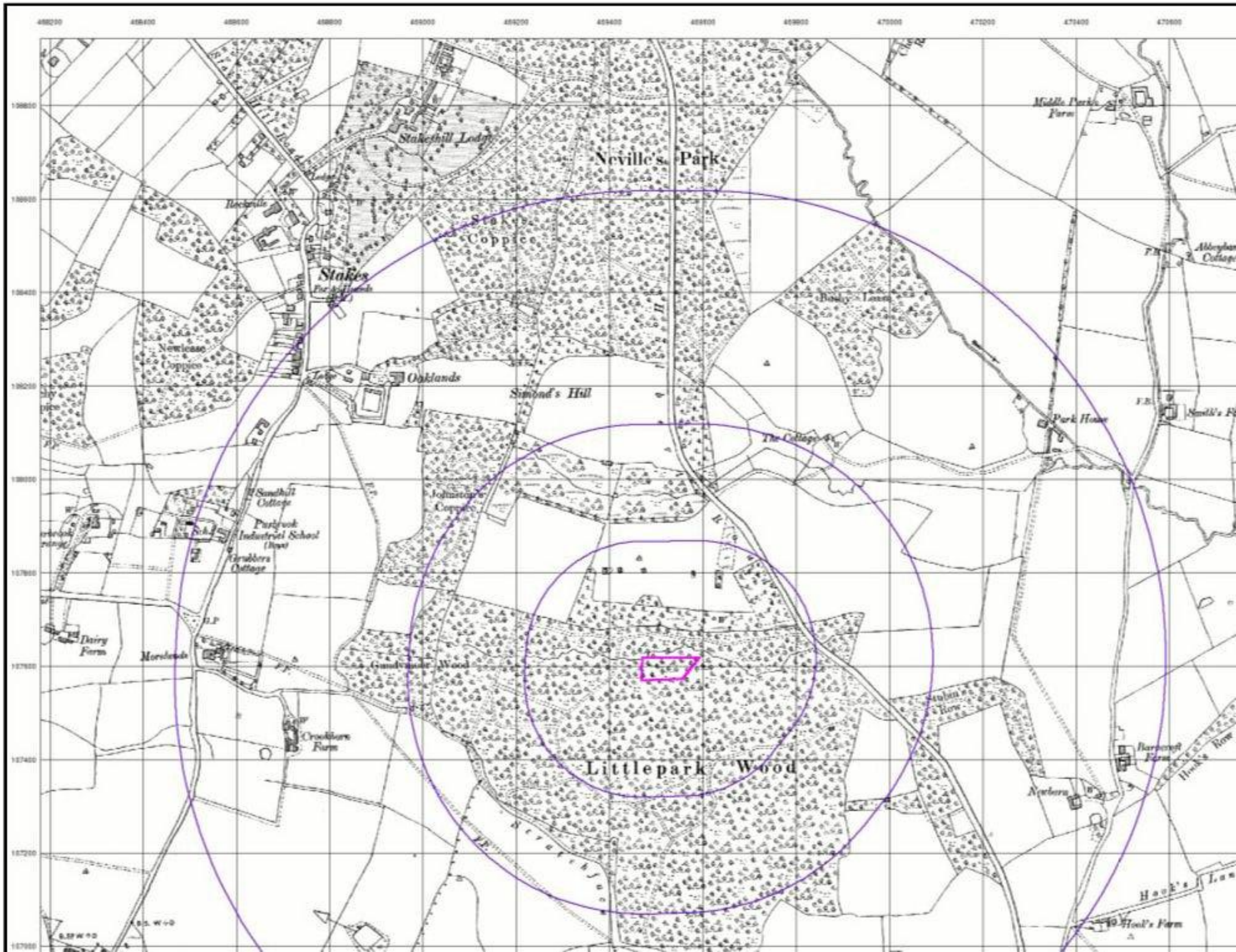
BEDHAMPTON

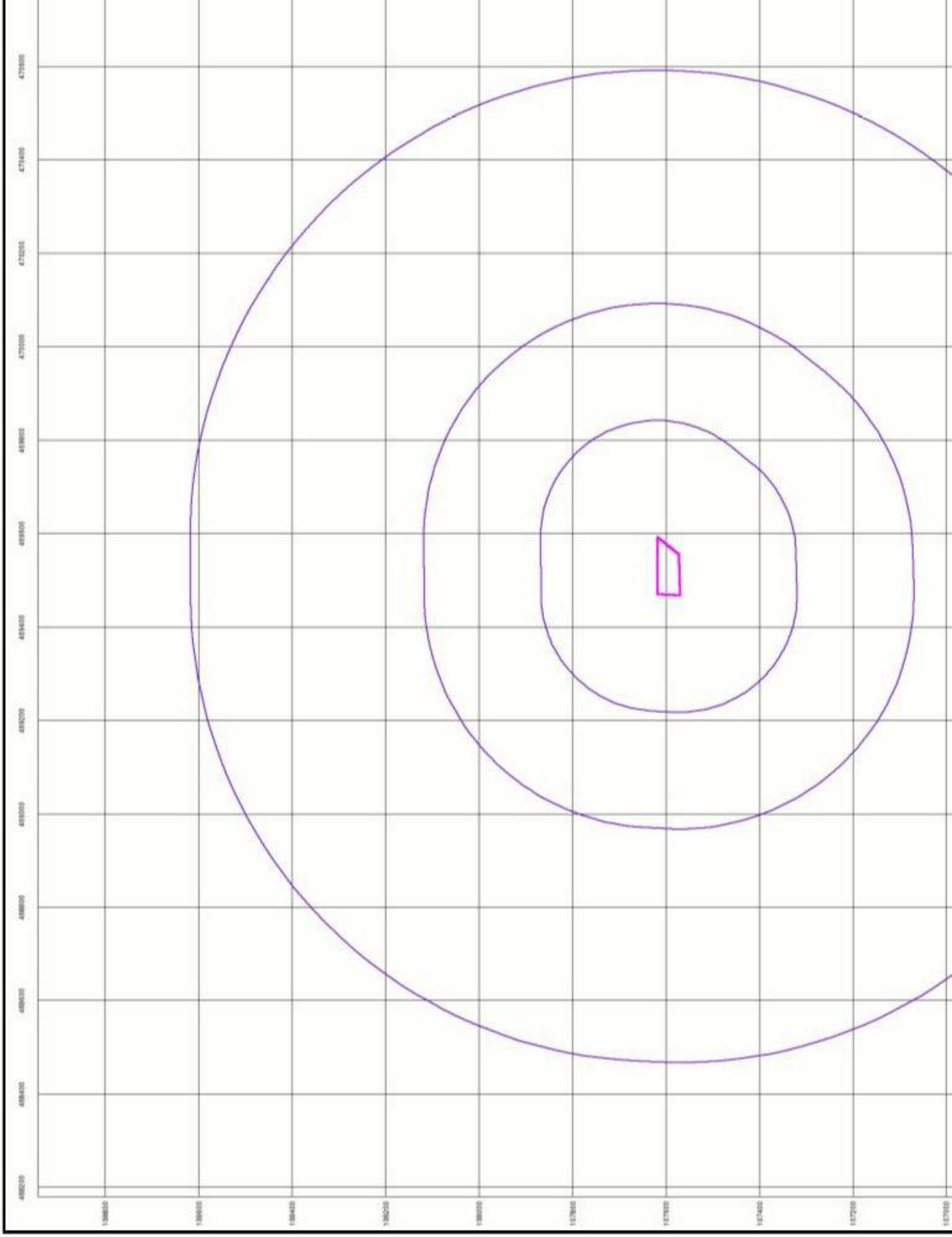
The Clump

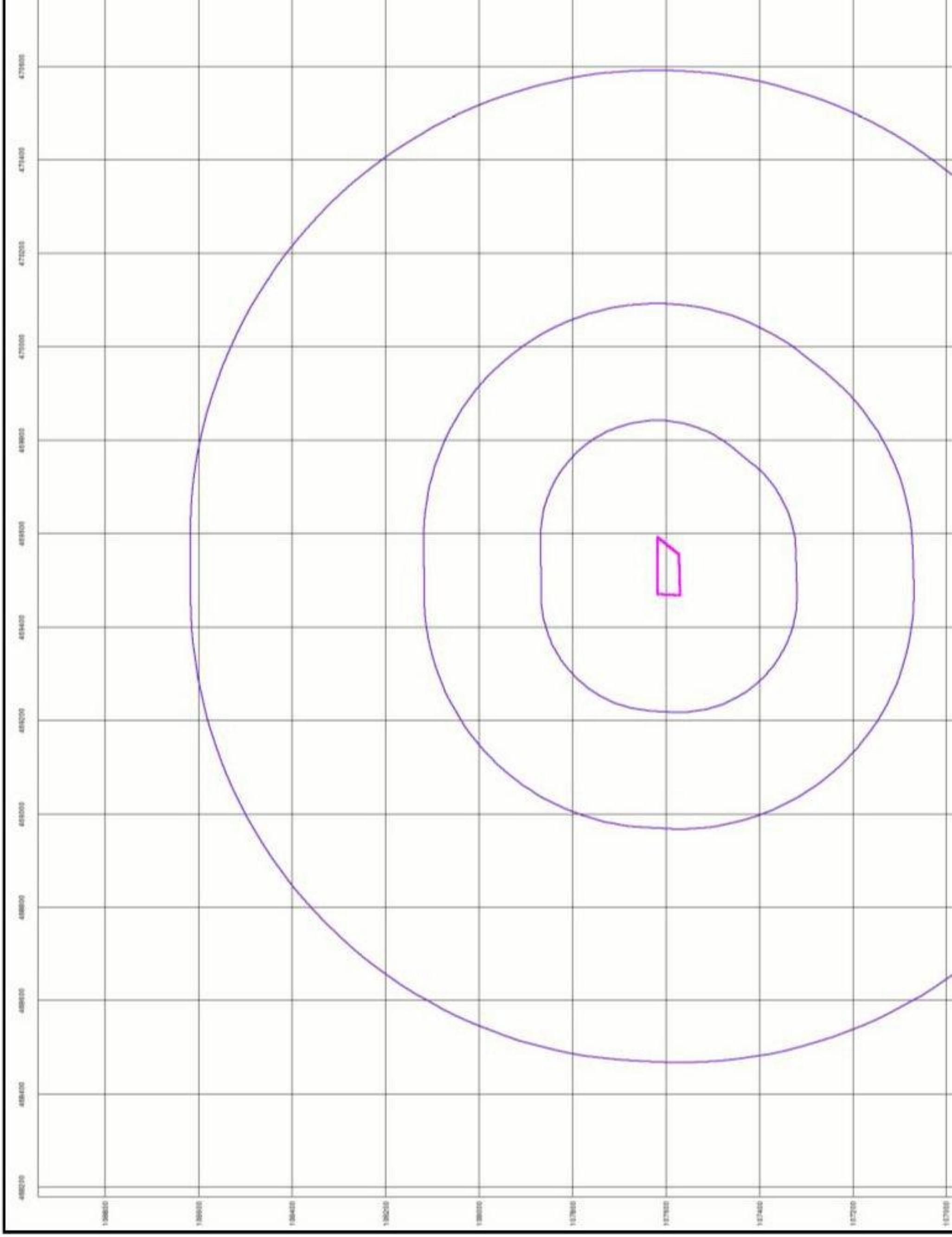
2426·170 Acres

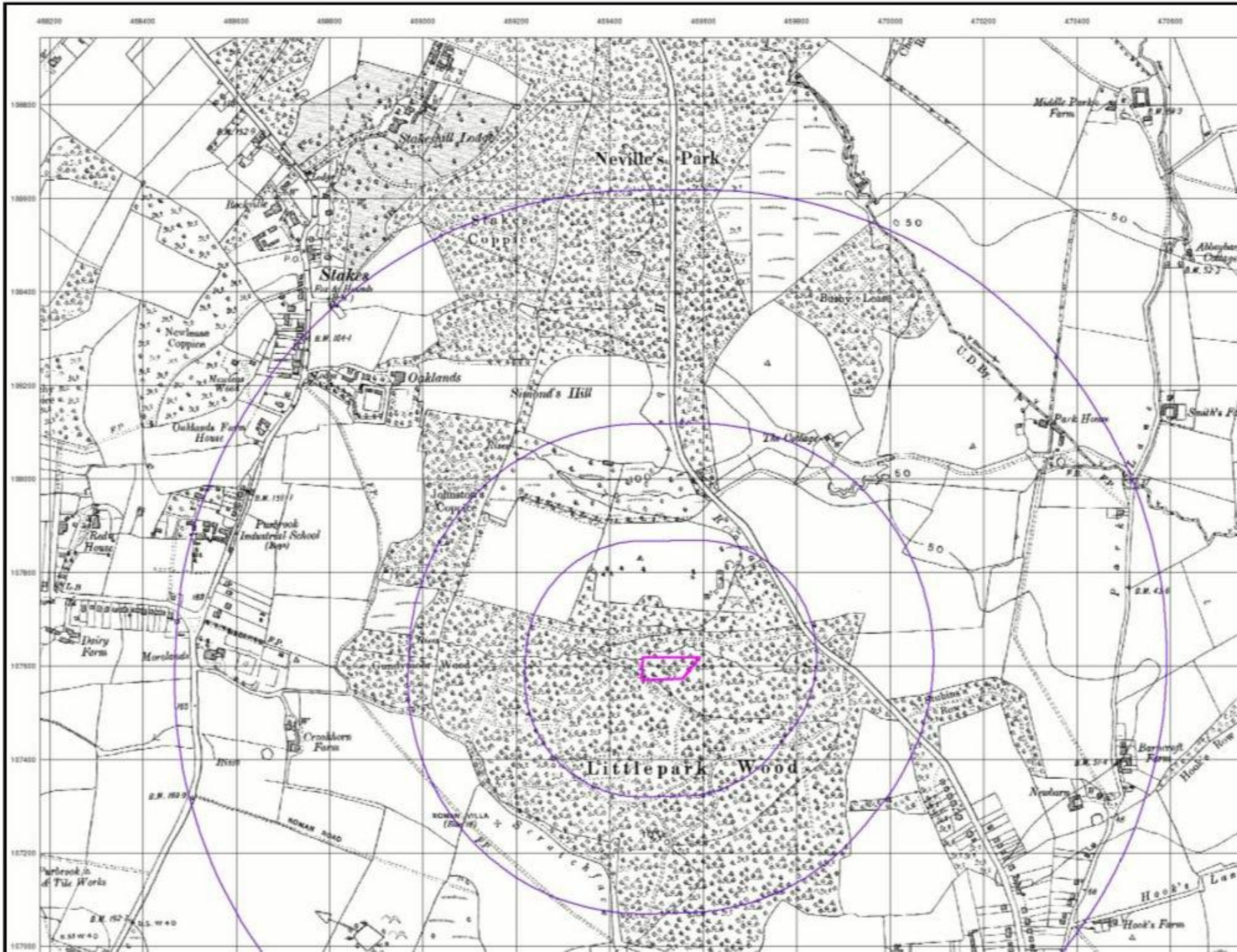
(including 86·579 Islands in Langstone Harbour)

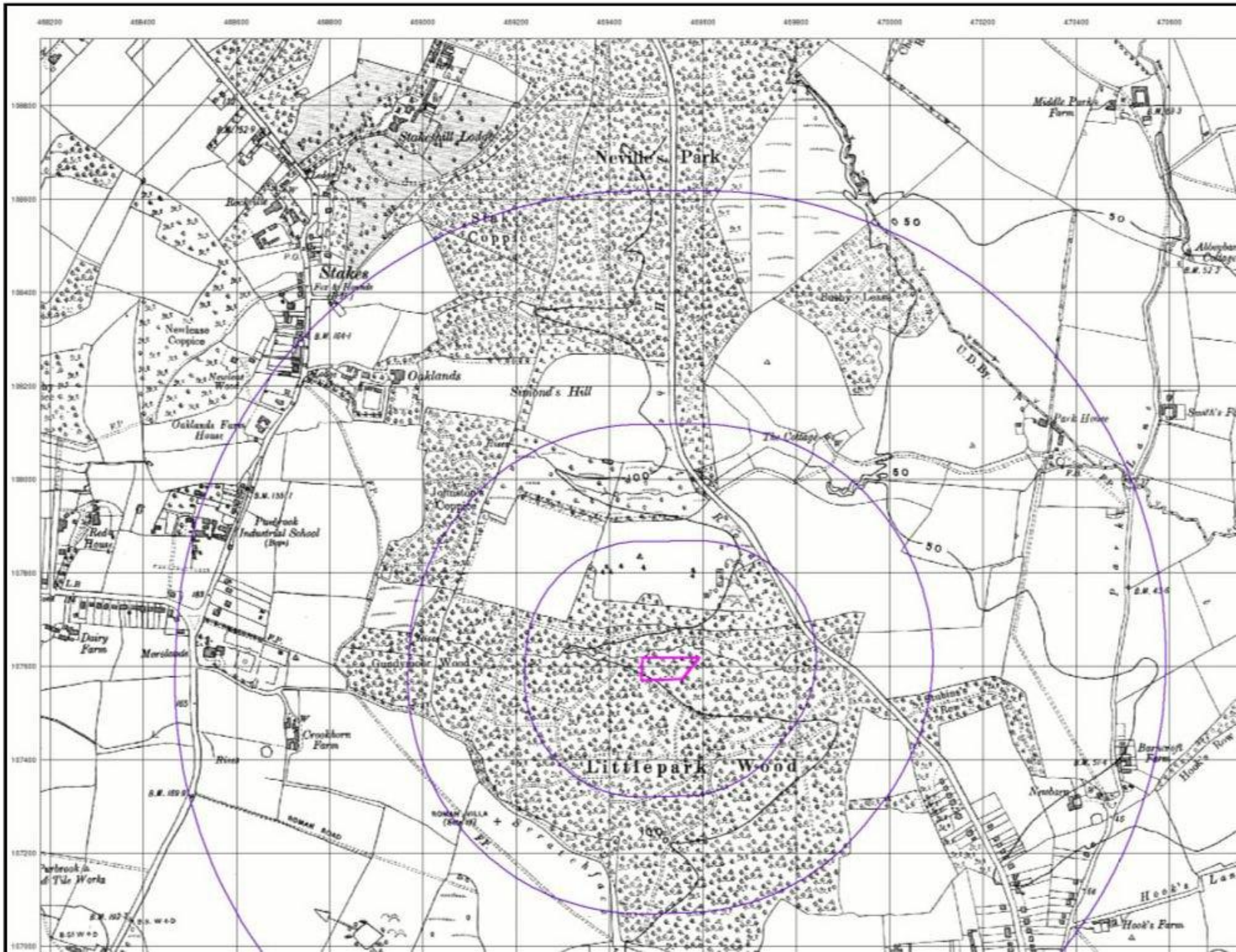

Stakes Hill Road
Stakeshill Lodge
Neville's Park
Middle Park Farm
Stakes Coppice
Stakes
Newlease Coppice
Bushy Lease
Simond's Hill
Park House
Sandhill Cottage
Parbrook Industrial School
Dairy Farm
Gundymoor Wood
Littlepark Wood
Crookhorn Farm
Scratchface
Abbotsham College
Smith's
Hook's Row
Hook's Lane
Nashers
Stubbins Row
The College
Johnston's Coppice
BEDHAMPTON

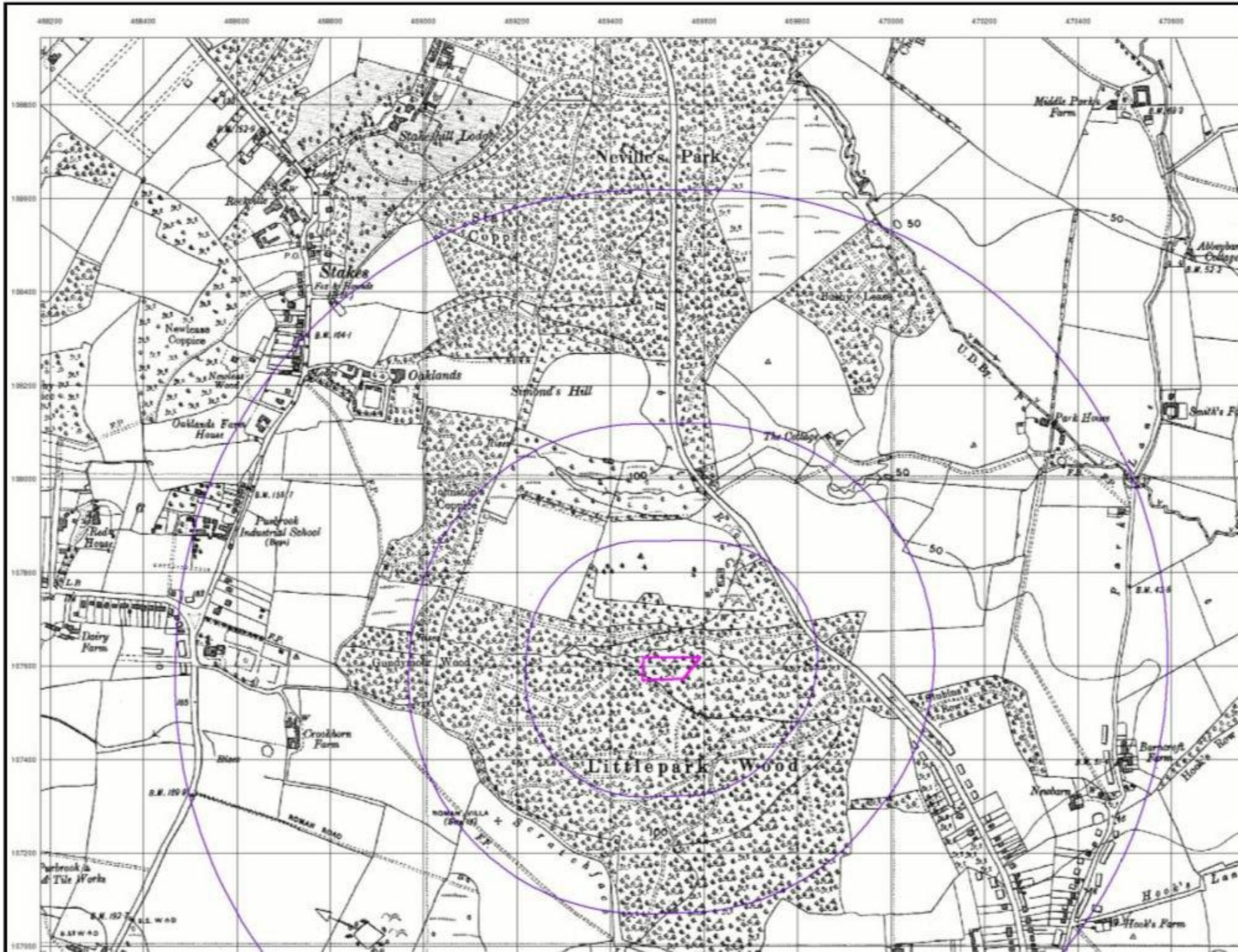

Neville's Park
Littlepark Wood
Stakes Coppice
Stakes
Stakehill Lodge
Rockville
Newlease Coppice
Oaklands
Simond's Hill
Sandhill Cottage
Parkfook Industrial School (Dow)
Scrubbers Cottage
Dairy Farm
Marshlands
Crookburn Farm
Gundymoor Wood
Johnstone's Coppice
Middle Parks Farm
Park House
The Cottage
Bailey Lawn
Stubbin Farm
Barncroft Farm
Norbers
Hook's Row
Hook's Farm
Allerhaugh Cottage
Newlands Burn

