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Ground Investigation Report

Proposed Redevelopment

Lanwades Park, Kentford, Newmarket

February 2023

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Project Details

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Drawing Register

Title	Produced by	Date	Reference
Site location plan	Soiltechnics	January 2023	D-STU5875-01
Exploratory hole location plan	Soiltechnics	November 2022	D-STU5875-02
Contamination source plan	Soiltechnics	January 2023	D-STU5875-03

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Non-technical Summary

Topic	Commentary
Site description	The proposed development site comprises Lanwades Park, Kentford, Newmarket.The site is a former veterinary research and development campus (Animal Health Trust), comprising a mixture of buildings (laboratories, office accommodation and incinerator), access roads, hardstanding areas and grassed fields. The site is currently disused and unoccupied with the exception of a security presence.
Development proposals	It is understood that proposals are for a residential development at the site although at the time of writing, the client has yet to purchase the site and therefore there are no specific plans.
Ground conditions	Generally, ground conditions comprised Topsoil to approximately 0.3m overlying Quaternary Deposits and Chalk. The Quaternary deposits generally comprised light brown clayey sands and gravels while the underlying Chalk comprised structureless Grade Dc Chalk. Some limited Made Ground has been identified on site, generally to the north of the former incinerator building and associated with a bund in the north-eastern part of the site. In both cases, it exceeded 1.2m depth and the base was not encountered. Groundwater was generally not present although a seepage was observed within the Quaternary Deposits in one location. Although not investigated at this stage, a backfilled quarry is historically recorded on the site and therefore deep Made Ground may be present in this area.
Foundation and slab solution	The Quaternary deposits and Chalk will adequately support proposed buildings on concrete strip/trench fill foundations. Both deposits are either non-shrinkable or of low volume change potential when classified in accordance with NHBC Standards, Chapter 4.2 and therefore a minimum foundation depth of 0.75m is required. Ground bearing floor slabs can be adopted where they are remote from trees and where Made Ground and Topsoil deposits are fully removed within the footprint of the building. During construction, competent chalk could rapidly lose structure/competency if exposed to water (i.e. heavy rain) especially where disturbance is also ongoing, such as tracking with machinery so careful consideration to construction methods is also required. It is recommended that a contractor familiar with similar ground conditions is used for construction works.
Drainage potential	Soakaways were performed on site within the Chalk with infiltration rates ranging between $2.42x10^{-4}$ and 1.4×10^{-5} m/s. However, the test failed in one trial pit indicating some variation in permeability. The Chalk was generally encountered as low and medium density and therefore for the purpose of soakaway design it is recommended that they are sited a minimum of 10m from foundations.
Chemical contamination and remedial requirements	Given the nature of the site and its history, a relatively large number of potential contamination sources have been identified. This investigation is preliminary (pre-purchase) and has been undertaken to target the main contamination sources identified and give good site coverage. Overall, the investigation has not identified any significant contamination on site. One elevated concentration of arsenic was identified, which is considered to be relatively localised. Made Ground was encountered, which included odours and staining but laboratory testing did not identify any elevated contaminants within these soils. At this stage therefore, no contamination has been identified and there are no remedial requirements for the site. However, it is acknowledged that some sources have not been investigated and given the nature of the site, localised areas of contamination cannot be discounted. It should also be noted that investigations around tanks and sub-stations has generally been limited to one shallow excavation. On this basis, there is a risk that localised contamination is present around tanks/pipework that has not been identified although significant contamination is considered low-likelihood.
Radon, gas risk and protection measures	The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Therefore, no radon protective measures are necessary in the construction of new dwellings.

Topic	Commentary
	With the exception of the small, backfilled quarry, no sources of landfill gas have been identified and a gas monitoring visit did not identify any elevated concentrations of landfill gas. Investigations in the area of the quarry are recommended to determine the nature and extent of the backfill material and further gas monitoring may be required to refine the risk assessment local to the quarry.
Waste characterisation	General Made Ground has been classified as inert. Clean, uncontaminated natural soils are considered non-hazardous and inert without any testing required. Topsoil should be reused where possible as an alternative to landfill. Should any TPH impacted soils be encountered, further testing will be required and treatment may be needed prior to disposal. As the waste classifications provided are preliminary only and based on limited sampling of soils in-situ, it is recommended to undertake additional sampling and testing during the construction works to fully characterise the waste soils intended for disposal. Additional testing may also be recommended during any supplementary phases of investigation.
Recommendation for further works	A detailed UXO desk study to support the whole construction phase. Further ground investigation targeting possible contamination sources not yet investigated and refine the contamination assessment in other areas. Further investigations recommended in the area of the former quarry and incinerator building to confirm depth of Made Ground and refine the geotechnical appraisal. The Principal Contractor should have a discovery strategy in place in the event of exposing unexpected or previously unencountered contamination. A Materials Management Plan may be required to facilitate the reuse of soils on site.