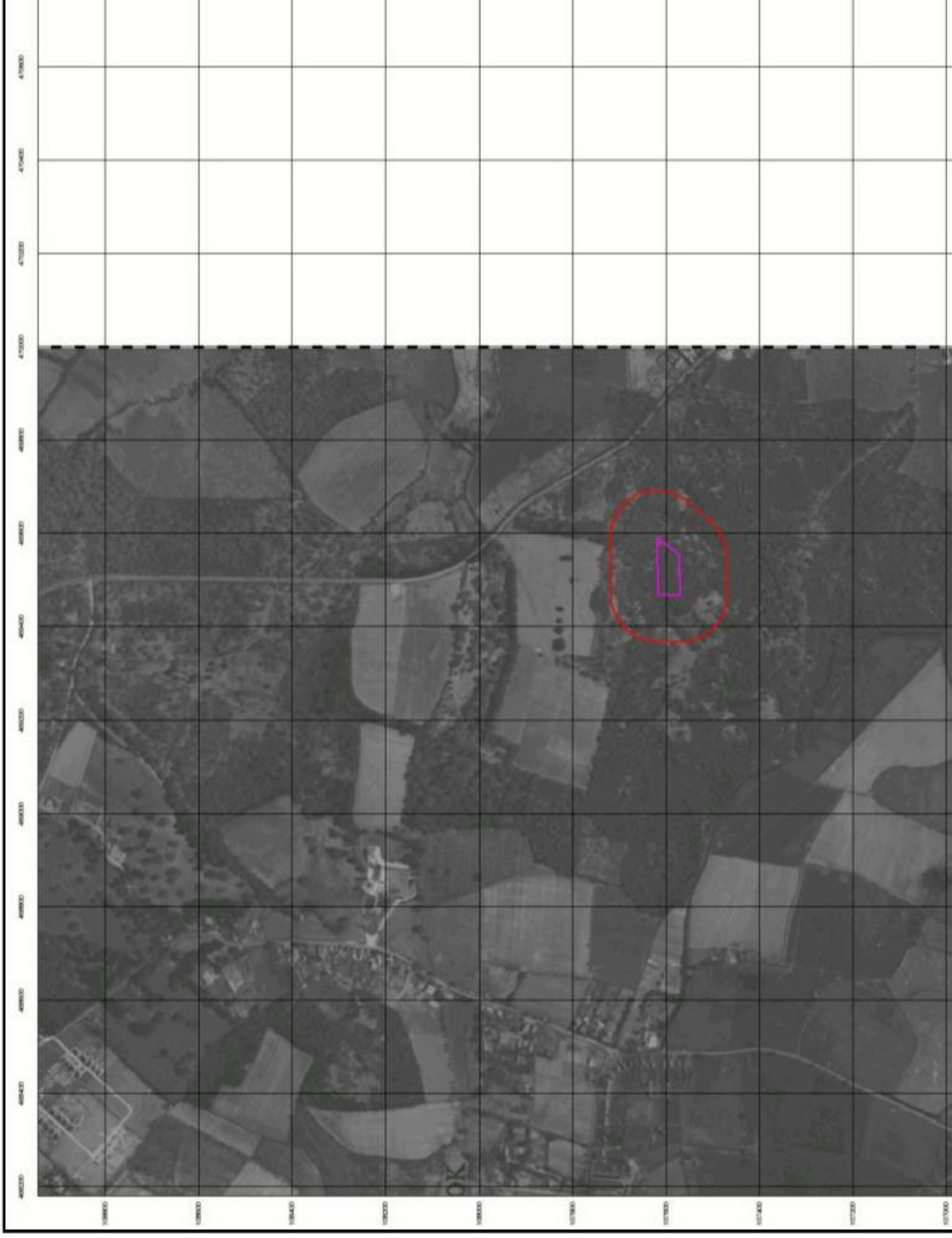




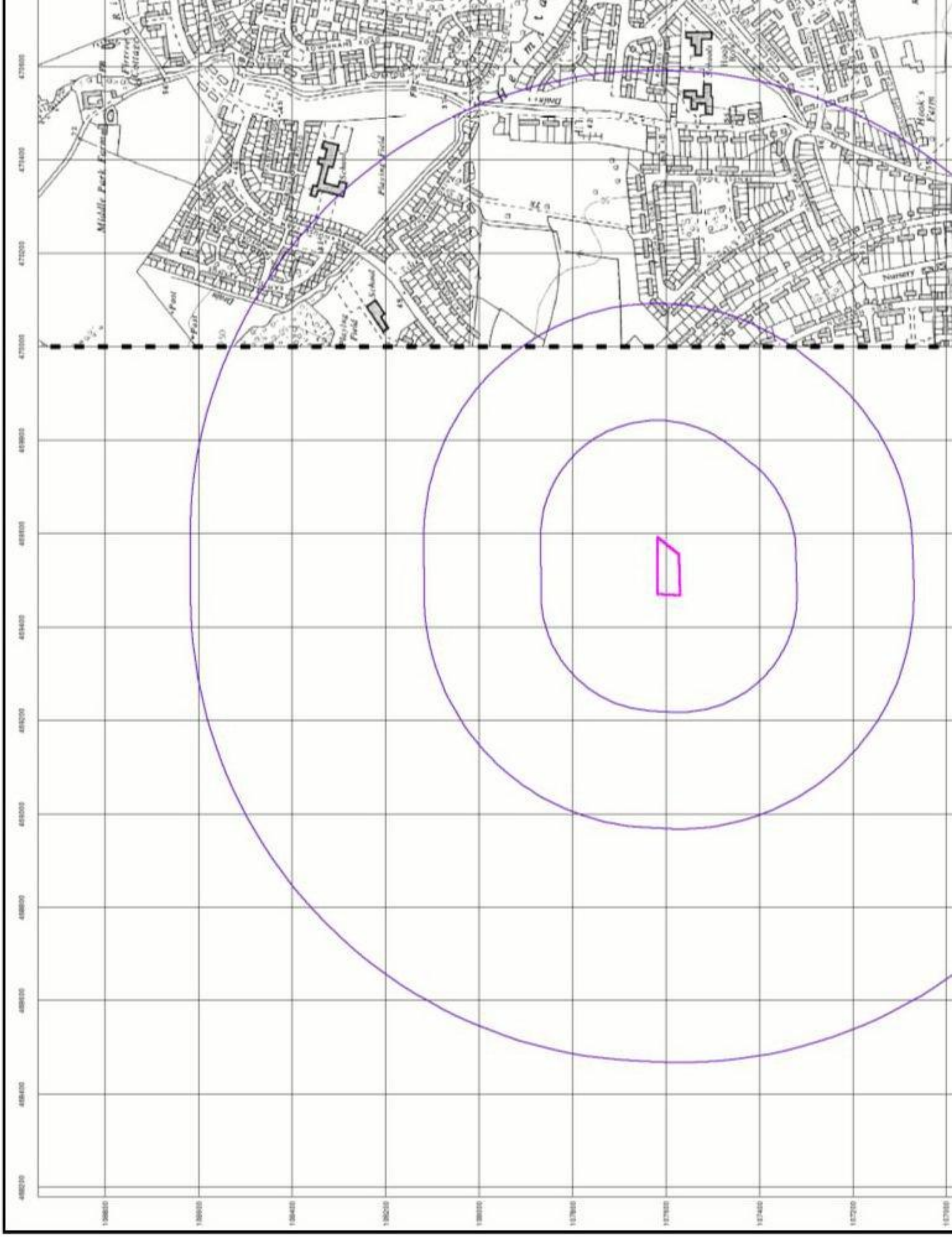

Neville's Park
Stakes Coppice
Stakes
Stakehill Lodge
Oaklands
Simpud's Hill
Middle Parks Farm
Bushy Leasow
Park House
The Cottage
Littlepark Wood
Gunstone Wood
Johnstone's Coppice
Parkbrook Industrial School (Boys)
Oaklands Farm House
Dairy Farm
Crookfern Farm
Barrowhill Farm
Hook's Farm
Parkbrook Jn. & Tile Works
ROMAN ROAD
ROMAN VILLA
50
100

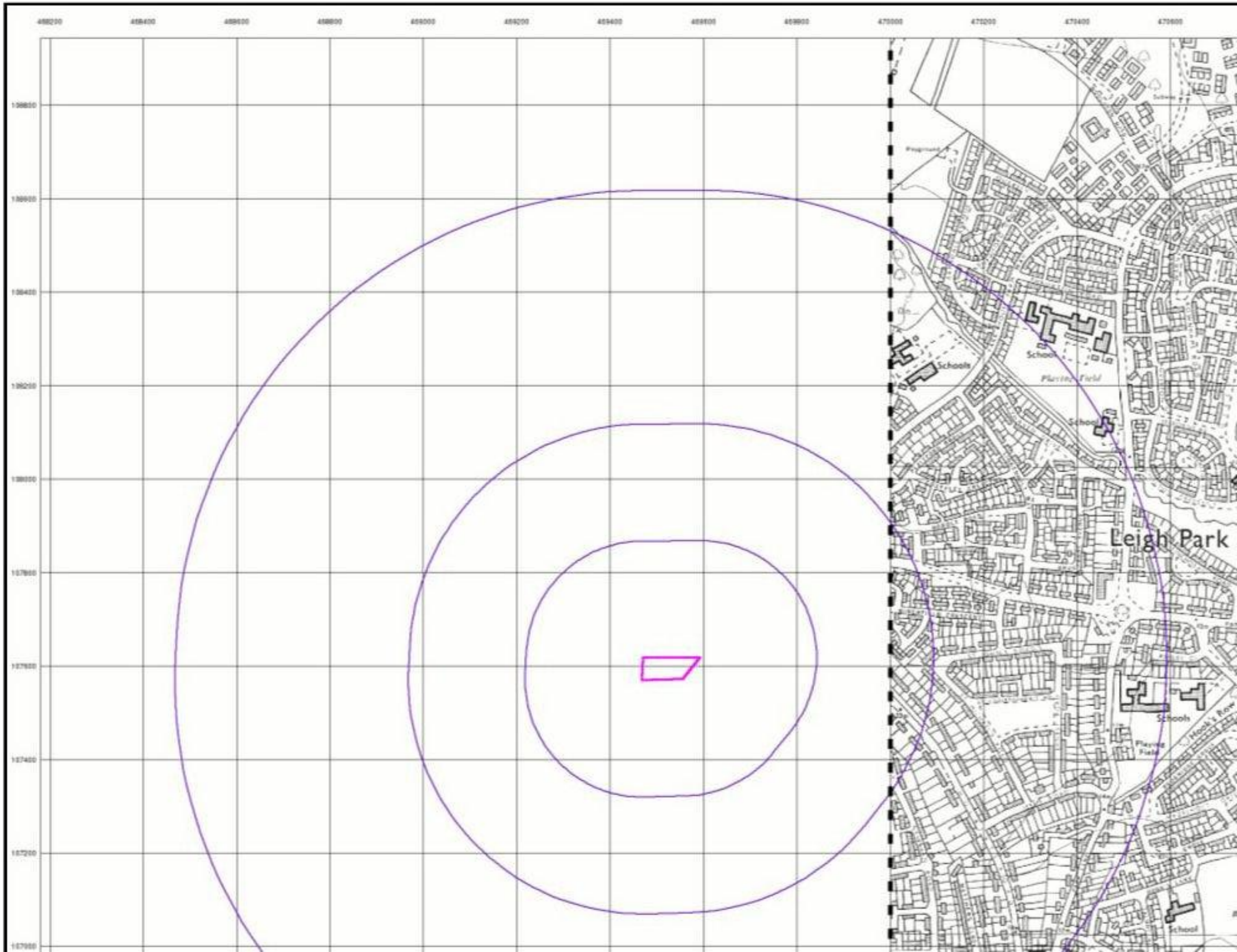

Neville's Park
Stakehill Lodge
Stakes
Stake's Coppice
Newlease Coppice
Newlease Wood
Oaklands
Oaklands Farm House
Seymond's Hill
Middle Park Farm
Bushy Leasow
U.D.By.
Park House
Johnson's Coppice
Gundymoor Wood
Littlepark Wood
Parkbrook Industrial School (Boys)
Dairy Farm
Meridonde
Crookhorn Farm
ROMAN ROAD
Parkbrook & Tile Works
Barnacroft Farm
Newbury
Hook's Farm
The Village
50
100


Neville's Park
Stakehill Lodge
Stakes
Oaklands
Oaklands Farm House
Newlease Coppice
Newlease Wood
Sergeant's Hill
Park House
Middle Parks Farm
Purfrook Industrial School
Red House
Dairy Farm
Croxhorn Farm
Gupdyke Wood
Littlepark Wood
Roman Villa
Scratchface
Purbrook Tile Works
Hook's Farm
Barncroft Farm
Nyakers
U.D.Bdy.
50
100




Coppice
Stakehill Lodge
Neville's Park
Middle Park Farm
Rockville
Stakes Coppice
Stakes
Newlease Coppice
Martlesham
Convent of the Cross
Simond's Hill
Oaklands Farm House
Bobby Lease
Playing Field
School
Factory
Red House
Playing Field
Morelands
Gundymoor Wood
Crookhorn Farm
Littlepark Wood
Scratchface Lane
Hook's Farm


Middle Park Farm
Nursery
Hook's Farm

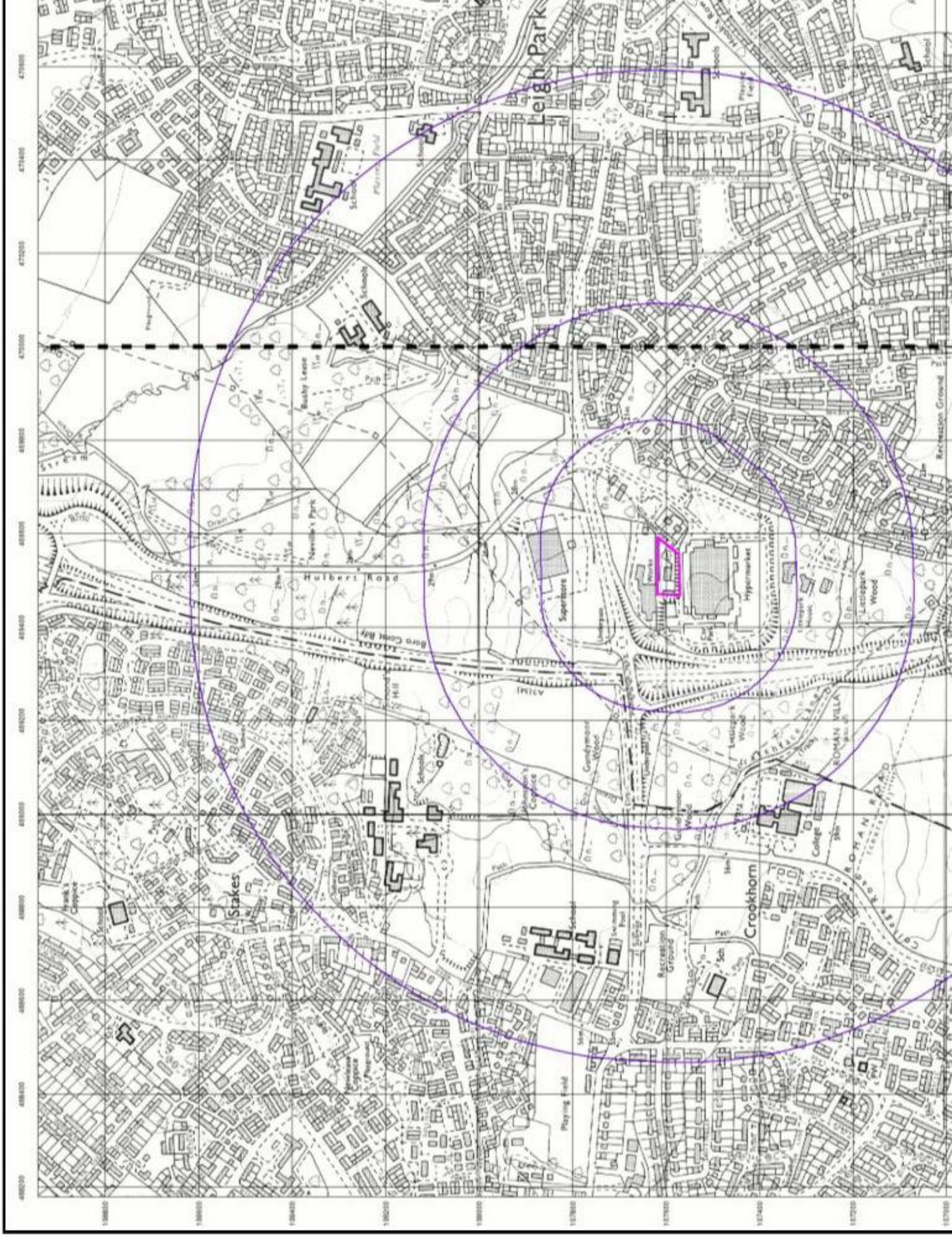

468200
468400
468600
468800
469000
469200
469400
469600
469800
470000
470200
470400
470600
Schools
Playing Field
Leigh Park
Hook's Row
School

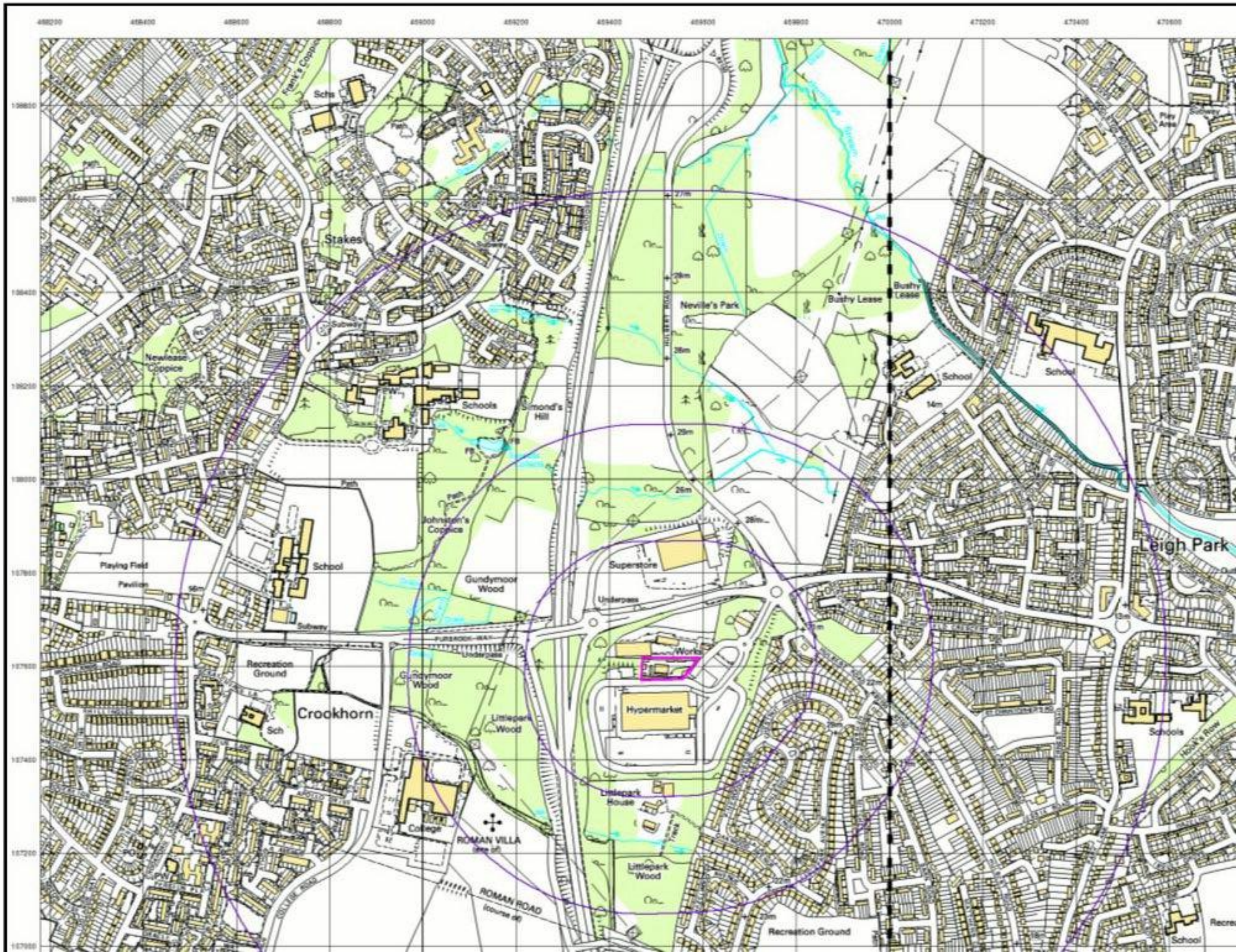

Hulbert Road
Bushy Lane
Neville's Park
Stream
Roman Road
Recreation Ground
Playing Field
School
Allotments
Lodges
Little Park Wood
Gentlemoor Wood
The South Downs College
Stakes Copse
Frank's Coppice
Salem Hill Lodge
Acreleaze Coppice
Dalmeyer's Coppice
Hill



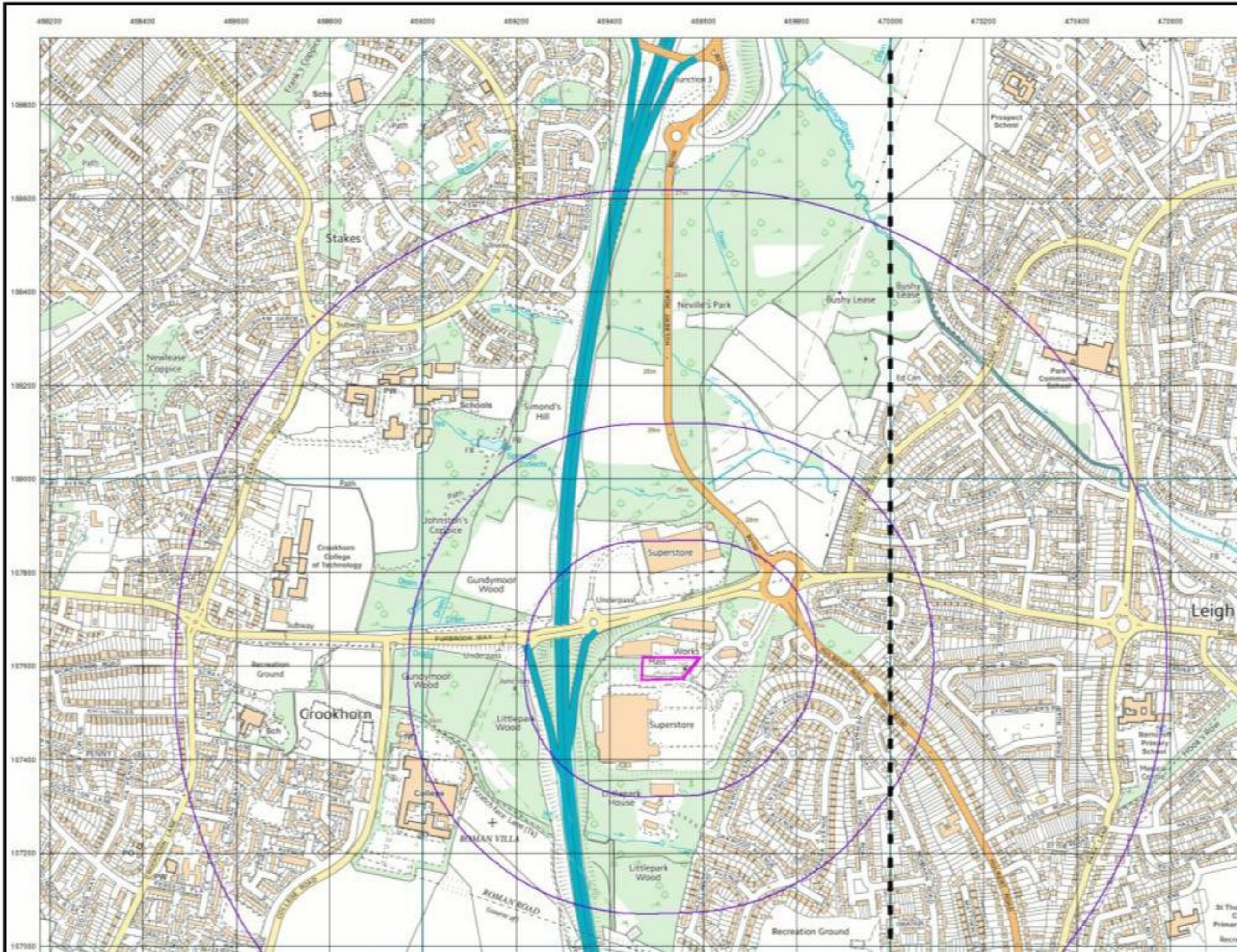
Стейнсхилл-Лодж
парк. Невилс
лес Буши-Лис
2150
49,9
39,3
41,0
55,5
51,5
лес Гандимур-Вуд
лес Литлпарк-Вуд
Корнхорн
ЕРИ - АВЕНЮ
УЛ. ЭЛИЗАБЕТ - РОД
УЛ. АЛБЕРТ - РОД
УЛ. ПЕРБУРН - УЭЙ
УЛ. НОРДЛ - РОД
УЛ. ПАРН - ХАУС
УЛ. ШИЛЛИНГСЛ
МОРДЕНДС - РОД
УЛ. НРУНАРН - ЛЕЙН


спорт.пл.
лес Ганлимур-Вуд
ш.к. Фартингсгейт
колледж Саутдаунс
почта
КЕЙКХОРН
Ромак
лес Литлпарк-Вуд
ВЕДГЕМПТОН
спорт.пл.
50.0
58.7


Leigh Park
Hulbert Road
Superstore
Hypermarket
Stakes
Crookhorn
Recreation Ground
Roman Road


Stakes
Newlease Coppice
Schools
Simond's Hill
Neville's Park
Bushy Lease
Bushy Lease
School
School
Leigh Park
Playing Field
Pavilion
School
Johnson's Coppice
Gundymoor Wood
Superstore
Underpass
Recreation Ground
Crookhorn
Sch
Gundymoor Wood
Littlepark Wood
Hypermarket
Littlepark House
College
ROMAN VILLA
ROMAN ROAD
Littlepark Wood
Recreation Ground
Schools
School


Stakes
Newlease Coppice
Schools
Raymond's Hill
Neville's Park
Bushy Lease
Bushy Lease
School
School
Playing Field
Pavilion
School
Johnston's Coppice
Gundymoor Wood
Superstore
Underpass
Leigh Park
Recreation Ground
Crookhorn
Sch
Gundymoor Wood
Littlepark Wood
Works
Superstore
Littlepark House
College
ROMAN VILLA
(exc of)
Littlepark Wood
ROMAN ROAD
(course of)
Recreation Ground
Schools
Medical Centre
School

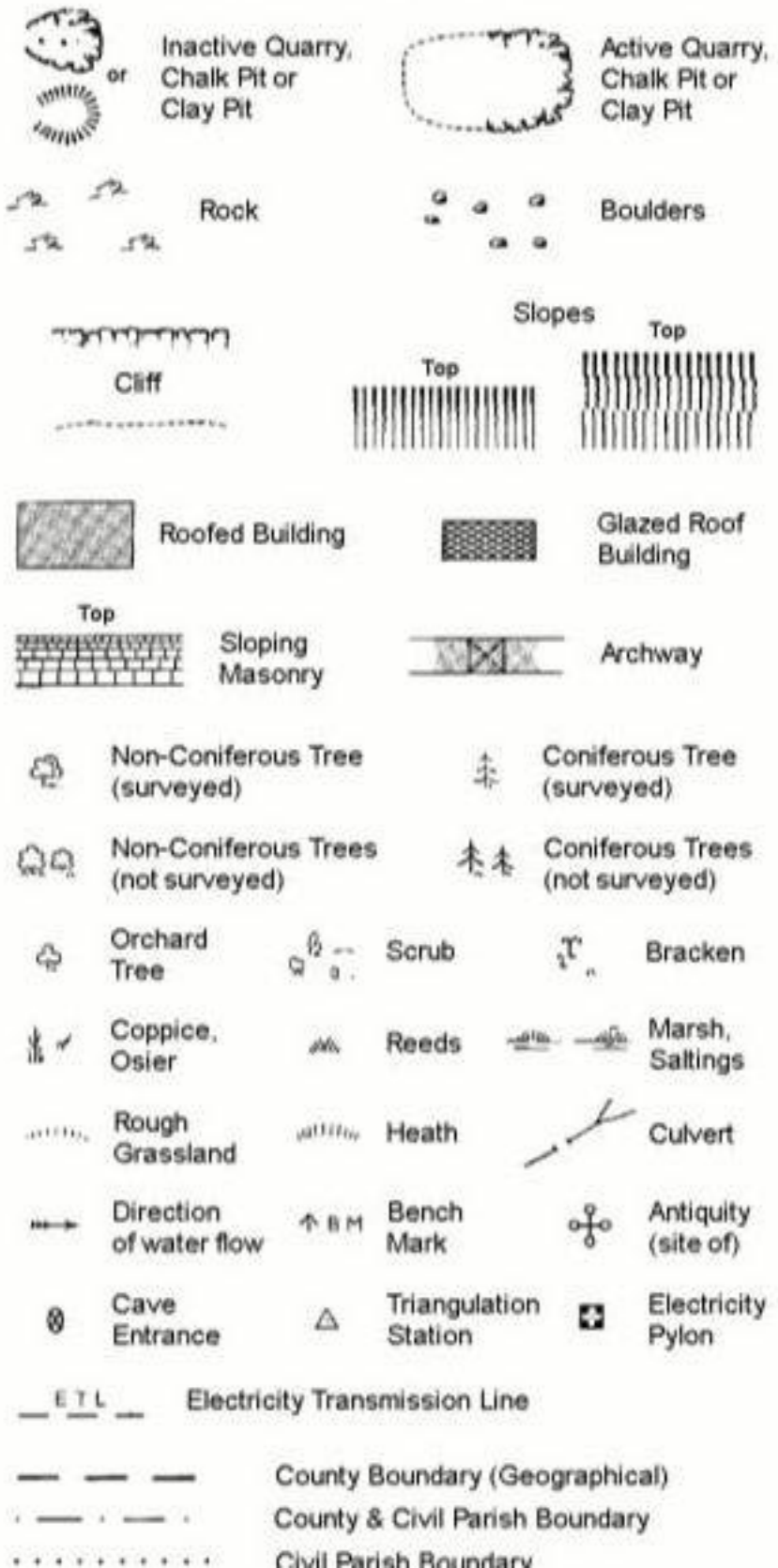

Stakes
Newlease Coppice
Schools
Simond's Hill
Neville's Park
Bushy Lease
Prospect School
Johnston's Coppice
Crookhorn College of Technology
Gundymoor Wood
Superstore
Underpass
Crookhorn
Littlepark Wood
Littlepark House
ROMAN VILLA
ROMAN ROAD
Recreation Ground
Leigh

Historical Mapping Legends

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

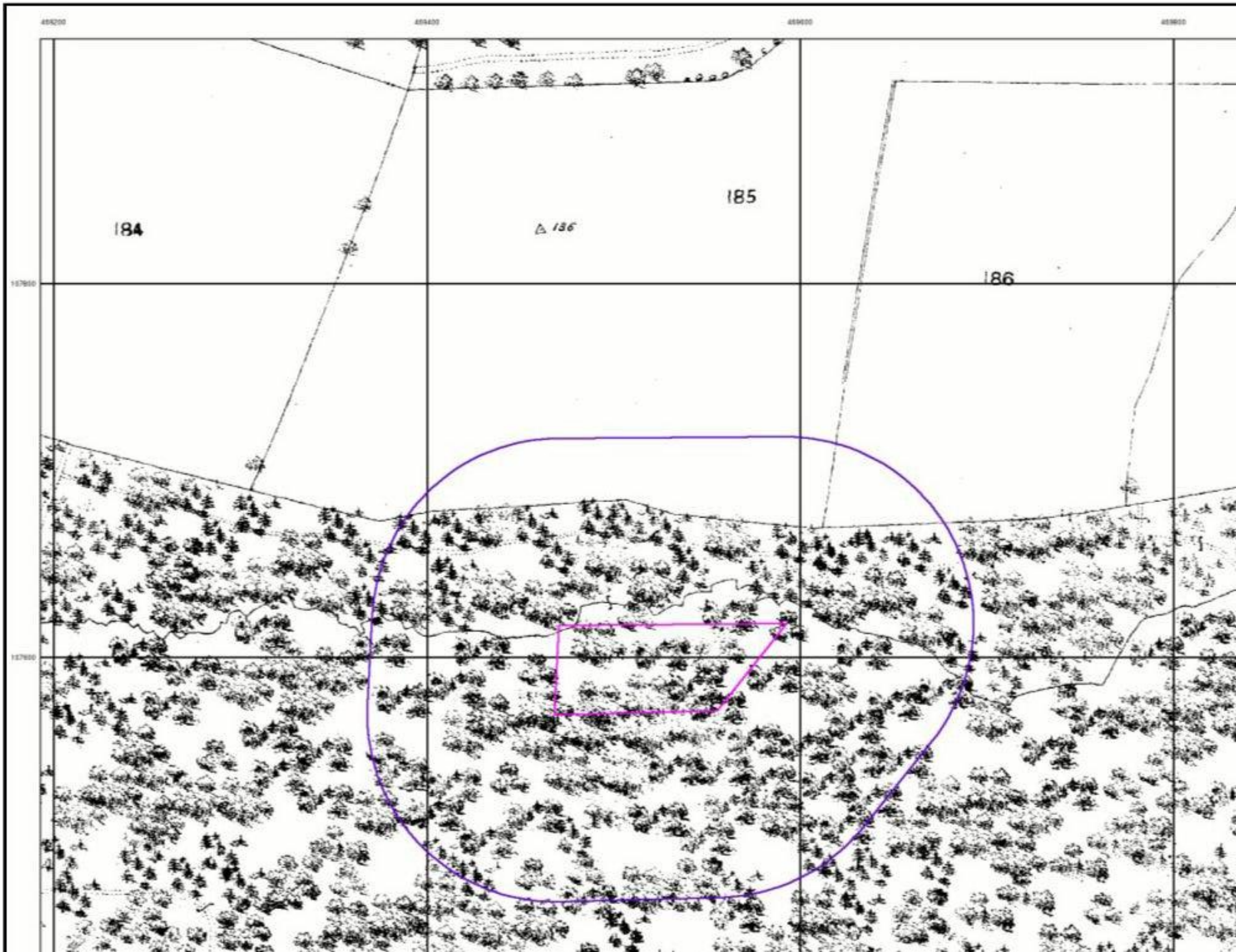


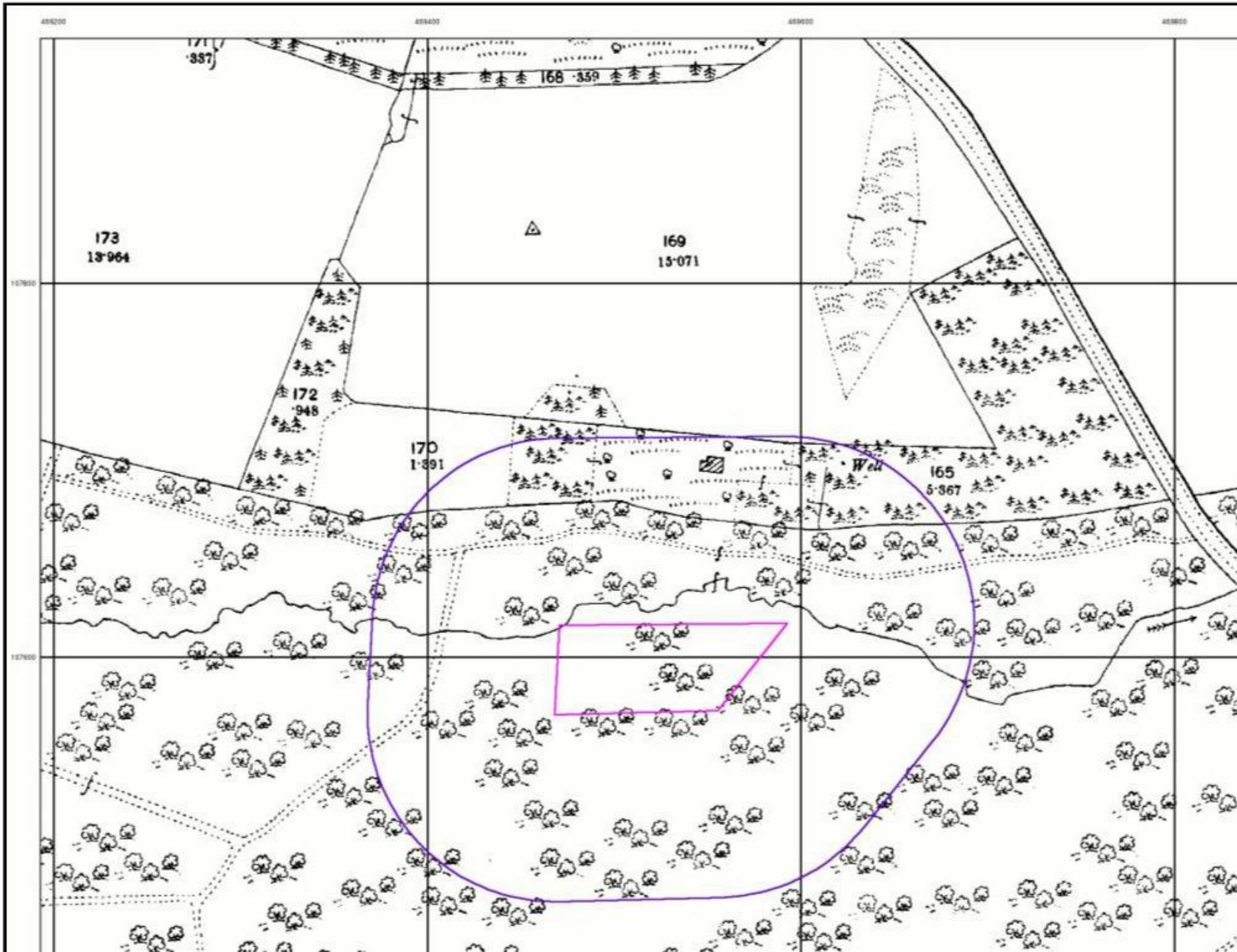
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



Large-Scale National Grid Data 1:2,5 1:1,250




184
185
186
△ 136


168 ·359
173
13·964
169
15·071
172
·948
170
1·391
Well
165
5·367

459200
459400
459600
459800
157800
337
168
·343
173
13·964
169
15·087
165
7·706

459200 459400 459600 459800

157800

173a
·536

168
·343

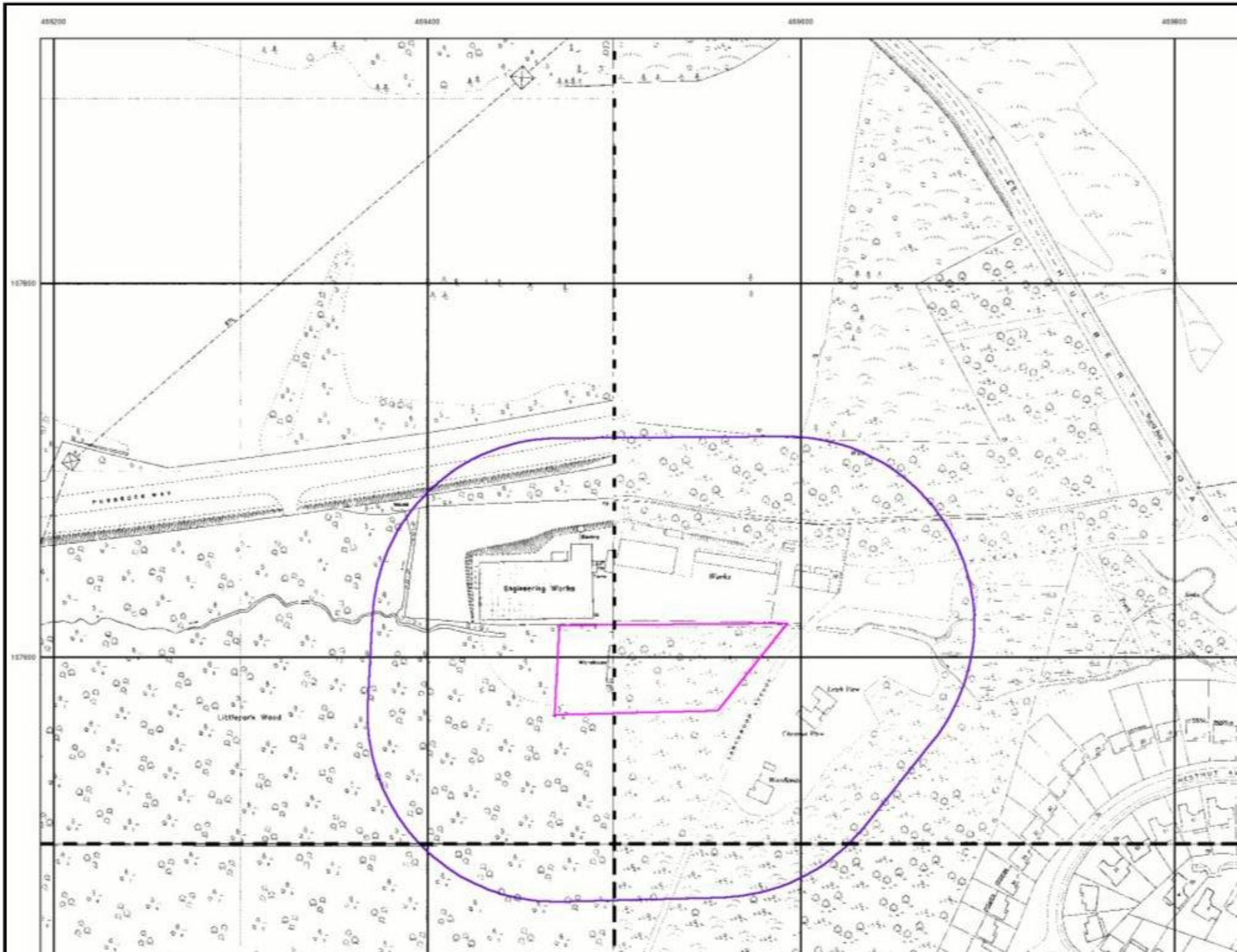
173
12·685

169
15·087

Well

Well

165
7·706


459200
459400
459600
459800
157800
157600
Footpath
Engineering Works
Works
Littleport Wood
Lark Rise
Chestnut Avenue

459200
459400
459600
459800
157800
157600
Works
Works
Works
Hypermarket

459200
459400
459600
459800
157800
157600
LEIGH
2993
-52
3685
23·93
6692
-73
7092
3·01
6581
3·35
2770
-14
Drain
5470
8·28
5165
3·59
Engineering Works
28660
-66
6962
1·54
6258
-76
5853
-32
5450
-74
Littlepark Wood
3547
40·51
6044
9·74