1 Introduction

1.1 Scheme Outline

1.1.1 It is understood that proposals are for a residential development at the site although at the time of writing, the client has yet to purchase the site and therefore there are no specific plans.

1.1.2 The report is based on the outline project proposals and information set out above. Should the scheme change and/or following completion of specific development proposal design, then it will be necessary to review the conclusions and recommendations presented in this report.

1.2 Brief

1.2.1 This report has been prepared following instructions received from our Client, Lochailort Investments Limited. The overall brief of works is to:

i) Undertake a ground investigation at the site to establish the prevailing ground conditions and identify potential abnormal development constraints.
ii) Support any future planning application by assessing the potential risks from contamination at the site.
iii) Determine geotechnical parameters and provide a general geotechnical appraisal for the scheme.

1.2.2 The objectives of this report are outlined below:

i) Review and summarise desk study information.
ii) Undertake a land contamination Tier 1 preliminary risk assessment.
iii) Summarise the intrusive investigation works undertaken and associated laboratory testing.
iv) Present a ground model summarising the ground and groundwater conditions at the site including relevant geotechnical parameters.
v) Provide a geotechnical appraisal for the project and highlight key geotechnical issues that may impact upon the proposed scheme.
vi) Undertake a land contamination Tier 2 generic quantitative risk assessment.
vii) Provide recommendations to inform further works, an Options Appraisal and/or Remediation Strategy, should they be required.
viii) Provide a waste characterisation assessment of soils at the site for potential disposal to landfill.

1.3 Definition of Scope

1.3.1 The phasing and scope of the ground investigation works is broadly defined by the following documents.

Title	Document Reference	Publisher	Investigation Scope
Code of practice for ground investigations	BS 5930: 2015	British Standards Institution	Phase 1: Desk study Phase 2: Preliminary investigation
Eurocode 7 — Geotechnical design Part 2	BS EN 1997-2: 2007	British Standards Institution	Preliminary Investigation
Investigation of potentially contaminated sites	BS 10175: 2011+A2:2017	British Standards Institution	Preliminary Investigation (desk study) Exploratory Investigation
Land contamination risk management	Online resource, updated April 2021	Environment Agency	Stage 1 Risk Assessment: Tier 1: Preliminary risk assessment Tier 2: Generic quantitative risk assessment

Table 1-1: Definition of Investigation Scope

1.4 Limitations

1.4.1 This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our appointment, taking account of the manpower, resources, investigations and testing devoted to it by agreement with our Client**, Lochailort Investments Limited (Company number 05605197**). (the **'Client'**) It may relied upon by them and such associated companies of Lochailort Investments as are from time to time notified to us in writing.

1.4.2 This report may also be relied upon by:

Animal Health Trust (in Liquidation) (Royal Charter Company Number: RC000011 and Registered Charity Number: 209642) acting by the Receivers;

and :

Andrew Burton Hughes and **Julian Paul Smith** of Alder King LLP (Company Number: OC306796) acting in their capacity as joint receivers of the premises (the "**Receivers**").

(Together the **'Additional Parties'**)

1.4.3 Soiltechnics shall have no greater or longer lasting liability to the **Additional Parties** than to the **Client**, and reliance on the report by the **Additional Parties** is subject to the same terms and conditions of the appointment between Soiltechnics and the **Client**.

1.4.4 This report is confidential to the **Client** and the **Additional Parties** and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 Desk Study

2.1 Sources of information

2.1.1 Reference has been made to the following sources of information:

- An Envirocheck Report and historical map records, presented as Appendix K.
- British Geological Survey (BGS) GeoIndex – Onshore database.
- BGS Sheet 189 (Scale 1:50 000) – Thetford (2010).
- Ordnance Survey OpenData
- Coal Authority Development and Specific Risk databases.
- Environment Agency open-source databases
- Google mapping services
- Interrogation of search engines for anecdotal information on the site history and other readily available online resources.

2.2 Site Description

2.2.1 The proposed development comprises Lanwades Park, Kentford, Newmarket and the post code for the site is CB8 7UA. The site is accessed from the B1506 which lies adjacent to the site's northern boundary.

2.2.2 A map showing the approximate site boundary is presented below, marked in pink. Lanwades Hall and surrounding land is not part of the site (outlined in red). A table summarising the key site features is presented below. A site plan is provided within Appendix A.