459200

459400

459600

459800

157800

157600

PUREBROOK WAY

MULBERRY ROAD

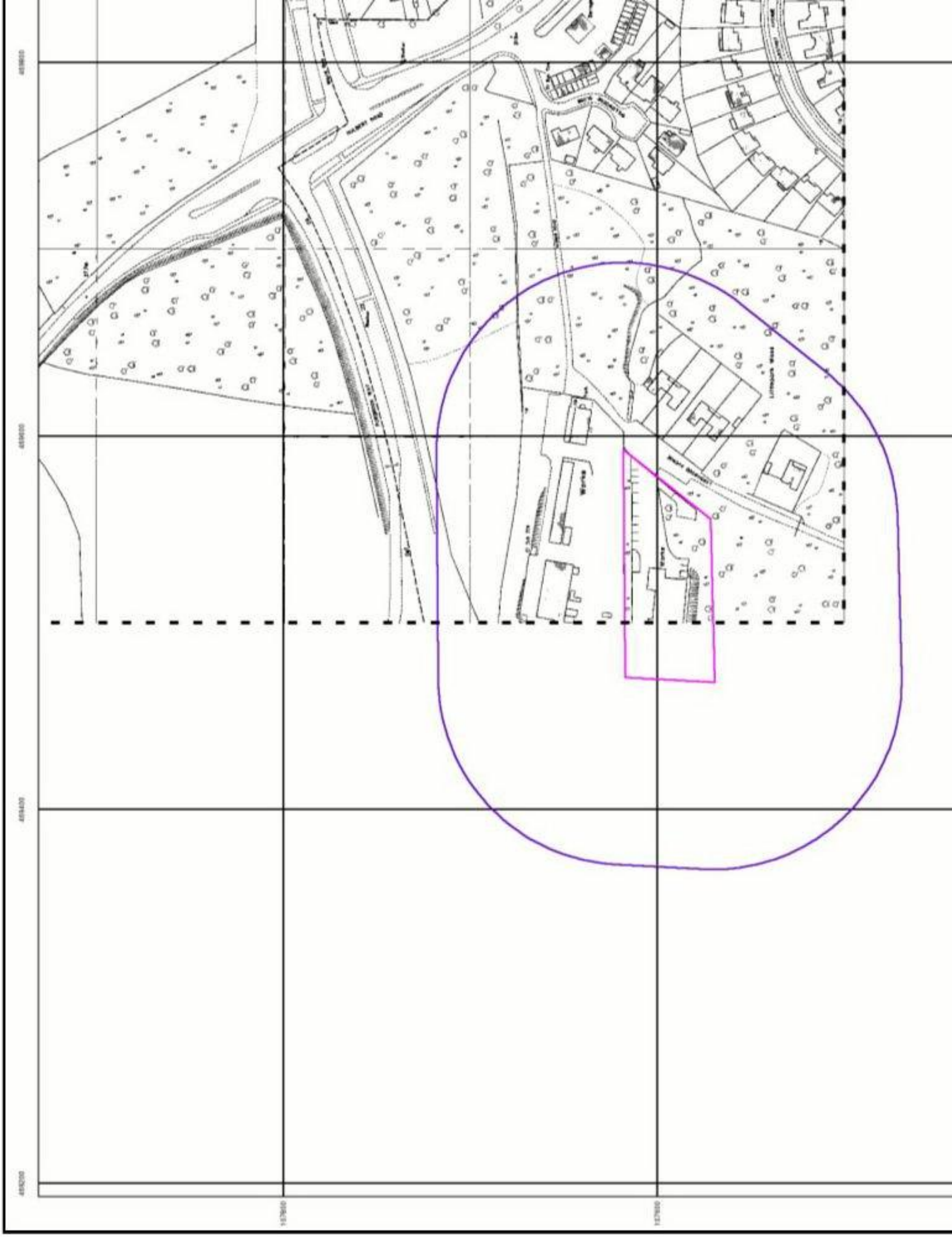
Engineering Works

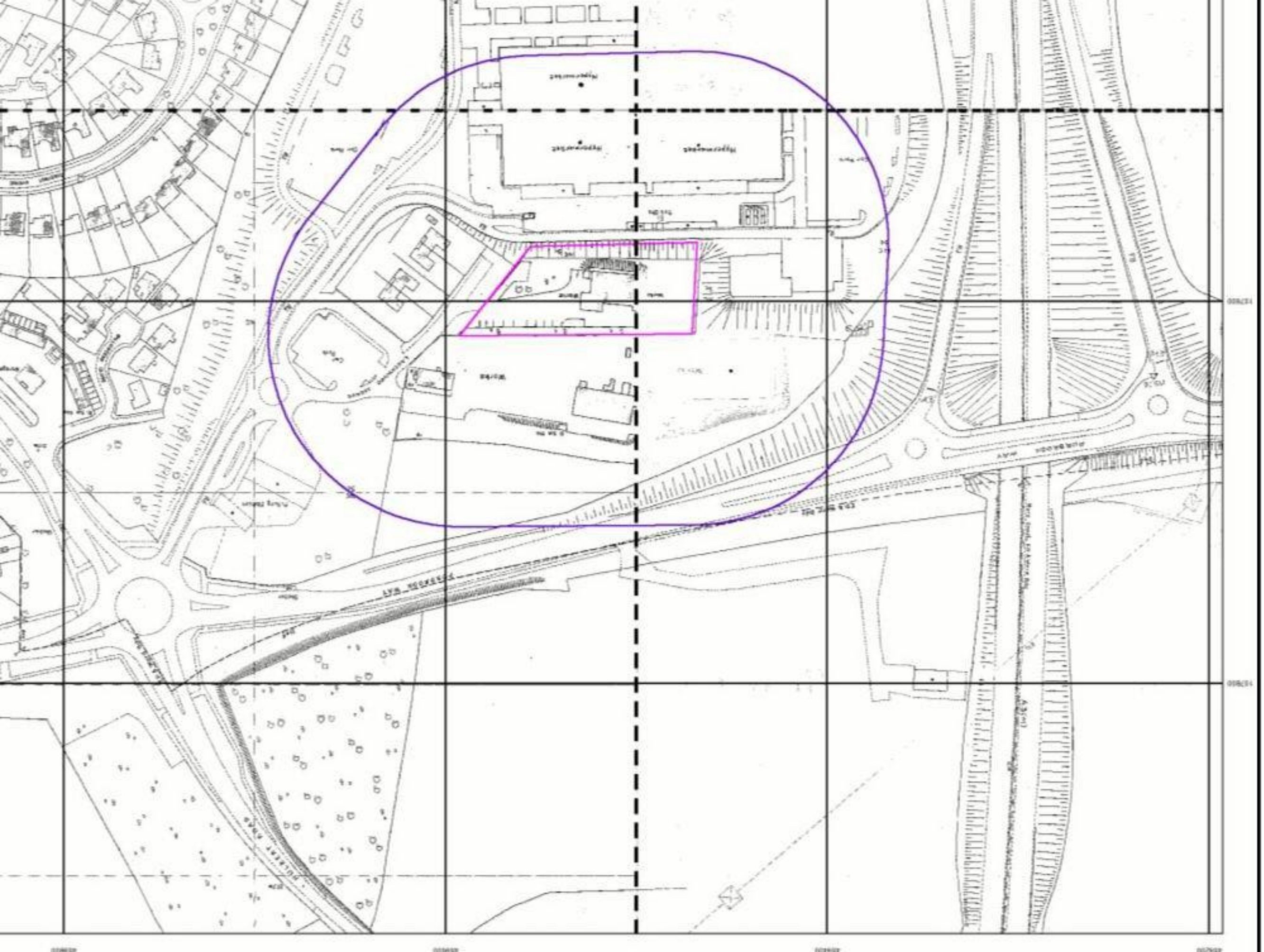
Warehouse

LARCHWOOD AVENUE

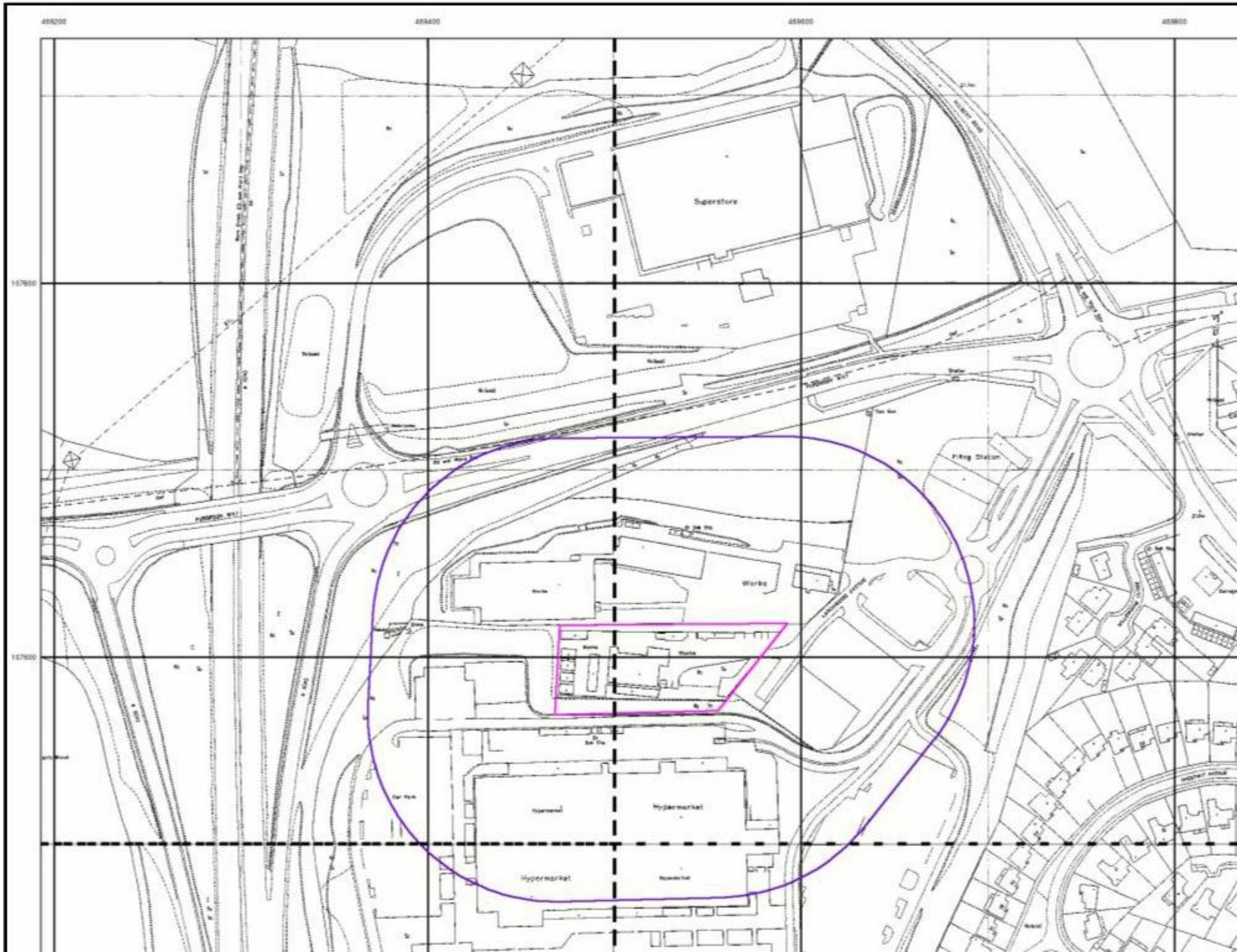
Lintzpark Wood

CHESTNUT





459200
459400
459600
459800
157800
157600
Superstore
Hypermarket
Works
Works
Hypermarket


459200
459400
459600
459800
157800
157600
Superstore
Works
Hypermarket
Hypermarket
Filling Station

469200

469400

469600

469800

107800

107600

107500

Appendix D – Borehole Logs and SPT Calibration Certificates

deltasimons
Environment - Health & Safety - Sustainability

Head Office
3 Henley Way, Doddington Road
Lincoln, LN6 3QR
Tel: +44 (0) 1522 882555
Email: info@deltasimons.com

Project No:	Hole ID:	Page:
18-0609.01	BH01	1 of 3

Project: **Stanton's Yard, Havant**

Cable Percussive Borehole Log

Date: **24/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Type	Ref	Test Details: Depth (m)	Results	Backfill
MADE GROUND: Concrete.		0.20	(0.20)				0.00 - 1.00	B	1			
Firm white brown mottled slightly gravelly CLAY. Gravel is angular to subangular fine to medium flint and chalk. Occasional plant remains. (HEAD DEPOSITS)		0.50	(0.30)				0.30	ES	1			
							0.40	D	2			
Firm light brown orange and grey mottled closely fissured slightly silty slightly sandy CLAY. Sand is fine. Rare plant remains. (HEAD DEPOSITS)							0.70	D	3			
							1.20	D	1	1.20	SPT(S)N=7 (1,2/1,2,2,2)	
							1.20	G	4			
							1.20 - 1.65	B	5			
			(2.40)									
							2.00 - 2.45	B	6	2.00	SPT(S)N=9 (1,2/2,2,2,3)	
									7			
							2.00 - 2.45	D				
		2.90					2.90	D	8			
Firm dark brown grey mottled clisely fissured slightly silty sandy CLAY. Sand is fine. Rare plant remains. (HEAD DEPOSITS)							3.00	G	10	3.00	SPT(S)N=8 (1,2/2,2,2,2)	
							3.00 - 3.45	B	2			
									9			
			(1.70)				3.00 - 3.45	D				
							4.00	D	11	4.00	SPT(S)N=11 (1,2/2,3,3,3)	
							4.00 - 4.45	B	12			
		4.60					4.60	D	13			
Stiff greyish brown closely fissured slightly silty slightly sandy, becoming very sandy from 12 m bgl, CLAY. Sand is fine to medium. Frequent shell fragments from 5 m bgl. (LONDON CLAY)						5.00 ▼	5.00	G	14	5.00	SPT(S)N=18 (2,3/4,4,5,5)	
							5.00 - 5.45	B	15			
									3			
							5.00 - 5.45	D				

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3.Driller noted seepage between 5.00 and 5.50 m bgl 4. Groundwater was encountered at 12 m bgl. 5. Borehole installed with 50mm diameter standpipe, gas bung and lockable tophat/ traffic strength flush cover.

Water Stike			Water Level		Chiselling	
Date	Time	Strike	Duration	Standing	Depth (m)	Time (h:m)
24/05/2018		5.00 m				
24/05/2018		12.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale (m):
		Paul Blackledge Drilling	Dando 3000	AN	TH	TH	1:30

deltasimons
Environment - Health & Safety - Sustainability

Head Office
3 Henley Way, Doddington Road
Lincoln, LN6 3QR
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Project No:	Hole ID:	Page:
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Project: **Stanton's Yard, Havant**

Cable Percussive Borehole Log

Date: **24/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
Stiff greyish brown closely fissured slightly silty slightly sandy, becoming very sandy from 12 m bgl, CLAY. Sand is fine to medium. Frequent shell fragments from 5 m bgl. (LONDON CLAY)			(10.40)				6.00 - 6.45 6.00 - 6.45	B D	17 19	6.00	SPT(S)N=18 (2,3/4,4,5,5)	
							7.50 - 7.95 7.50 - 7.95	B D	18 19	7.50	SPT(S)N=24 (3,4/6,5,6,7)	
							9.00 - 9.45 9.00 - 9.45	B D	20 21	9.00	SPT(S)N=42 (5,7/8,10,12,12)	
							10.50 - 10.95 10.50 - 10.95	B D	22 23	10.50	SPT(S)N=33 (5,6/7,8,9,9)	

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3.Driller noted seepage between 5.00 and 5.50 m bgl 4. Groundwater was encountered at 12 m bgl. 5. Borehole installed with 50mm diameter standpipe, gas bung and lockable tophat/ traffic strength flush cover.

Water Stike			Water Level		Chiselling	
Date	Time	Strike	Duration	Standing	Depth (m)	Time (h:m)
24/05/2018 24/05/2018		5.00 m 12.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale (m):
		Paul Blackledge Drilling	Dando 3000	AN	TH	TH	1:30

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Project No:	Hole ID:	Page:
18-0609.01	BH01	3 of 3

Project: **Stanton's Yard, Havant**

Cable Percussive Borehole Log

Date: **24/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
Stiff greyish brown closely fissured slightly silty slightly sandy, becoming very sandy from 12 m bgl, CLAY. Sand is fine to medium. Frequent shell fragments from 5 m bgl. (LONDON CLAY)						12.00	12.00 - 12.45	B	24 25	12.00	SPT(S)N=30 (6,6/7,7,8,8)	
							12.00 - 12.45	D				
							13.50 - 13.95	B	26 27	13.50	SPT(S)N=36 (7,8/8,9,9,10)	
							13.50 - 13.95	D				
		15.00					15.00 - 15.45	D	28	15.00	SPT(S)N=39 (6,8/8,9,10,12)	
Borehole complete at 15.00 m bgl.												

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3.Driller noted seepage between 5.00 and 5.50 m bgl 4. Groundwater was encountered at 12 m bgl. 5. Borehole installed with 50mm diameter standpipe, gas bung and lockable tophat/ traffic strength flush cover.

Water Stike			Water Level		Chiselling	
Date	Time	Strike	Duration	Standing	Depth (m)	Time (h:m)
24/05/2018		5.00 m				
24/05/2018		12.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale (m):
		Paul Blackledge Drilling	Dando 3000	AN	TH	TH	1:30

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Project No:	Hole ID:	Page:
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Project: **Stanton's Yard, Havant**

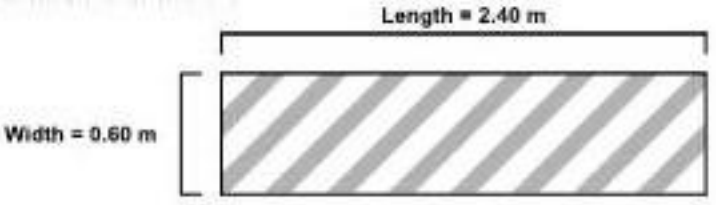
Trial Pit Log

Date: **30/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type Ref	Depth (m)	Results
MADE GROUND: Reinforced concrete.		0.30						
Firm light brown closely fractured slightly silty slightly sandy CLAY. Sand is fine. Occasional gravel of subangular fine to coarse chalk. Black staining and hydrocarbon odour between 1.4 and 1.8 m bgl. (HEAD DEPOSITS)					1.20	ES 1		
					1.80	ES 2		
		2.70						
Trial pit complete at 2.70 m bgl.								

Dimensions and Orientation:



Orientation:

Inclination:

Remarks:
1. Engineer logged in general accordance to BS: 5930:2015. 2. Service avoidance exercise undertaken prior to intrusive works. 3. Groundwater not encountered. 4. Trial pit backfilled with arising.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
			Excavator	AN	TH	TH	1:30

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Project No:	Hole ID:	Page:
18-0609.01	DS01	1 of 1

Project: **Stanton's Yard, Havant**

Dynamic Sampler Log

Date: **25/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Concrete.		0.13	(0.13)									
MADE GROUND: Black very sandy gravel. Sand is fine to medium. Gravel is angular to subangular fine to coarse flint and sandstone. Occasional fine rootlets.		0.35	(0.22)				0.15	ES	1			
Stiff friable white orange mottled closely fractured slightly gravelly CLAY. Gravel is angular to subangular fine to coarse chalk and flint. (HEAD DEPOSITS)		0.60	(0.25)				0.80	G	1			
Stiff light brown orange and grey mottled closely fractured slightly silty sandy CLAY. Sand is fine to medium. Occasional plant remains and carbonaceous deposits. (HEAD DEPOSITS)										1.00	SPT(S) N=6 (1,2/1,2,1,2)	
							1.30	G	2			
			(2.80)							2.00	SPT(S) N=7 (1,2/1,2,2,2)	
										3.00	SPT(S) N=8 (1,2/1,2,2,3)	
		3.40										
Stiff blueish grey closely fractured slightly silty slightly sandy CLAY. Sand is fine to medium. (LONDON CLAY)			(0.60)				3.85	G	3			
		4.00				4.00 ▼				4.00	SPT(S) N=6 (1,2/1,2,1,2)	
Borehole complete at 4.00 m bgl.												

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3. Groundwater was encountered at 4 m bgl. 4. Borehole installed with 50mm diameter standpipe, gas bung and lockable tophat/ traffic strength flush cover.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter
25/05/2018		4.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling	Premier 110	AN	TH	TH	1:30

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Project No: **18-0609.01**

Hole ID: **DS02**

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Project: **Stanton's Yard, Havant**

Dynamic Sampler Log

Date: **25/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Concrete.		0.15	(0.15)									
Firm white brown mottled slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium chalk and flint. (HEAD DEPOSITS)		0.50	(0.35)				0.20	ES	1			
							0.40	G	1			
Stiff Light brown orange and grey mottled closely fractured slightly silty slightly sandy, becoming sandy from 1.8 m bgl, CLAY. Sand is fine to medium. Occasional plant remains and carbonaceous deposits. (HEAD DEPOSITS)										1.00	SPT(S) N=7 (1,2/2,1,2,2)	
							1.30	G	2			
			(3.30)							2.00	SPT(S) N=6 (1,2/1,2,1,2)	
										3.00	SPT(S) N=6 (1,2/1,2,1,2)	
Stiff friable blueish grey very closely fractured slightly silty slightly sandy CLAY. Sand is fine to medium. (LONDON CLAY)		3.80										
		4.00	(0.20)			4.00 ▼				4.00	SPT(S) N=6 (1,2/1,2,1,2)	
Borehole complete at 4.00 m bgl.												

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3. Groundwater was encountered at 4 m bgl. 4. Borehole installed with 50mm diameter standpipe, gas bung and lockable tophat/ traffic strength flush cover.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter
25/05/2018		4.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling	Premier 110	AN	TH	TH	1:30

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Project No:	Hole ID:	Page:
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Project: **Stanton's Yard, Havant**

Dynamic Sampler Log

Date: **29/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Type	Ref	Test Details: Depth (m)	Results	Backfill
MADE GROUND: Concrete.		0.20	(0.20)									
Firm white brown mottled slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse chalk. (HEAD DEPOSITS)		0.30	(0.10)				0.35	ES	1			
Firm light brown grey mottled slightly silty sandy CLAY. Sand is fine to medium. Black staining and hydrocarbon odour between 1.05 and 1.35 m bgl. (HEAD DEPOSITS)										1.00	SPT(S) N=6 (1,2/1,2,1,2)	
							1.15	ES	2			
			(2.40)				1.60	G	1			
										2.00	SPT(S) N=7 (1,2/2,2,1,2)	
		2.70										
Stiff grey closely fractured slightly silty slightly sandy CLAY. Sand is fine to medium. (LONDON CLAY)			(1.30)							3.00	SPT(S) N=9 (2,2/2,2,2,3)	
		4.00				4.00 ▼				4.00	SPT(S) N=11 (1,2/2,2,3,4)	
Borehole complete at 4.00 m bgl.												

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3. Groundwater was encountered at 4 m bgl. 4. Borehole installed with 50mm diameter standpipe, gas bung and lockable tophat/ traffic strength flush cover.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter
29/05/2018		4.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling	Premier 110	AN	TH	TH	1:30

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Project No:	Hole ID:	Page:
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Project: **Stanton's Yard, Havant**

Dynamic Sampler Log

Date: **29/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Concrete.		0.25	(0.25)									
Firm light brown orange mottled slightly silty slightly sandy CLAY. Sand is fine to medium. Occasional fine rootlets and gravel of subangular fine chalk. (HEAD DEPOSITS)		0.50	(0.25)				0.40	ES	1			
Yellow SAND. Sand is fine to medium. (HEAD DEPOSITS)		0.65										
Firm light brown orange mottled slightly silty slightly sandy CLAY. Sand is fine to medium. (HEAD DEPOSITS)		1.40	(0.85)				1.30	G	1	1.00	SPT(S) N=6 (1,1/2,1,1,2)	
Firm orange grey and black mottled slightly sandy slightly silty CLAY. Sand is fine. Frequent plant remains. Slight organic odour. (HEAD DEPOSITS)		1.90	(0.50)				1.60	G	2			
Stiff Light brown orange and grey mottled closely fractured slightly silty sandy CLAY. Sand is fine to medium. Occasional plant remains and carbonaceous deposits. (HEAD DEPOSITS)		4.00	(2.10)			4.00 ▼				2.00	SPT(S) N=6 (1,2/1,2,1,2)	
										3.00	SPT(S) N=7 (1,1/2,2,2,1)	
Borehole complete at 4.00 m bgl.										4.00	SPT(S) N=6 (1,1/1,2,1,2)	

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3. Groundwater was encountered at 4 m bgl. 4. Borehole backfilled with arising.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter
29/05/2018		4.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling	Premier 110	AN	TH	TH	1:30

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Project No: **18-0609.01** | Hole ID: **DS05** | Page: **1 of 1**

Project: **Stanton's Yard, Havant**

Dynamic Sampler Log

Date: **29/05/2018** | Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Type	Ref	Test Details: Depth (m)	Results	Backfill
MADE GROUND: Concrete.		0.20	(0.20)									
Firm white very closely fractured slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium chalk. (HEAD DEPOSITS)		0.45	(0.25)				0.30	ES	1			
Firm light brown grey mottled slightly silty slightly sandy CLAY. Sand is fine to medium. (HEAD DEPOSITS)		0.80	(0.35)									
Firm grey brown mottled slightly silty slightly sandy CLAY. Sand is fine to medium. Black staining and hydrocarbon odour between 0.8 and 1.3 m bgl. (HEAD DEPOSITS)		1.75	(0.95)				1.10	ES	2	1.00	SPT(S) N=6 (1,1/1,2,1,2)	
							1.60	G	1			
Firm light brown grey and orange mottled slightly silty slightly sandy CLAY. Sand is fine to medium. Occasional plant remains. (HEAD DEPOSITS)		3.70	(1.95)				2.20	G	2	2.00	SPT(S) N=7 (1,2/2,1,2,2)	
										3.00	SPT(S) N=7 (1,2/1,2,2,2)	
Stiff grey closely fractured slightly silty slightly sandy CLAY. Sand is fine. (LONDON CLAY)		4.00	(0.30)			4.00 ▼				4.00	SPT(S) N=11 (1,2/2,2,3,4)	
Borehole complete at 4.00 m bgl.												

Remarks:
1. Engineer logged in general accordance to BS 5930:2015. 2. Area cleared for services prior to drilling. 3. Groundwater was encountered at 4 m bgl. 4. Borehole backfilled with arising.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter
29/05/2018		4.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling	Premier 110	AN	TH	TH	1:30

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Project No: **18-0609.01**

Hole ID: **TP01**

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Project: **Stanton's Yard, Havant**

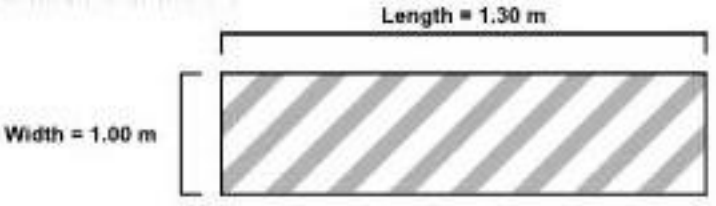
Trial Pit Log

Date: **30/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type Ref	Depth (m)	Results
MADE GROUND: Reinforced concrete.		0.10						
MADE GROUND: Greyish brown very sandy gravel. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint and brick. Frequent concrete, slate and plastic fragments. Abundant brick cobbles.		0.35			0.20	ES 1		
MADE GROUND: Concrete.		0.45						
MADE GROUND: Greyish brown very sandy Gravel. Sand is fine to medium. Gravel is angular to subangular fine to medium flint. Frequent cement, slag, glass and metal fragments. Frequent brick cobbles.		0.70						
Firm light brown slightly silty slightly sandy CLAY. Sand is fine. (HEAD DEPOSITS)		1.25						
Trial pit complete at 1.25 m bgl.								

Dimensions and Orientation:



Orientation:

Inclination:

Remarks:
1. Engineer logged in general accordance to BS: 5930:2015. 2. Service avoidance exercise undertaken prior to intrusive works. 3. Groundwater not encountered. 4. Trial pit backfilled with arising.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
			Excavator	AN	TH	TH	1:30

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Project No:	Hole ID:	Page:
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Project: **Stanton's Yard, Havant**

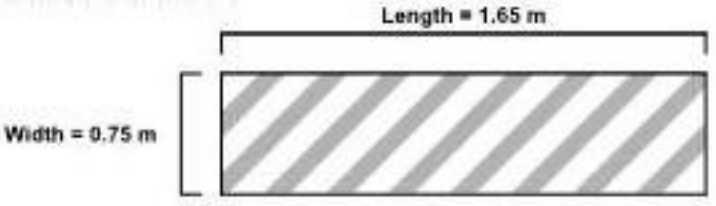
Trial Pit Log

Date: **30/05/2018**

Client: **Tiger Developments**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type Ref	Depth (m)	Results
MADE GROUND: Concrete.		0.30						
MADE GROUND: Angular to subangular fine to medium flint gravel.		0.40						
MADE GROUND: Brown clayey sand and gravel. Sand is fine to medium. Gravel is angular to subangular fine to coarse flint. Abundant fragments of brick, concrete, cement, slate, metal, plastic, clinker, tiles. Occasional rootlets.		1.10			0.70	ES 1		
Firm light brown slightly sandy slightly silty CLAY. Sand is fine. (HEAD DEPOSITS)		1.80						
Trial pit complete at 1.80 m bgl.								

Dimensions and Orientation:



Orientation:

Inclination:

Remarks:
1. Engineer logged in general accordance to BS: 5930:2015. 2. Service avoidance exercise undertaken prior to intrusive works. 3. Groundwater not encountered. 4. Trial pit backfilled with arising.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
			Excavator	AN	TH	TH	1:30

Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005



Dynamic sampling uk ltd
6-8 victory parkway
victory road
Derby
DE24 8ZF

Hammer Ref:	110.RP63
Test Date:	16/09/2017
Report Date:	25/09/2017
File Name:	110.RP63.spt
Test Operator:	TP

Instrumented Rod Data

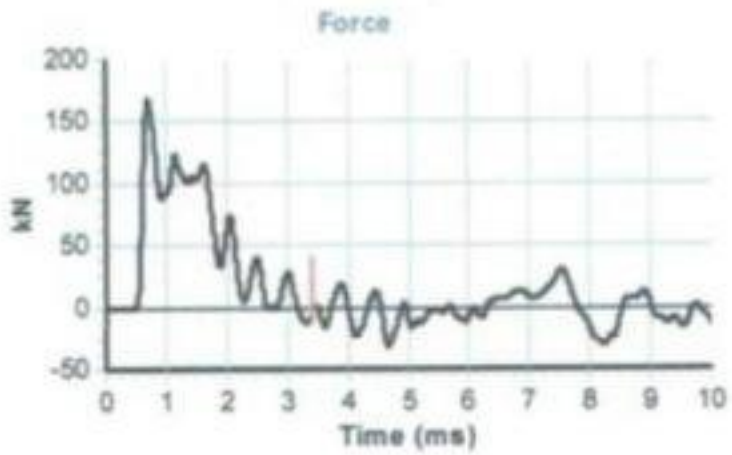
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.9
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	6455
Accelerometer No.2:	6457

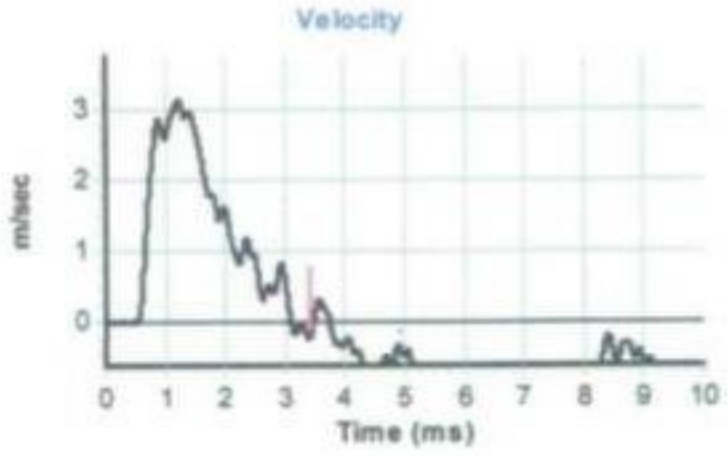
Hammer Information

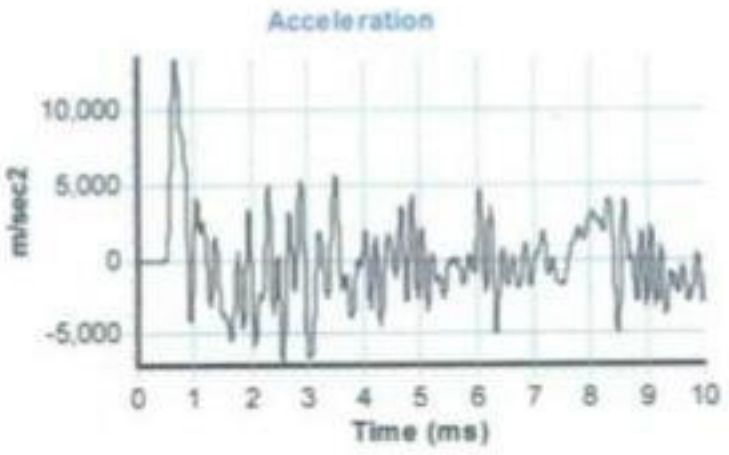
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
String Length L (m):	16.0

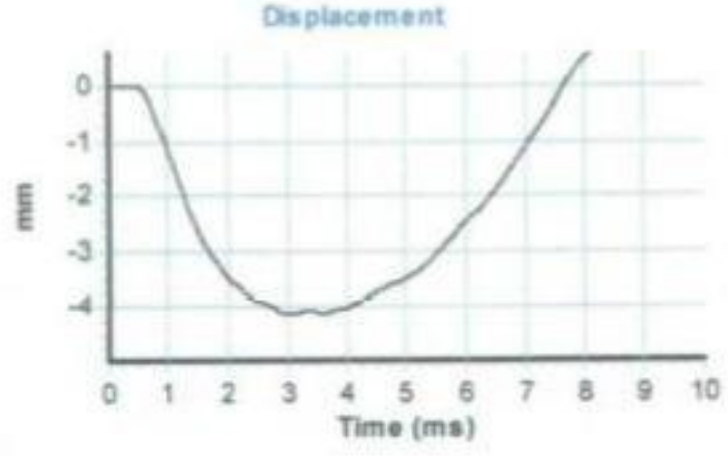
Comments / Location

Sherwood drilling hammer tested at Dynamic samplings yard.









Calculations

Area of Rod A (mm2):	1021
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	369

Energy Ratio E_r (%): 78

[redacted]

Signed: A.parker.

Title: Associate Director.

The recommended calibration interval is 12 months

SPTMAN ver.Hammer Energy ver. 1.93 All rights reserved, Testconsult ©2010

James Fisher
Testing Services

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

James Fisher Testing Services
Ruby House
40a Hardwick Grange
Woolston
Warrington
WA1 4RF

SPT Hammer Ref:	12
Test Date:	22/12/2017
Report Date:	02/01/2018
File Name:	12.spt
Test Operator:	OT

Instrumented Rod Data

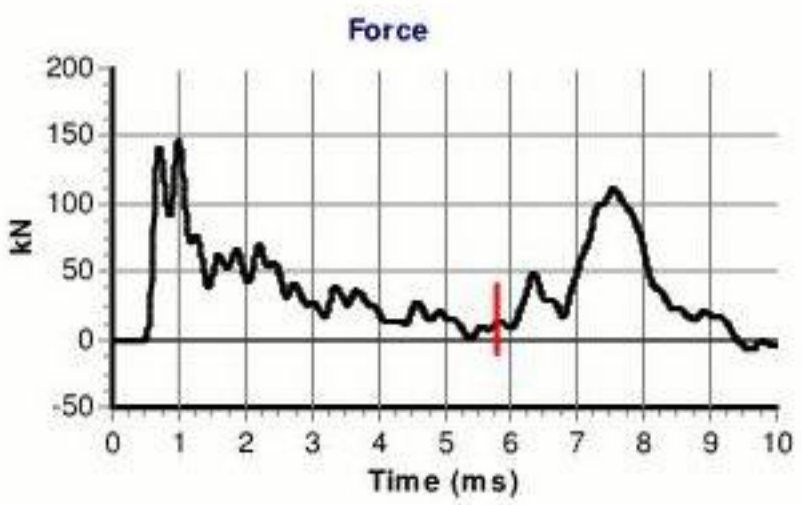
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.6
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	9603
Accelerometer No.2:	9983

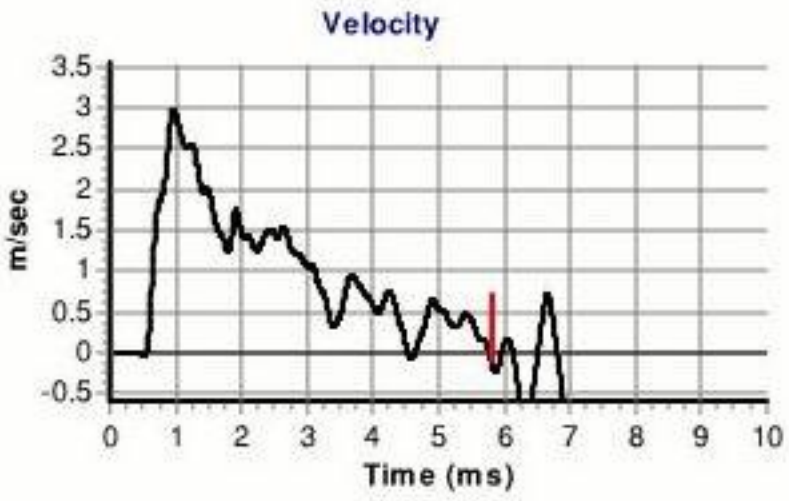
SPT Hammer Information

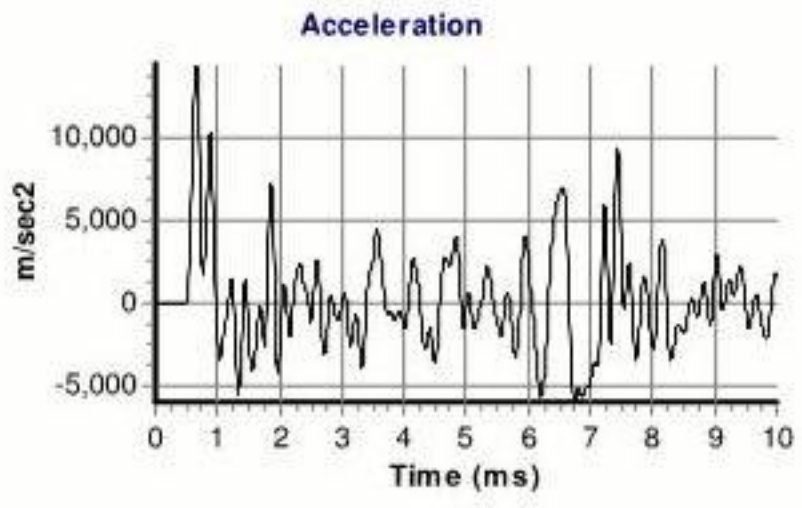
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

Comments / Location

TRIP









Calculations

Area of Rod A (mm2):	983
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	323

Energy Ratio E_r (%): **68**

[redacted]

Signed: I. Revenhorst

Title: Senior Technician

SPTMAN ver.2.00 All rights reserved, Testconsult ©2010

Appendix E – Geotechnical Analysis Results

2304

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

TEST CERTIFICATE

Determination of Moisture Content

Tested in Accordance with BS 1377-2: 1990: Clause 3.2

Client: Delta-Simons
Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Contact: Aidan Nelson

Site Name: Havant
Site Address:

Certificate Number: NL4962-41/1/705
Client Reference: N/A
Job Number: NL4962-41
Date Sampled: 05.06.2018
Date Received: 05.06.2018
Date Tested: 05.06.2018
Certificate of Sampling: No
Sampling Certificate No.: N/A
Sampled By: Client

TEST RESULTS

Laboratory Reference	Sample Reference	Location	Depth Top	Depth Base	Description	Moisture Content [%]
NL4962-41/1	G1	BH01	1.20m	N/A	Orange Brown Clay	28
NL4962-41/2	G2	BH01	3.00m	N/A	Orange Brown Sandy Clay	25
NL4962-41/3	D13	BH01	4.50m	N/A	Grey Slightly Sandy Clay	24
NL4962-41/4	D18	BH01	7.50m	7.95m	Grey Slightly Sandy Clay	26
NL4962-41/5	D20	BH01	9.00m	9.45m	Grey Slightly Sandy Clay	28

Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018
Form Number: EN/C/705 Version 24

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Whitchurch, Shropshire, SY13 2BS

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/1/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS

Laboratory Reference: NL4962-41/1

Sample Reference: G1

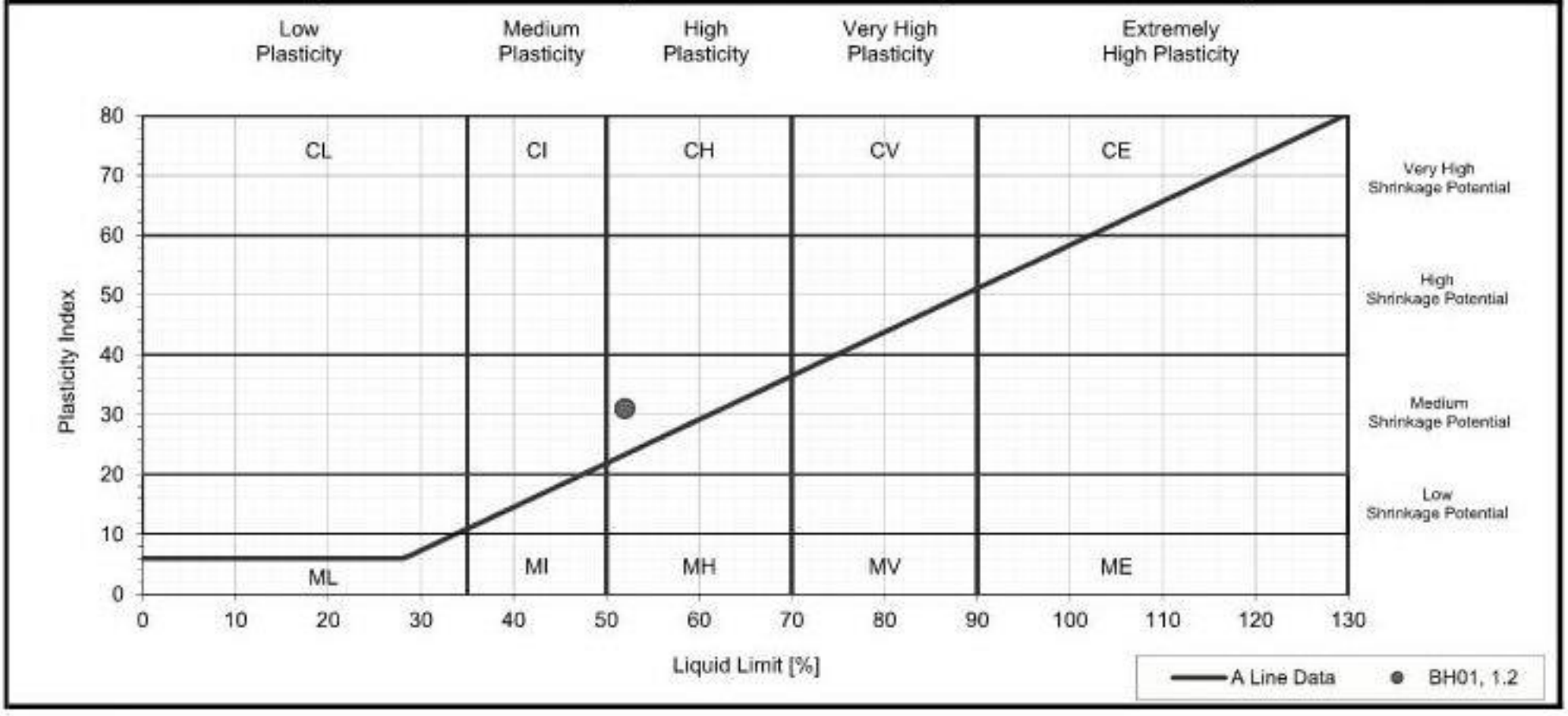
Description: Orange Brown Clay

Location: BH01 Depth: 1.20m

Sample Preparation: Prepared from Natural

Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
28	52	21	31	100



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/2/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS

Laboratory Reference: NL4962-41/2

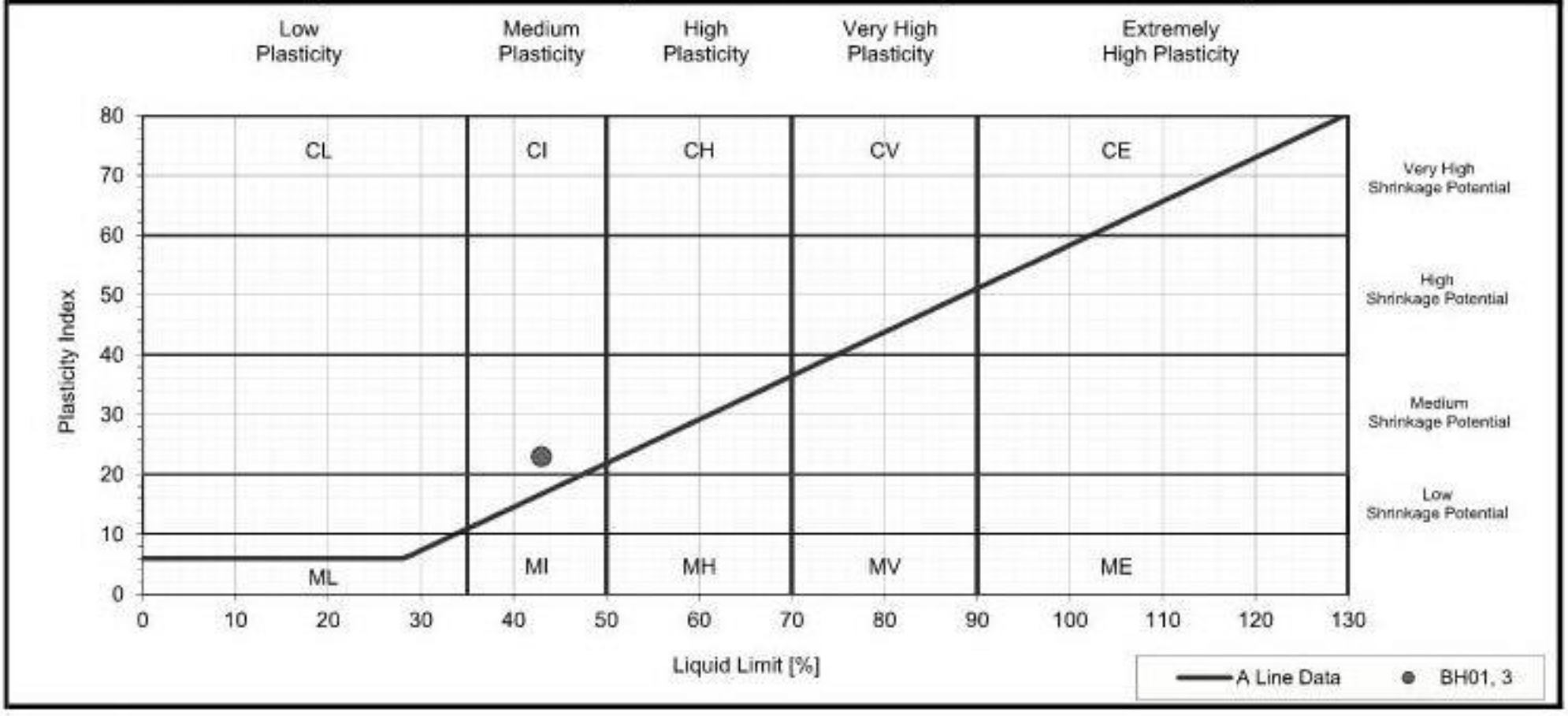
Sample Reference: G2

Description: Orange Brown Sandy Clay

Location: BH01 Depth: 3.00m

Sample Preparation: Prepared from Natural
Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
25	43	20	23	86



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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Whitchurch, Shropshire, SY13 2BS

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client: Delta-Simons
Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Contact: Aidan Nelson

Site Name: Havant
Site Address:

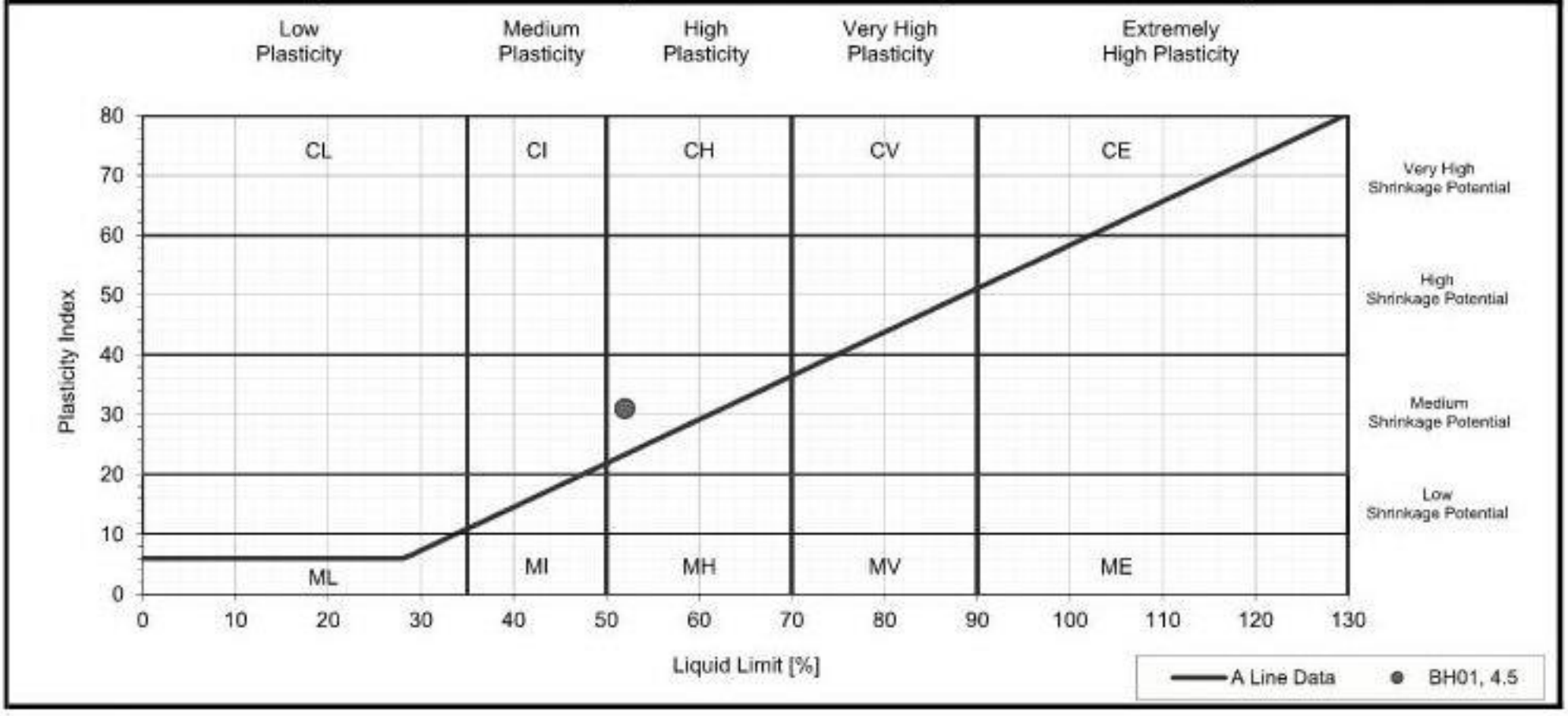
Certificate Number: NL4962-41/3/704-1
Client Reference: N/A
Job Number: NL4962-41
Date Sampled: 05.06.2018
Date Received: 05.06.2018
Date Tested: 06.06.2018
Certificate of Sampling: No
Sampling Certificate No.: N/A
Sampled By: Client

TEST RESULTS

Laboratory Reference: NL4962-41/3
Sample Reference: D13

Description: Grey Slightly Sandy Clay
Location: BH01 Depth: 4.50m
Sample Preparation: Prepared from Natural
Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
24	52	21	31	92



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/4/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS

Laboratory Reference: NL4962-41/4

Sample Reference: D18

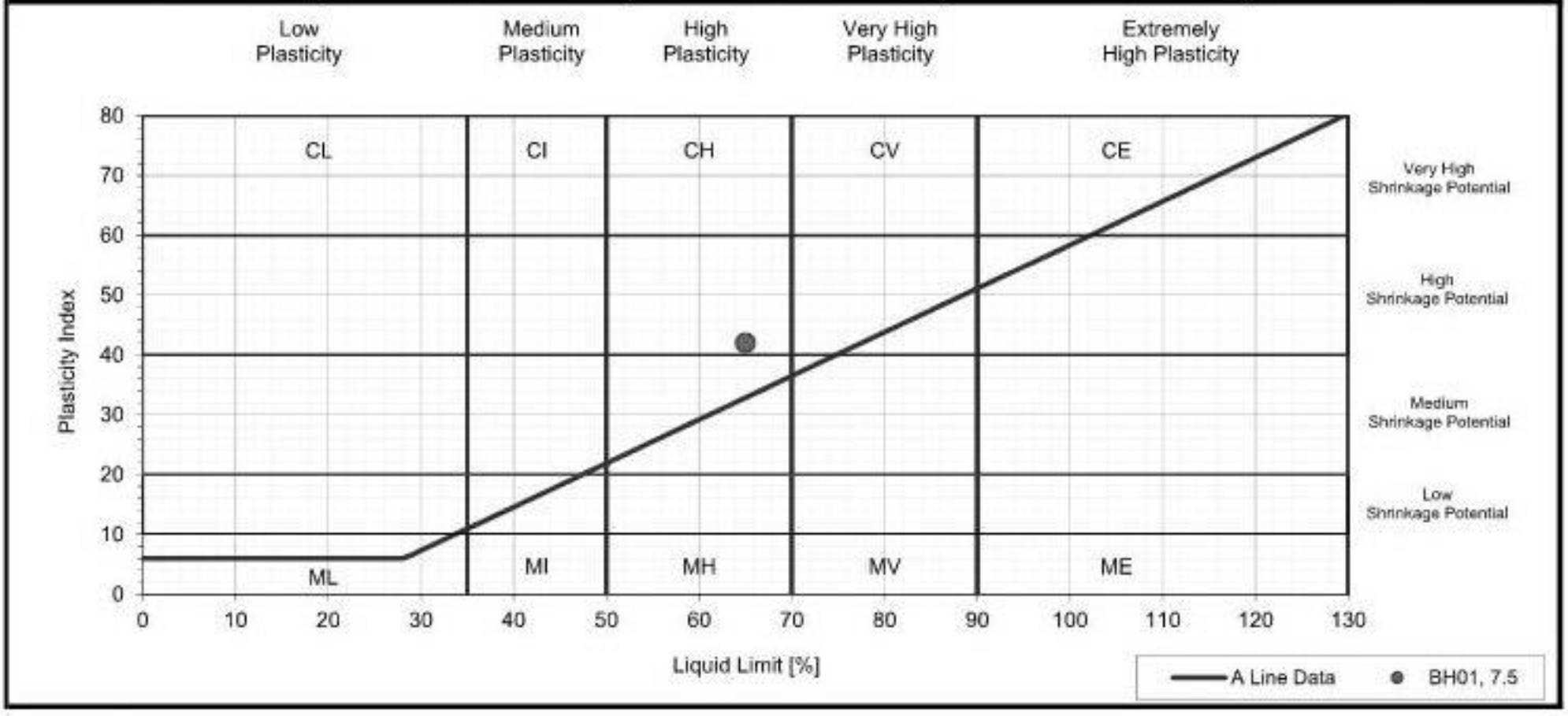
Description: Grey Slightly Sandy Clay

Location: BH01 — Depth Top: 7.50m

Sample Preparation: Prepared from Natural — Depth Base: 7.95m

Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
26	65	23	42	92



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/5/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

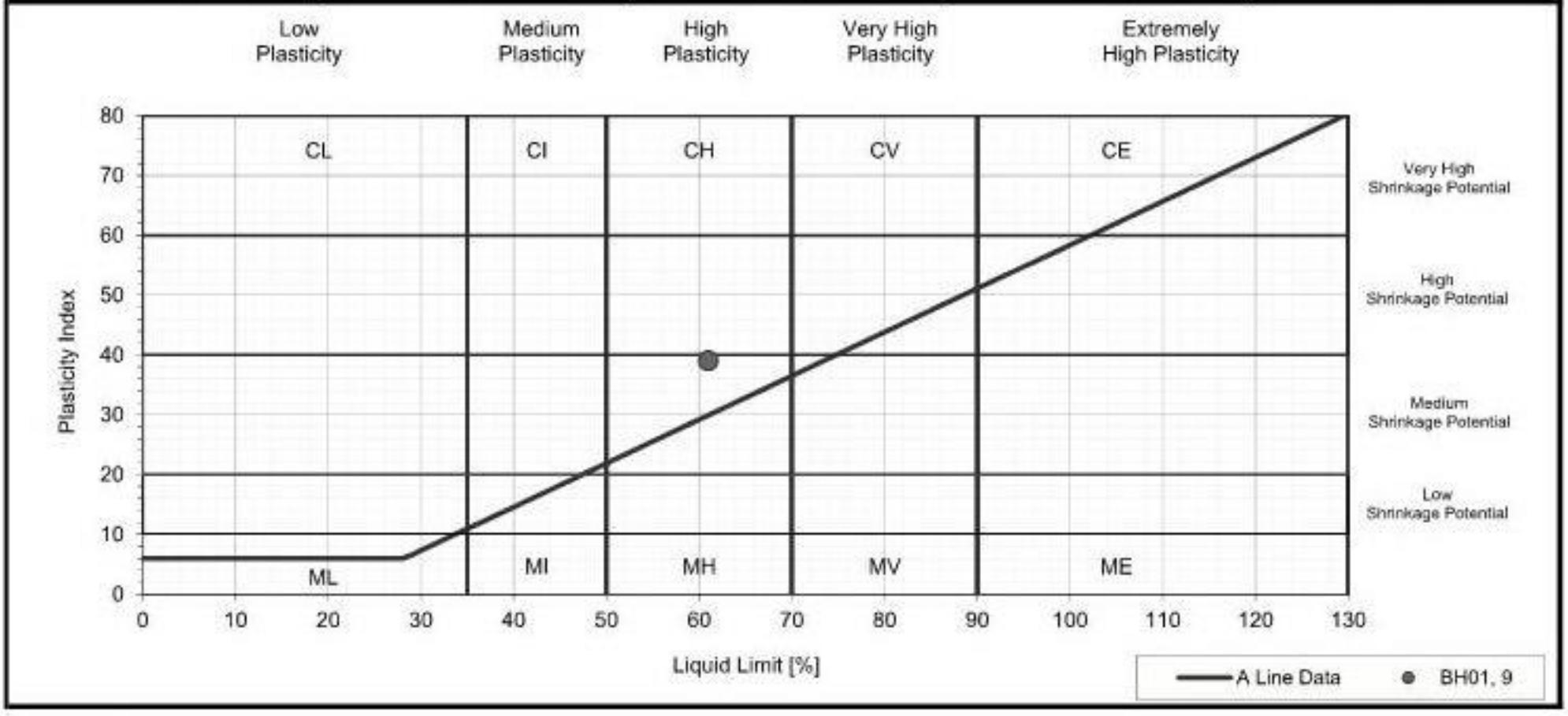
TEST RESULTS

Laboratory Reference: NL4962-41/5

Sample Reference: D20

Description:	Grey Slightly Sandy Clay		
Location:	BH01	Depth Top:	9.00m
Sample Preparation:	Prepared from Natural	Depth Base:	9.45m
	Estimated % Passing 425µm BS Test Sieve		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
28	61	22	39	92



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018 Page 1 of 1

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Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

TEST CERTIFICATE

Determination of Moisture Content

Tested in Accordance with BS 1377-2: 1990: Clause 3.2

Client: Delta-Simons
Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Contact: Aidan Nelson

Site Name: Havant
Site Address:

Certificate Number: NL4962-41/6/705
Client Reference: N/A
Job Number: NL4962-41
Date Sampled: 05.06.2018
Date Received: 05.06.2018
Date Tested: 05.06.2018
Certificate of Sampling: No
Sampling Certificate No.: N/A
Sampled By: Client

TEST RESULTS

Laboratory Reference	Sample Reference	Location	Depth Top	Depth Base	Description	Moisture Content [%]
NL4962-41/6	G2	DS01	1.30m	N/A	Orange Brown Slightly Sandy Clay	25
NL4962-41/7	G3	DS01	3.85m	N/A	Grey Slightly Sandy Clay	25
NL4962-41/8	G2	DS02	1.30m	N/A	Orange Brown Slightly Sandy Clay	29
NL4962-41/9	G1	DS03	1.60m	N/A	Orange Brown Slightly Sandy Clay	24
NL4962-41/10	G2	DS04	1.60m	N/A	Orange Brown Slightly Sandy Clay	22

Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018
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Whitchurch, Shropshire, SY13 2BS

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/6/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS

Laboratory Reference: NL4962-41/6

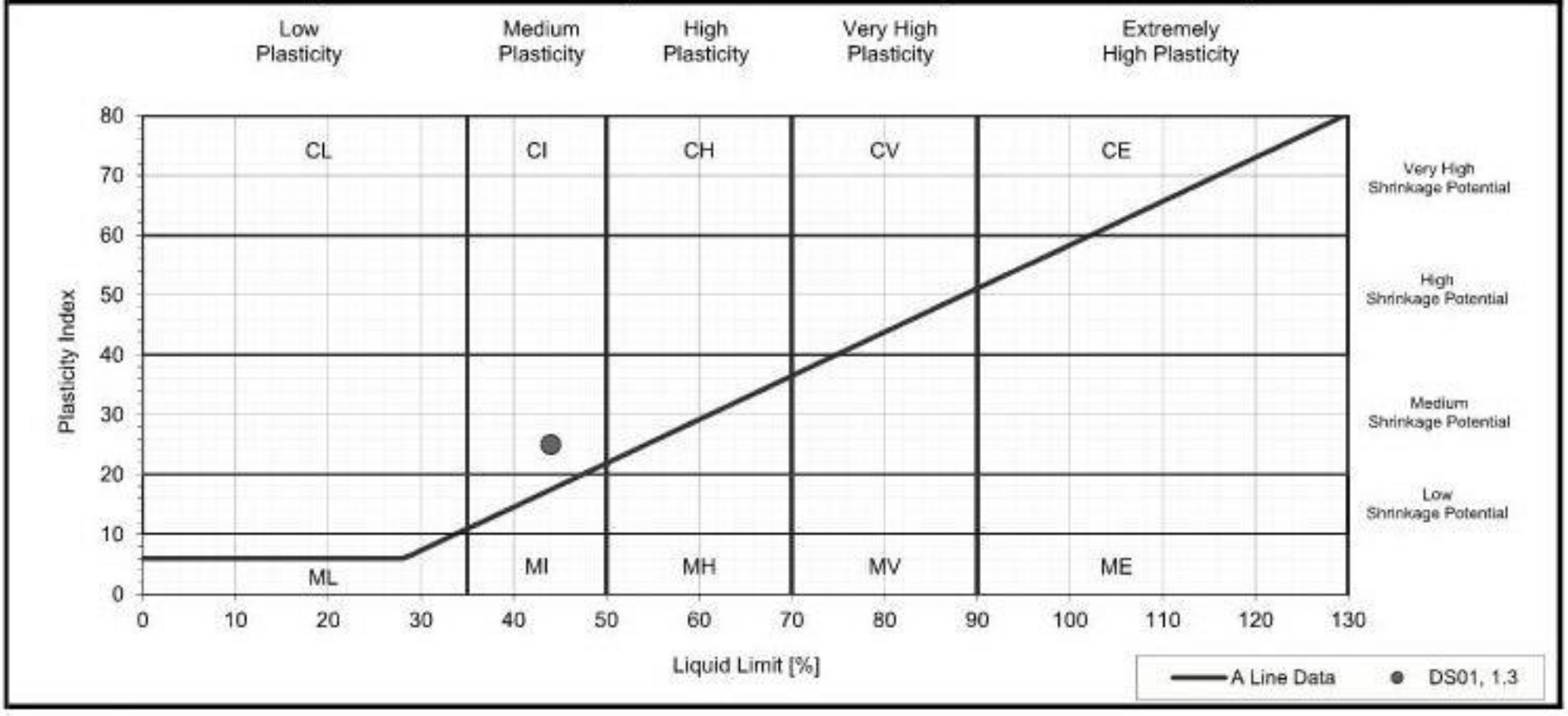
Sample Reference: G2

Description: Orange Brown Slightly Sandy Clay

Location: DS01 Depth: 1.30m

Sample Preparation: Prepared from Natural
Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
25	44	19	25	90



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/7/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS

Laboratory Reference: NL4962-41/7

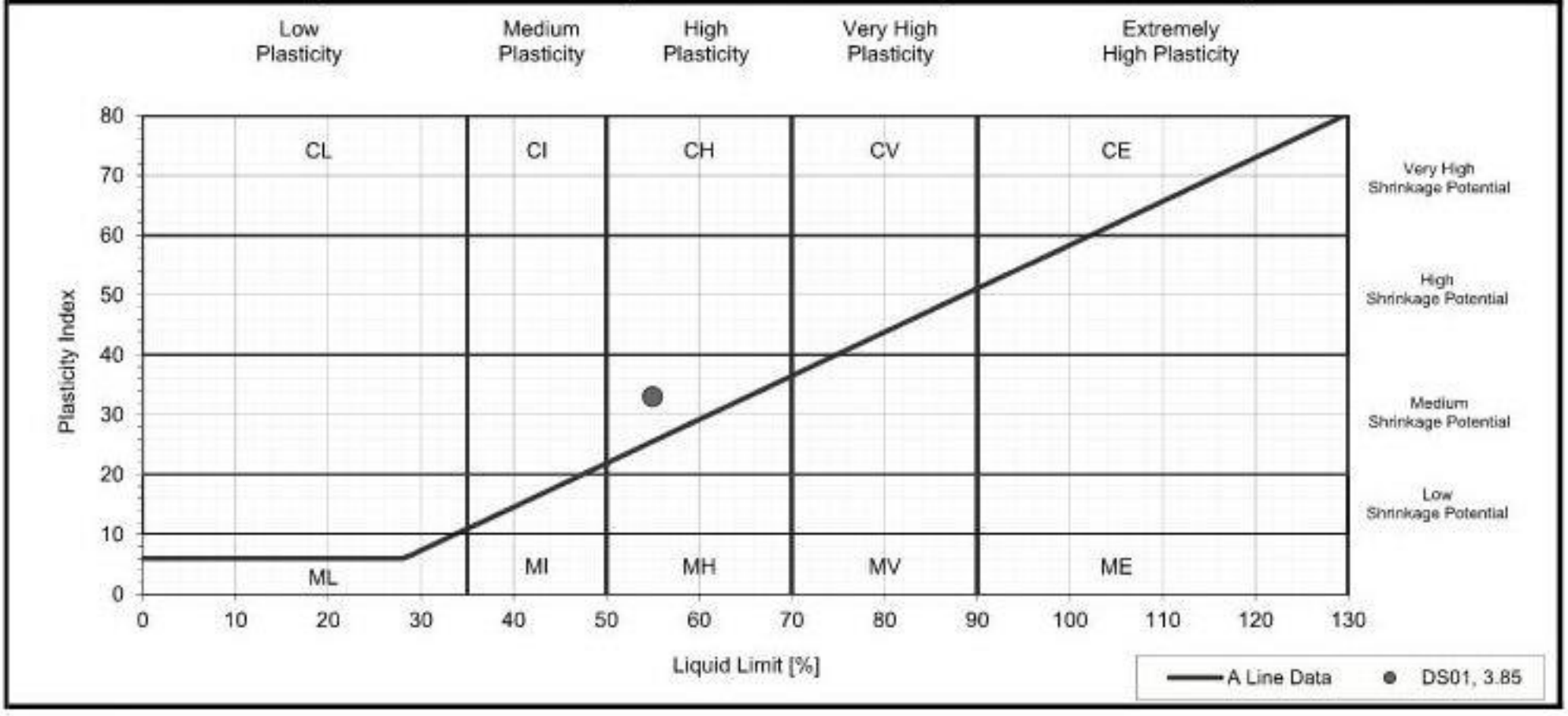
Sample Reference: G3

Description: Grey Slightly Sandy Clay

Location: DS01 Depth: 3.85m

Sample Preparation: Prepared from Natural
Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
25	55	22	33	95



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/8/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS **Laboratory Reference:** NL4962-41/8

Sample Reference: G2

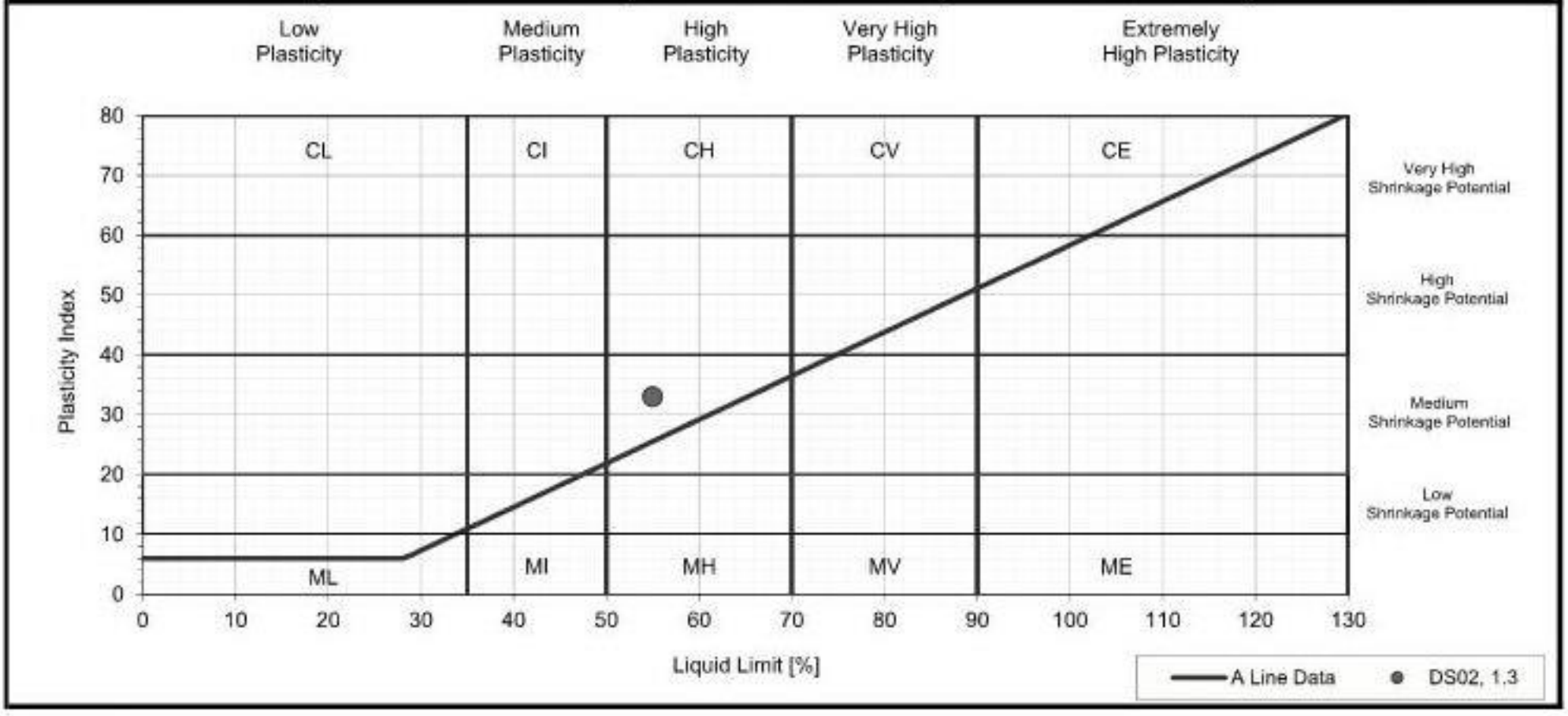
Description: Orange Brown Slightly Sandy Clay

Location: DS02 Depth: 1.30m

Sample Preparation: Prepared from Natural

Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
29	55	22	33	91



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018 Page 1 of 1

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Enverity

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Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client:	Delta-Simons	Certificate Number:	NL4962-41/9/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS

Laboratory Reference: NL4962-41/9

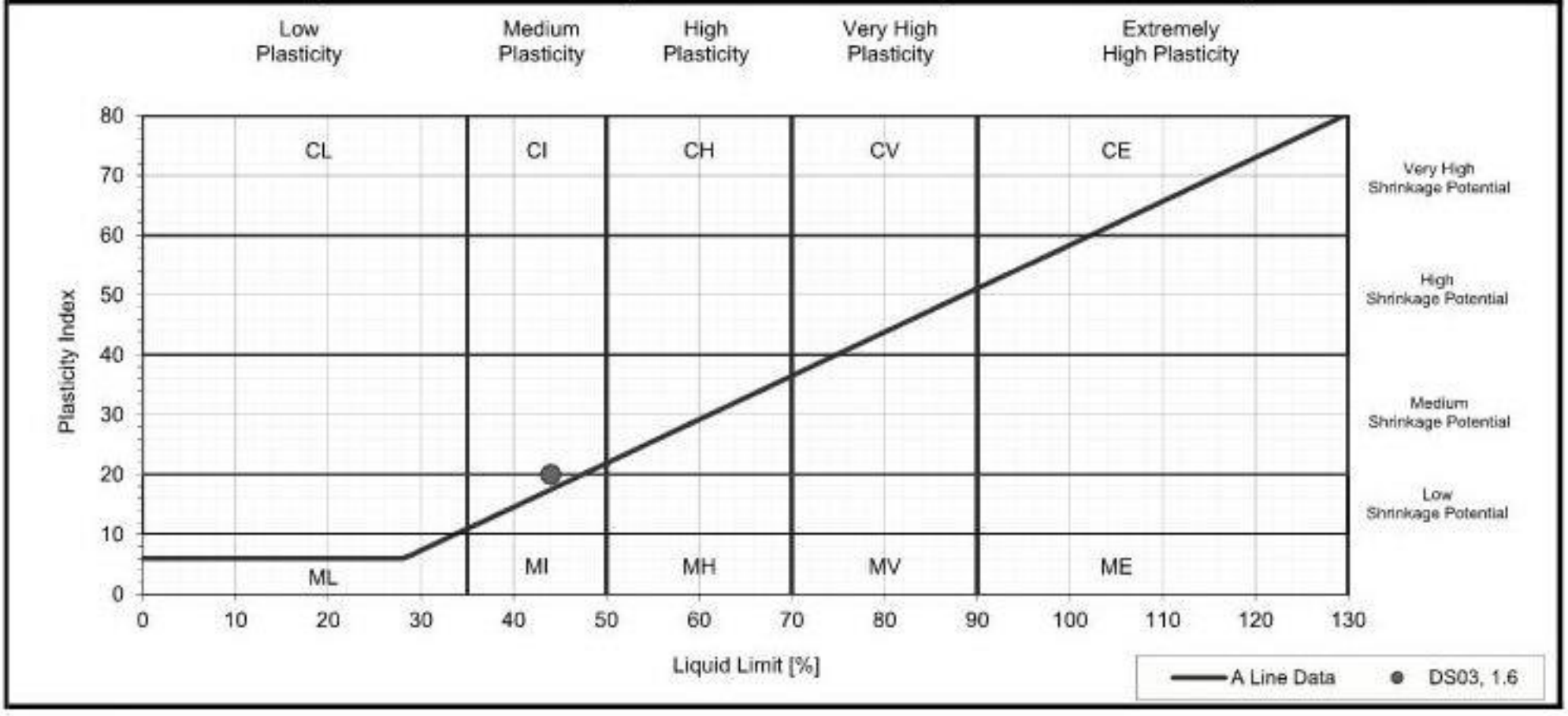
Sample Reference: G1

Description: Orange Brown Slightly Sandy Clay

Location: DS03 Depth: 1.60m

Sample Preparation: Prepared from Natural
Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
24	44	24	20	91



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed:

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018 Page 1 of 1

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

Client:	Delta-Simons	Certificate Number:	NL4962-41/10/704-1
Client Address:	The Lawns Union Road Lincoln LN1 3BL	Client Reference:	N/A
		Job Number:	NL4962-41
		Date Sampled:	05.06.2018
		Date Received:	05.06.2018
Contact:	Aidan Nelson	Date Tested:	06.06.2018
		Certificate of Sampling:	No
Site Name:	Havant	Sampling Certificate No.:	N/A
Site Address:		Sampled By:	Client

TEST RESULTS **Laboratory Reference:** NL4962-41/10

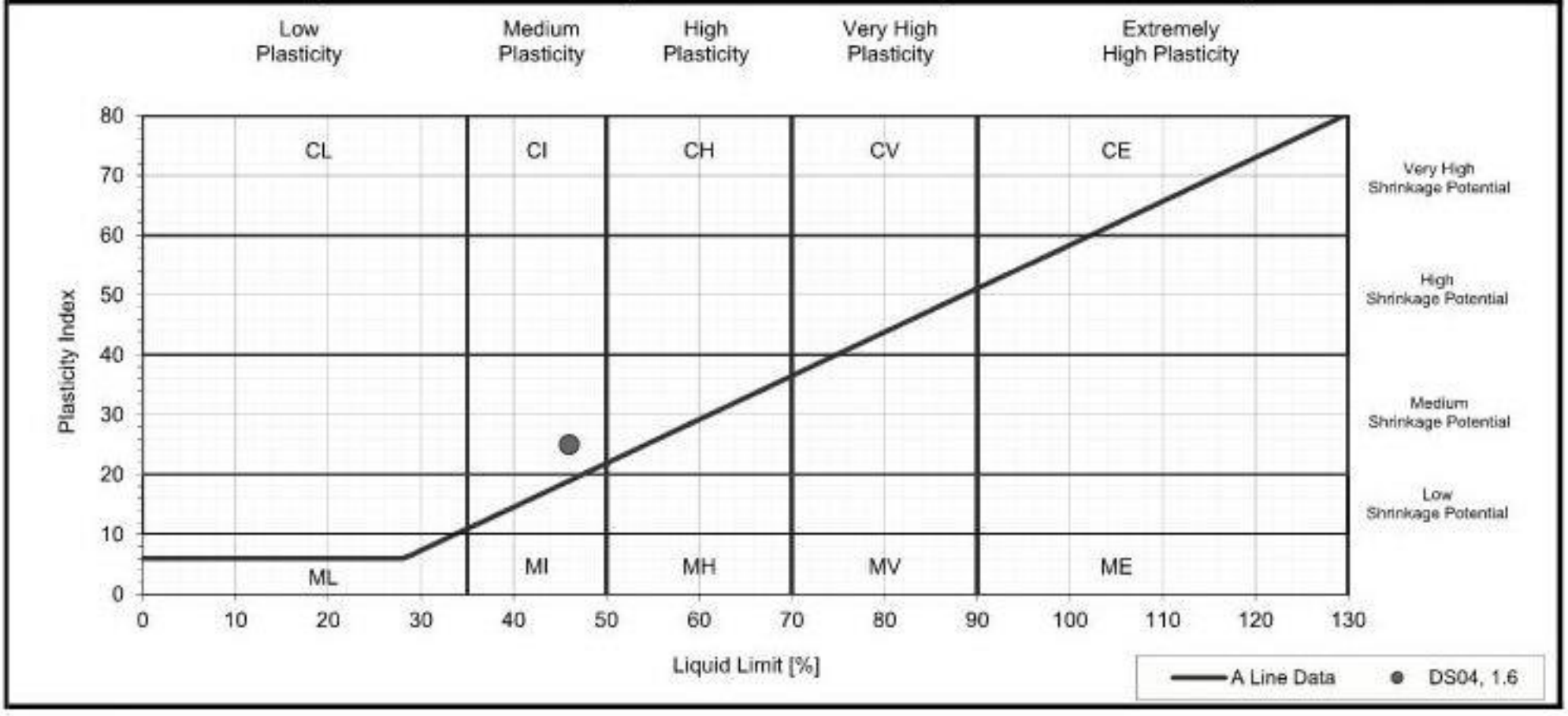
Sample Reference: G2

Description: Orange Brown Slightly Sandy Clay

Location: DS04 Depth: 1.60m

Sample Preparation: Prepared from Natural
Estimated % Passing 425µm BS Test Sieve

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
22	46	21	25	92



Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018 Page 1 of 1

Form Number: EN/C/704-1 Version 18

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Registered in England & Wales
Registration Number 6930692
Reg Office; Charleston House
Cruckmoor Lane, Prees Green
Whitchurch, Shropshire, SY13 2BS

Appendix F – Soil Chemical Analysis Results

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING 2183

mCERTS

Final Report

Report No.:	18-15450-1
Initial Date of Issue:	07-Jun-2018
Client	Delta Simons
Client Address:	City Gate East Tollhouse Hill Nottingham NG1 5FS
Contact(s):	Aidan Nelson Tom Horner
Project	18-0609.01 - Havant
Quotation No.:	
Order No.:	DS 38628
No. of Samples:	13
Turnaround (Wkdays):	5
Date Approved:	07-Jun-2018
Approved By:	[redacted]
Details:	Glynn Harvey, Laboratory Manager

Date Received:	01-Jun-2018
Date Instructed:	01-Jun-2018
Results Due:	07-Jun-2018

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0609.01 - Havant

Client: Delta Simons		**Chemtest Job No.:**			18-15450	18-15450	18-15450	18-15450	18-15450	18-15450	18-15450	18-15450
Quotation No.:		**Chemtest Sample ID.:**			631735	631736	631737	631738	631739	631740	631741	631742
Order No.: DS 38628		Client Sample Ref.:			BH01	DS01	DS02	DS03	DS03	DS04	DS05	DS05
		Client Sample ID.:			ES1	ES1	ES1	ES1	ES2	ES1	ES1	ES2
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.30	0.15	0.20	0.35	1.15	0.40	0.3	1.10
		Date Sampled:			24-May-2018	25-May-2018	25-May-2018	29-May-2018	29-May-2018	29-May-2018	29-May-2018	29-May-2018
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY		COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-	Cement	-	-		-	-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	Chrysotile	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	17	12	21	17	20	23	20	22
Soil Colour	N	2040		N/A	White	Black	White	Brown	Brown	Brown	White	Brown
Other Material	N	2040		N/A	NONE	NONE	NONE	Stones	Stones	NONE	NONE	NONE
Soil Texture	N	2040		N/A	Loam	Loam	Loam	Loam	Loam	Loam	Loam	Clay
pH	M	2010		N/A			11.2	8.0	7.4			
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40	< 0.40		< 0.40	< 0.40	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010			0.042	< 0.010	0.012			
Total Sulphur	M	2175	%	0.010			0.071	0.016	0.041			
Sulphate (Acid Soluble)	M	2430	%	0.010			0.10	< 0.010	< 0.010			
Arsenic	M	2450	mg/kg	1.0	23	31	24	17		< 1.0	31	
Cadmium	M	2450	mg/kg	0.10	0.10	0.48	< 0.10	< 0.10		< 0.10	< 0.10	
Chromium	M	2450	mg/kg	1.0	15	29	5.1	49		9.3	2.2	
Copper	M	2450	mg/kg	0.50	2.1	34	3.4	13		2.2	< 0.50	
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Nickel	M	2450	mg/kg	0.50	4.5	25	4.3	30		5.7	2.0	
Lead	M	2450	mg/kg	0.50	1.2	160	5.1	11		1.4	< 0.50	
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20		< 0.20	< 0.20	
Zinc	M	2450	mg/kg	0.50	9.2	270	14	57		12	6.9	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.7	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	48	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	15	< 1.0	< 1.0	320	< 1.0	< 1.0	15
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	11	< 1.0	< 1.0	990	< 1.0	< 1.0	78
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	340	150	45	160	< 1.0	< 1.0	16
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	370	150	45	1500	< 5.0	< 5.0	110
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	33	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	85	< 1.0	< 1.0	300	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	630	< 1.0	< 1.0	220	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	8700	33	71	97	< 1.0	< 1.0	< 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0609.01 - Havant

Client: Delta Simons		**Chemtest Job No.:**			18-15450	18-15450	18-15450	18-15450	18-15450	18-15450	18-15450	18-15450
Quotation No.:		**Chemtest Sample ID.:**			631735	631736	631737	631738	631739	631740	631741	631742
Order No.: DS 38628		Client Sample Ref.:			BH01	DS01	DS02	DS03	DS03	DS04	DS05	DS05
		Client Sample ID.:			ES1	ES1	ES1	ES1	ES2	ES1	ES1	ES2
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.30	0.15	0.20	0.35	1.15	0.40	0.3	1.10
		Date Sampled:			24-May-2018	25-May-2018	25-May-2018	29-May-2018	29-May-2018	29-May-2018	29-May-2018	29-May-2018
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY		COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	390	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	9800	33	71	650	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	10000	190	120	2200	< 10	< 10	110
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	< 2.0	
Benzene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m & p-Xylene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
o-Xylene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0609.01 - Havant

Client: Delta Simons				**Chemtest Job No.:**	18-15450	18-15450	18-15450	18-15450	18-15450
Quotation No.:				**Chemtest Sample ID.:**	631743	631744	631745	631746	631747
Order No.: DS 38628				Client Sample Ref.:	CBR03	CBR03	TP01	TP02	BH01
				Client Sample ID.:	ES1	ES2	ES1	ES1	G3
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.20	1.80	0.20	0.70	5.00
				Date Sampled:	30-May-2018	30-May-2018	30-May-2018	30-May-2018	24-May-2018
				Asbestos Lab:			COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A			-	-	
Asbestos Identification	U	2192	%	0.001			No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	21	21	7.9	15	18
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Grey
Other Material	N	2040		N/A	NONE	NONE	Stones	Stones	NONE
Soil Texture	N	2040		N/A	Loam	Clay	Sand	Loam	Clay
pH	M	2010		N/A	7.5				8.0
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40			0.44	< 0.40	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010				0.073
Total Sulphur	M	2175	%	0.010	0.013				0.61
Sulphate (Acid Soluble)	M	2430	%	0.010	< 0.010				0.014
Arsenic	M	2450	mg/kg	1.0			21	13	
Cadmium	M	2450	mg/kg	0.10			0.11	< 0.10	
Chromium	M	2450	mg/kg	1.0			27	31	
Copper	M	2450	mg/kg	0.50			15	9.9	
Mercury	M	2450	mg/kg	0.10			< 0.10	< 0.10	
Nickel	M	2450	mg/kg	0.50			20	27	
Lead	M	2450	mg/kg	0.50			68	15	
Selenium	M	2450	mg/kg	0.20			< 0.20	< 0.20	
Zinc	M	2450	mg/kg	0.50			85	51	
Chromium (Hexavalent)	N	2490	mg/kg	0.50			< 0.50	< 0.50	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	3.4	< 1.0	< 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	42	< 1.0	< 1.0	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	120	< 1.0	< 1.0	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	23	< 1.0	< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	190	< 5.0	< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	15	< 1.0	< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	5.1	< 1.0	67	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	340	5.2	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0609.01 - Havant

Client: Delta Simons		**Chemtest Job No.:**			18-15450	18-15450	18-15450	18-15450	18-15450
Quotation No.:		**Chemtest Sample ID.:**			631743	631744	631745	631746	631747
Order No.: DS 38628		Client Sample Ref.:			CBR03	CBR03	TP01	TP02	BH01
		Client Sample ID.:			ES1	ES2	ES1	ES1	G3
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			1.20	1.80	0.20	0.70	5.00
		Date Sampled:			30-May-2018	30-May-2018	30-May-2018	30-May-2018	24-May-2018
		Asbestos Lab:					COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	20	340	72	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	210	340	72	
Naphthalene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Acenaphthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Fluorene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Phenanthrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Anthracene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Fluoranthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Pyrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Chrysene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10		< 0.10	< 0.10	
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0		< 2.0	< 2.0	
Benzene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	
Toluene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	
Ethylbenzene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	
m & p-Xylene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	
o-Xylene	M	2760	mg/kg	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	

Chemtest
The right chemistry to deliver results

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
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SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Appendix G – Groundwater Chemical Analysis Results

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.:	18-15454-1
Initial Date of Issue:	07-Jun-2018
Client	Delta Simons
Client Address:	City Gate East Tollhouse Hill Nottingham NG1 5FS
Contact(s):	Aidan Nelson Tom Horner
Project	18-0609.01 - Havant
Quotation No.:	
Order No.:	DS 38628
No. of Samples:	3
Turnaround (Wkdays):	5
Date Approved:	07-Jun-2018
Approved By:	[redacted]
Details:	Glynn Harvey, Laboratory Manager

Date Received:	01-Jun-2018
Date Instructed:	01-Jun-2018
Results Due:	07-Jun-2018

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Results - Water

Project: 18-0609.01 - Havant

Client: Delta Simons			**Chemtest Job No.:**		18-15454	18-15454	18-15454
Quotation No.:			**Chemtest Sample ID.:**		631765	631766	631767
Order No.: DS 38628			Client Sample Ref.:		BH01	DS01	DS02
			Sample Type:		WATER	WATER	WATER
			Date Sampled:		30-Jun-2018	30-Jun-2018	30-Jun-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
pH	U	1010		N/A	8.2	8.5	8.0
Sulphate	U	1220	mg/l	1.0	100	120	87
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.2	< 1.0
Boron (Dissolved)	U	1450	µg/l	20	29	< 20	36
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	2.1
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	1.4
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.5	1.1	30
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	4.6	1.6	3.0
Zinc (Dissolved)	U	1450	µg/l	1.0	5.0	2.3	3.8
Total TPH >C6-C40	U	1670	µg/l	10	660	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0

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Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GC FID detection

Report Information

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A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
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Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.:	18-16380-1
Initial Date of Issue:	13-Jun-2018
Client	Delta Simons
Client Address:	3 Henley Office Park Doddington Road Lincoln Lincolnshire LN6 3QR
Contact(s):	Aidan Nelson Tom Horner
Project	18-0609.01 Havant
Quotation No.:	
Order No.:	DS 38822
No. of Samples:	1
Turnaround (Wkdays):	3
Date Approved:	13-Jun-2018
Approved By:	[redacted]
Details:	Martin Dyer, Laboratory Manager

Date Received:	11-Jun-2018
Date Instructed:	11-Jun-2018
Results Due:	13-Jun-2018

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Results - Water

Project: 18-0609.01 Havant

Client: Delta Simons			**Chemtest Job No.:**		18-16380
Quotation No.:			**Chemtest Sample ID.:**		635706
Order No.: DS 38822			Client Sample Ref.:		DS03
			Sample Type:		WATER
			Date Sampled:		07-Jun-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	7.5
Sulphate	U	1220	mg/l	1.0	42
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0
Boron (Dissolved)	U	1450	µg/l	20	23
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	1.4
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	8.6
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	2.7
Zinc (Dissolved)	U	1450	µg/l	1.0	4.4
Total TPH >C6-C40	U	1670	µg/l	10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0

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SOP	Title	Parameters included	Method summary
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1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GC FID detection

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customerservices@chemtest.co.uk

Appendix H – Gas Monitoring Data

Site Name	Larchwood Avenue, Havant	ob number	18-0609.01	EAT ER	Start / End
				Time	10:05 / 10:46
Client	Tiger Developments	Recorded by	AN	Pressure mb	1009 / 1009
				ind speed m/s	NR / NR
Date DD/MM/	30/05/2018			ind Dir. from	East / East
as Analyser	GFM435 (Gas Kit 5) - 12233	Visit Number	1	Temperature C	18.00 / 18.00
Readings at start	C 4 % v/v: NR; C 2 (% v/v): NR; 2 % v/v: NR	2S ppm	NR	Dry/Rain/Sno /Ice	Dry / Dry
eneral comments				Rising/Falling Trend for the three days before visit	Falling

Ref	R UND AS													R UND ATER			Notes
	Flo		C 4		C 2		2		2S	C	V C	Diff. Pressure	Atmos. Pressure	Depth to free product	Depth to ater	Depth to base	e.g. ater colour sheen odour damage to ell or gas tap flooded ground etc.
	l/hr		% v/v		% v/v		% v/v		ppm			mb	mb	m	m	m	
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max						
	The formulae require that only numbers 0.1 for ground gas and flo or DR for ground ater are entered in the sheet																
BH01	0.3	<0.1	<0.1	<0.1	0.4	0.4	12.7	12.7	0	0	NR	2.0	1009	NR	1.53	5.98	Dark brown groundwater
DS01	<0.1	<0.1	<0.1	<0.1	1.5	1.5	10.6	10.8	0	0	NR	0.0	1009	NR	1.60	3.72	Dark brown groundwater
DS02	<0.1	<0.1	<0.1	<0.1	4.4	4.1	13.0	17.1	0	0	NR	1.0	1009	NR	1.55	4.01	Dark brown groundwater
DS03	<0.1	<0.1	<0.1	<0.1	0.7	0.7	18.6	18.7	0	0	NR	0.0	1009	NR	2.56	3.97	

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deltasimons

Site Name	Larchwood Avenue, Havant	ob number	18-0609.01	EAT ER	Start	End
				Time	8:40	10:00
Client	Tiger Developments	Recorded by	AN	Pressure mb	1012	1012
				ind speed m/s	NR	NR
Date DD/MM/	07/06/2018			ind Dir. from	NR	NR
as Analyser	GFM436 (Gas Kit 2) - 12788	Visit Number	2	Temperature C	16.00	16.00
Readings at start	C 4 % v/v: 0.0; C 2 (% v/v): 0.1; 2 % v/v: 20.5		2S ppm: -60	Dry/Rain/Sno /Ice	Dry	Dry
eneral comments				Rising/Falling Trend for the three days before visit	Falling	

Ref	R UND AS														R UND ATER			Notes
	Flo		C 4		C 2		2		2S	C	V C	Diff. Pressure	Atmos. Pressure	Depth to free product	Depth to ater	Depth to base	e.g. ater colour sheen odour damage to ell or gas tap flooded ground etc.
	l/hr		% v/v		% v/v		% v/v		ppm								
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max	mb	mb	m	m	m	
	The formulae require that only numbers 0.1 for ground gas and flo or DR for ground ater are entered in the sheet																
BH01	0.1	<0.1	<0.1	<0.1	0.8	0.5	18.4	19.4	0	0	NR	0.0	1012	NR	1.71	5.86	
DS01	0.4	<0.1	<0.1	<0.1	4.7	4.7	11.8	11.8	0	0	NR	0.0	1012	NR	1.57	3.69	
DS02	<0.1	<0.1	<0.1	<0.1	4.6	4.8	12.8	17.2	0	0	NR	-25.0	1012	NR	1.63	3.95	
DS03	0.1	0.1	<0.1	<0.1	4.7	0.9	15.3	15.4	0	0	NR	1.0	1011	NR	1.32	3.88	Light brown groundwater

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deltasimons

Site Name	Larchwood Avenue, Havant	ob number	18-0609.01	EAT ER	Start	End
				Time	17:00	17:40
Client	Tiger Developments	Recorded by	HW	Pressure mb	1013	1013
Date DD/MM/	13/06/2018			ind speed m/s	4.90	5.10
as Analyser	GFM436 (Gas Kit 4) - 11030	Visit Number	3	ind Dir. from	SSW	SSW
Readings at start	C 4 % v/v 0.0 | C 2 (% v/v) 0.1 | 2 % v/v 19.8 | 2S ppm -60			Temperature C	19.00	18.00
				Dry/Rain/Sno /Ice	Dry	Dry
eneral comments				Rising/Falling Trend for the three days before visit	Rising	

Ref	R UND AS													R UND ATER			Notes
	Flo		C 4		C 2		2		2S	C	V C	Diff. Pressure	Atmos. Pressure	Depth to free product	Depth to ater	Depth to base	e.g. ater colour sheen odour damage to ell or gas tap flooded ground etc.
	l/hr		% v/v		% v/v		% v/v		ppm			mb	mb	m	m	m	
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max						
	The formulae require that only numbers 0.1 for ground gas and flo or DR for ground ater are entered in the sheet																
BH01	<0.1	<0.1	<0.1	<0.1	1.2	1.2	19.0	19.0	0	0	1.5	0.0	1012	NR	1.80	3.74	-
DS01	-64.3	-3.8	<0.1	<0.1	<0.1	<0.1	21.2	21.2	0	0	0.3	-942.0	1013	NR	1.92	4.00	Audible pressure release.
DS02	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	21.1	21.1	0	0	2.2	342.0	1013	NR	1.78	3.93	Audible pressure release.
DS03	-67.3	-4.4	<0.1	<0.1	<0.1	<0.1	21.3	21.3	0	0	0.0	-1067.0	1013	NR	1.64	5.80	Audible pressure release. Light brown groundwater.

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Site Name	Larchwood Avenue, Havant	ob number	18-0609.01	EAT ER	Start	End
				Time	8:55	9:50
Client	Tiger Developments	Recorded by	AN	Pressure mb	1018	1017
Date DD/MM/	20/06/2018			ind speed m/s	NR	NR
as Analyser	GFM436 (Gas Kit 2) - 12788	Visit Number	4	ind Dir. from	South West	South West
Readings at start	C 4 % v/v 0.0	C 2 (% v/v) 0.1	2 % v/v 20.6	2S ppm -50	Dry/Rain/Sno /Ice	Rain	Dry
eneral comments				Rising/Falling Trend for the three days before visit	Rising	

Ref	R UND AS													R UND ATER			Notes
	Flo		C 4		C 2		2		2S	C	V C	Diff. Pressure	Atmos. Pressure	Depth to free product	Depth to ater	Depth to base	e.g. ater colour sheen odour damage to ell or gas tap flooded ground etc.
	l/hr		% v/v		% v/v		% v/v		ppm			mb	mb	m	m	m	
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max						
	The formulae require that only numbers 0.1 for ground gas and flo or DR for ground ater are entered in the sheet																
BH01	<0.1	<0.1	<0.1	<0.1	2.8	2.8	5.9	5.9	0	-10	0.0	-41.0	1018	NR	1.70	5.87	
DS01	0.1	0.1	<0.1	<0.1	6.7	6.7	11.5	12.0	0	0	1.6	1.0	1018	NR	1.90	3.67	
DS02	<0.1	<0.1	<0.1	<0.1	6.6	5.4	12.0	15.4	0	0	0.0	-27.0	1017	NR	1.98	3.96	
DS03	0.3	0.1	<0.1	<0.1	5.2	3.5	13.9	13.9	0	0	2.0	1.0	1017	NR	1.74	3.89	

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Appendix I – Havant Borough Council Correspondence

From: Driver, Jonathar[redacted]
Sent: 05 June 2018 14:44
To: Aidan Nelson
Subject: RE: Stantons Yard, Larchwood Avenue, Havant PO9 3QL

Dear Mr. Nelson,

Thank you for your enquiry. In specific response to your questions:

1) I confirm that the site has not been prioritised for proactive inspection in connection with the Councils duties under Pt. 2A of the EPA 1990. There is no hierarchical rank of priority or contamination risk associated with this site.
2) I am not aware of any prior intrusive site investigation, or formal qualitative assessment of contamination risk which relates to this site.

Environmental Health was consulted as part of a pre-planning enquiry under ref: GEN/14/00664 for a proposed commercial development at this site. At that time, it was concluded that there existed sufficient potential for contamination to be present at the site as to make contamination a material planning consideration for any comprehensive redevelopment. The risk status of the site (the degree of acceptable contamination impact) would be ultimately dependent upon the scheme coming forward.

Site investigation information is available for nearby plots under planning application ref(s): APP/16/00875, 08/50282/055, 08/54870/009, 09/54870/014. The latter 3 relate to ASDA PFS, the former, the KFC development.

I trust that this meets with your requirements.

Best Regards,

Jon

Jonathan Driver
Environmental Control Officer

Havant Borough Council Environmental Health
Public Service Plaza, Civic Centre Road, Havant, Hants PO9 2AX

Tel (Direct Dial): 023 9244 6677
Tel (Mobile) : 07877 971 106
Tel (Team Admin): 023 9244 6670

Email: jonathan.driver@havant.gov.uk

www.havant.gov.uk
www.facebook.com/havantboroughcouncil
www.twitter.com/havantborough

From: Aidan Nelson [redacted]
Sent: 05 June 2018 14:14
To: Driver, Jonathan [redacted]
Subject: Stantons Yard, Larchwood Avenue, Havant PO9 3QL

Good afternoon,

We are undertaking an Environmental Assessment for land at the following address:

Stantons Yard,
Larchwood Avenue,
Havant
PO9 3QL

The Site is shown on the attached plan. I would be grateful if you could confirm whether or not the Site is on your list of prioritised sites under Part 2A and, if so, what priority it is considered to be? Also, please could you let me know whether you are aware of any previous intrusive investigations and/or remediation at the Site?

Kind Regards,

Aidan

Aidan Nelson
Geo-Environmental Graduate
T: +44 (0) 1157 846970
M: +44 (0) 7791 732055
www.deltasimons.com

deltasimons

Birmingham Dublin Durham Leeds Lincoln London Manchester Norwich Nottingham

Delta-Simons Environmental Consultants Ltd, 3 Henley Office Park, Doddington Road, Lincoln LN6 3QR. Registered in England No. 04786034. This message is private & confidential. If you have received this message in error, please remove it from your system and notify us on +44 (0)1522 882555. Delta-Simons is a member of Inogen® Environmental Alliance.

Appendix J – CBR Results

2304

Enverity

Quarry Farm View Bowbridge Lane
Newark Nottinghamshire NG24 3BZ
t: 01636 705100 f: 01636 640640
e: newark @ enverity . co . uk

TEST CERTIFICATE

Determination of Approximate Equivalent CBR Value derived from Plate Bearing Test

Tested in accordance with BS 1377-9: 1990 & Design Manual Roads & Bridges IAN 73/06

Client: Delta-Simons
Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Certificate Number: NL5245-1/1/714-4

Client Reference: N/A
Lab Job Number: NL5245-1

Contact: Tom Horner

Site Name: Havant
Site Address: Land Adjacent to Larchwood Avenue

Date Received: 30.05.2018
Date Tested: 30.05.2018

Test Results:

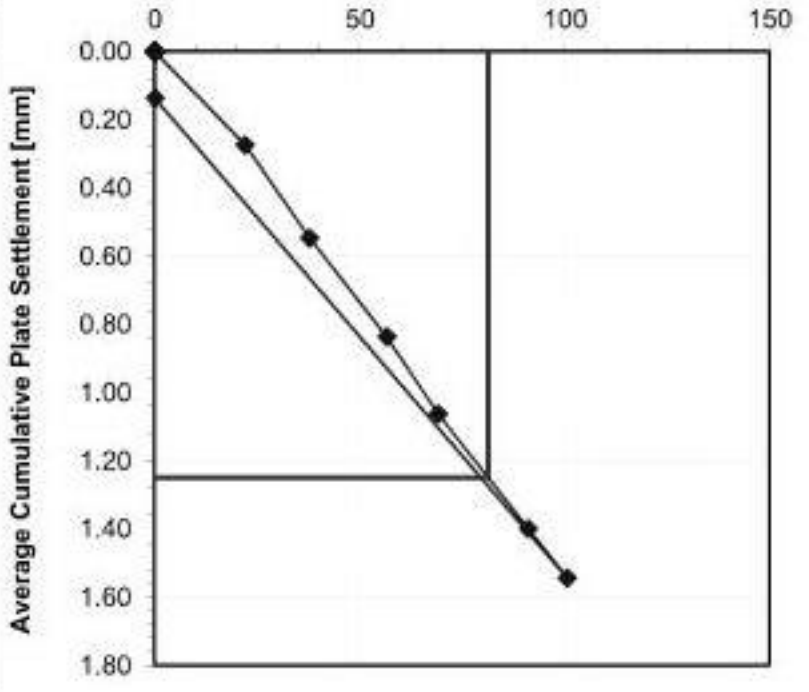
Laboratory Reference: NL5245-1/1
Sample Reference: PBT 1

Description: Dark Brown Clay
Test Location: CBR 1
Kentiledge Type: JCB 3CX

Depth: N/A
Plate Diameter [m]: 0.45

Applied Load [kN]	Applied Pressure [kN/m²]	Average Plate Settlement [mm]
0	0	0.00
4	22	0.27
6	38	0.55
9	57	0.84
11	69	1.06
15	91	1.40
16	101	1.54
0	0	0.14
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	

Applied Load vs Settlement



Initial Pressure Applied to Induce 1.5mm Settlement

Pressure at 1.25mm Settlement **81 kN/m²**

Modulus of Subgrade Reaction **41 MN/m²/m**

Equivalent CBR Value **5.9%**

Test results valid at time of test

Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

Date Reported: 08.06.2018 Page 1 of 1
Form Number: EN/C/714-4 Version 12

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Newark Nottinghamshire NG24 3BZ
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e: newark @ enverity . co . uk

TEST CERTIFICATE

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Tested in accordance with BS 1377-9: 1990 & Design Manual Roads & Bridges IAN 73/06

Client: Delta-Simons
Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Certificate Number: NL5245-1/2/714-4

Client Reference: N/A
Lab Job Number: NL5245-1

Contact: Tom Horner

Site Name: Havant
Site Address: Land Adjacent to Larchwood Avenue

Date Received: 30.05.2018
Date Tested: 30.05.2018

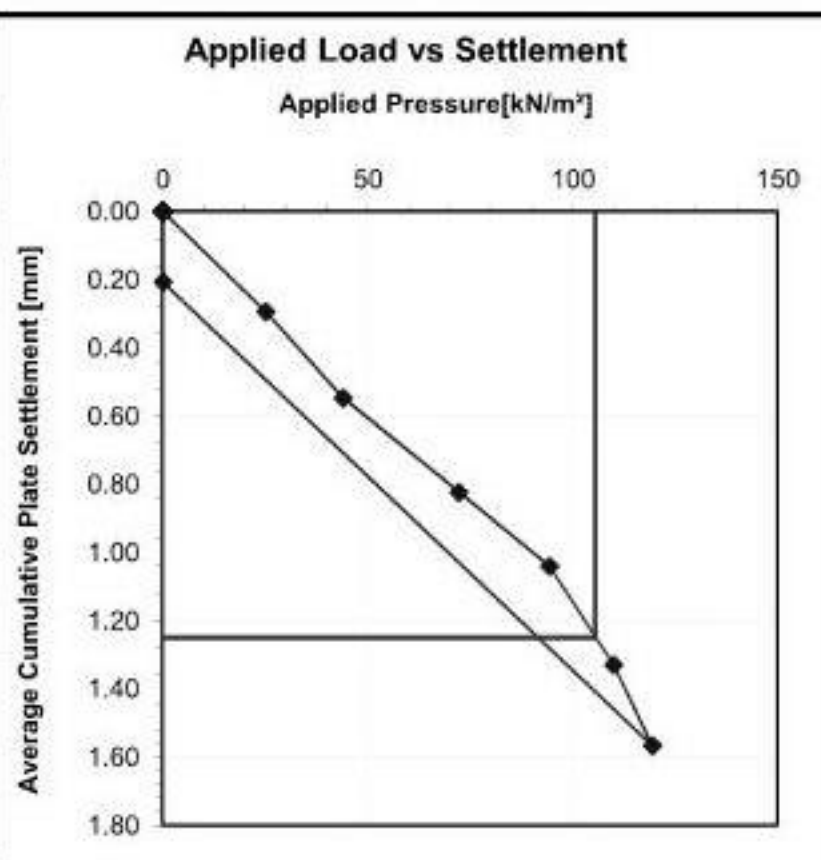
Test Results:

Laboratory Reference: NL5245-1/2
Sample Reference: PBT 2

Description: Brown Gravelly Clay
Test Location: CBR 2
Kentiledge Type: JCB 3CX

Depth: N/A
Plate Diameter [m]: 0.45

Applied Load [kN]	Applied Pressure [kN/m²]	Average Plate Settlement [mm]
0	0	0.00
4	25	0.29
7	44	0.55
12	72	0.82
15	94	1.04
18	110	1.33
19	119	1.57
0	0	0.21
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	



Initial Pressure Applied to Induce 1.5mm Settlement

Pressure at 1.25mm Settlement **106 kN/m²**

Modulus of Subgrade Reaction **53 MN/m²/m**

Equivalent CBR Value **9.3%**

Test results valid at time of test

Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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Tested in accordance with BS 1377-9: 1990 & Design Manual Roads & Bridges IAN 73/06

Client: Delta-Simons
Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Certificate Number: NL5245-1/3/714-4

Client Reference: N/A
Lab Job Number: NL5245-1

Contact: Tom Horner

Site Name: Havant
Site Address: Land Adjacent to Larchwood Avenue

Date Received: 30.05.2018
Date Tested: 30.05.2018

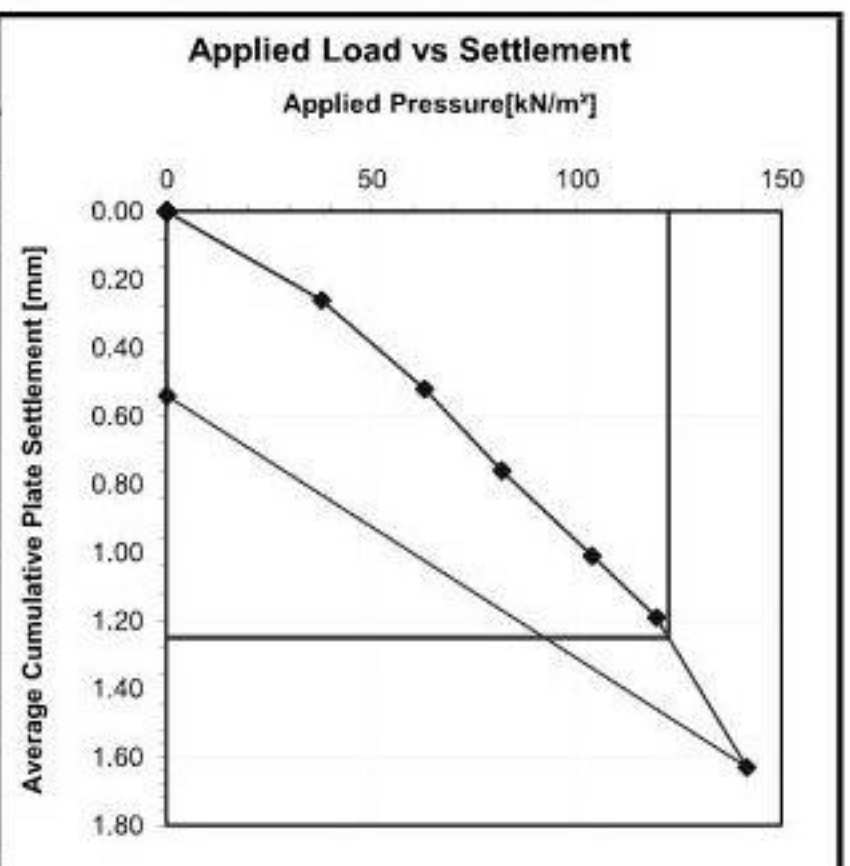
Test Results:

Laboratory Reference: NL5245-1/3
Sample Reference: PBT 3

Description: Brown Gravelly Clay
Test Location: CBR 3
Kentiledge Type: JCB 3CX

Depth: N/A
Plate Diameter [m]: 0.45

Applied Load [kN]	Applied Pressure [kN/m²]	Average Plate Settlement [mm]
0	0	0.00
6	38	0.26
10	63	0.52
13	82	0.76
17	104	1.01
19	119	1.19
23	141	1.63
0	0	0.54
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	



Initial Pressure Applied to Induce 1.5mm Settlement

Pressure at 1.25mm Settlement **123 kN/m²**

Modulus of Subgrade Reaction **61 MN/m²/m**

Equivalent CBR Value **12%**

Test results valid at time of test

Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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Client Address: The Lawns
Union Road
Lincoln
LN1 3BL

Certificate Number: NL5245-1/4/714-4

Client Reference: N/A
Lab Job Number: NL5245-1

Contact: Tom Horner

Site Name: Havant
Site Address: Land Adjacent to Larchwood Avenue

Date Received: 30.05.2018
Date Tested: 30.05.2018

Test Results:

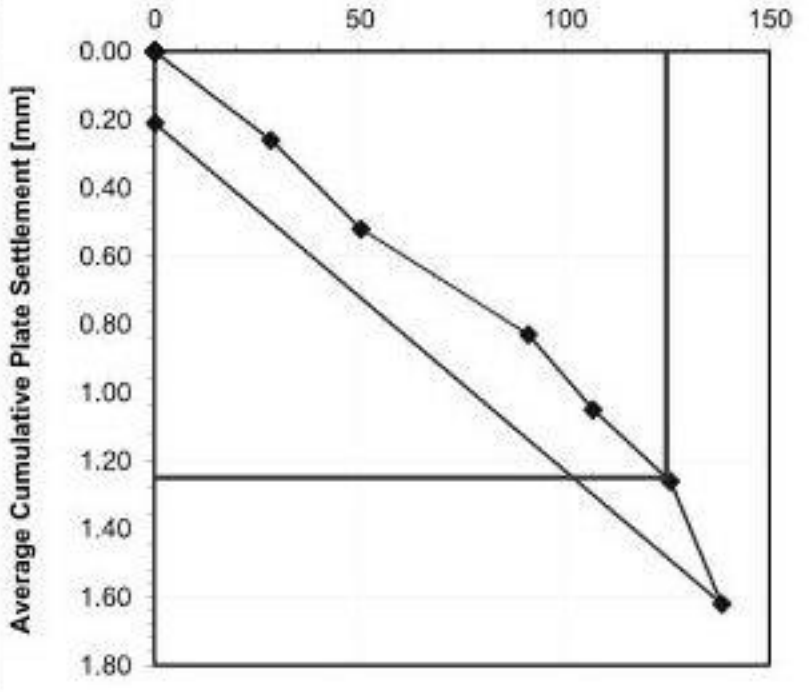
Laboratory Reference: NL5245-1/4
Sample Reference: PBT 4

Description: Brown Gravelly Clay
Test Location: CBR 4
Kentiledge Type: JCB 3CX

Depth: N/A
Plate Diameter [m]: 0.45

Applied Load [kN]	Applied Pressure [kN/m²]	Average Plate Settlement [mm]
0	0	0.00
5	28	0.26
8	50	0.52
15	91	0.83
17	107	1.05
20	126	1.26
22	138	1.62
0	0	0.21
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	

Applied Load vs Settlement



Initial Pressure Applied to Induce 1.5mm Settlement

Pressure at 1.25mm Settlement **125 kN/m²**

Modulus of Subgrade Reaction **62 MN/m²/m**

Equivalent CBR Value **12%**

Test results valid at time of test

Comments:

Approved Signatory: C. Major - Deputy Laboratory Manager

Signed: [redacted]

for and on behalf of Enverity Ltd

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