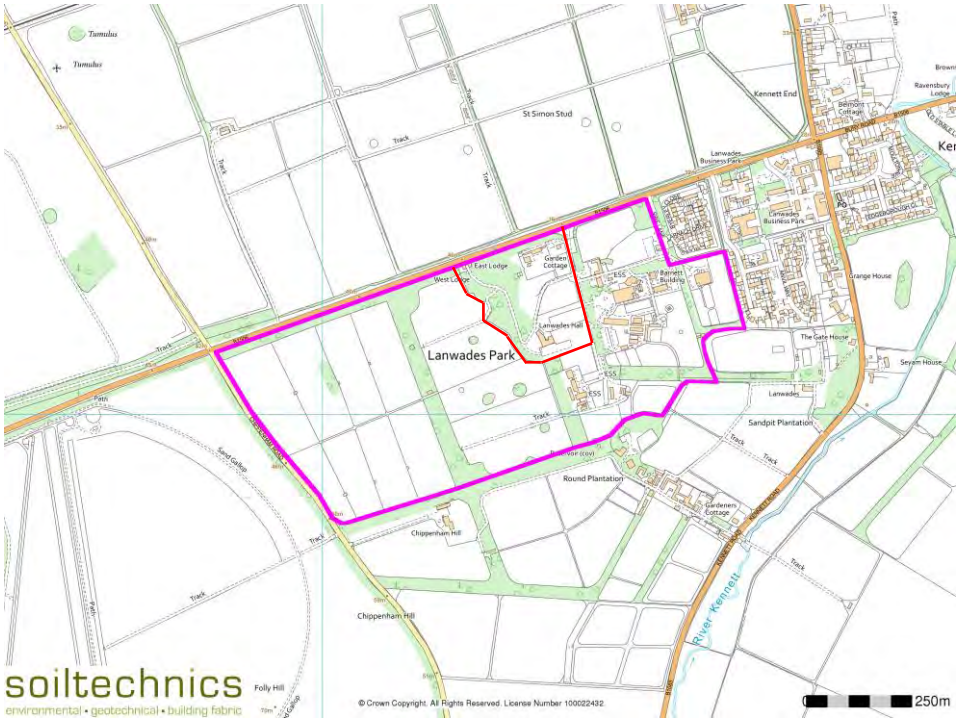


Figure 2-1: Site boundary

Theme	Feature
Current site use	The site is a former veterinary research and development campus (Animal Health Trust), comprising a mixture of buildings (laboratories, office accommodation and incinerator), access roads, hardstanding areas and grassed fields. The site is currently disused and unoccupied with the exception of a security presence. Buildings are present in the eastern half of the site and western half comprises fields.
Local area land use	Surrounding land to the north, west and south is predominantly open fields (paddocks, agricultural, horse training). Residential housing borders the site to the east. The site surrounds Lanwades Hall (wedding and events venue) and the B1506 is immediately adjacent to the northern boundary of the site.
Topography	The topography of the surrounding area generally falls gently to the north. A raised area is present to the north-east of the site, indicating some infilling may have occurred in this area.
Buildings, surfacing and other permanent features	Multiple buildings are present within the western half of the site associated with the former veterinary R&D campus, together with a number of storage sheds and gas canister storage holders. Hardstanding is present around some the buildings which appeared to have been formally used for parking, access roads and yards. Surfacing comprised a mixture of asphalt, paving slabs and gravel. A number of above ground tanks and electricity sub-stations were present on site.
Boundary features	The site boundaries are defined by hedgerows and timber post and rail fencing.
On-site / adjacent surface water features	None observed. The River Kennet lies 300m to the south-east of the site at its closest point.
Environmental Designations	The site is not reported to be within or in close proximity to any areas of designated sensitive land use, such as a Ramsar Site, Site of Special Scientific Interest (SSSI), or Special Area of Conservation.
Injurious and invasive weeds	None observed.
Asbestos containing material (ACM) in buildings	The scope of this report excludes identifying asbestos within buildings on site, and an asbestos survey was not made available at the time of writing. However, suspected corrugated ACM sheet roofing was observed on buildings throughout the site.
ACMs on site	No suspected ACMs were observed in any surface debris.
Potential sources of contamination	A number of above ground fuel tanks and electricity sub-stations were observed on site. It is also understood that the building to the far east of the site comprised an incinerator. A number of laboratories were present. Our client has also been informed of a possible “chemical dump” within the north-eastern corner of the site. A hydrocarbon odour was noted in the corner of a stable block adjacent to the north-western buildings. Possible oil leaks were also noted in two locations towards the centre of the site associated with tanks/pipework. Bunds/soil mounds are also present around the wooded area to the north-east of the site; the nature of the material used in their creation is unknown. General rubbish, disused machinery and barrels associated with the former site use were discarded on site, predominantly within storage buildings and gas canister holders. Given the former site use, there is a potential radiological risk on site. However, it is understood that all radiological materials have been removed from the site by specialists and therefore this risk is not considered further in this report. There is a potential risk of biological contaminants/pathogens specific to the former site use, which are likely to be predominantly present in drainage (as sludges etc.) The location of these contamination sources, and further sources identified within the desk study are presented on Drawing 03 in Appendix A.

Table 2-1: Site Description

2.2.3 The observations provided above are made by a Geoenvironmental Engineer, who is not a specialist in asbestos surveying or invasive weed identification. Any associated comments are intended for use by this report only, and not for any other purpose.

2.3 Planning Records

2.3.1 A search of online planning records held for the site by West Suffolk Council shows a number of planning applications associated with the eastern half of the site, associated initially with a centre for small animal studies and subsequently for clinical and research facilities for animal health. The applications include for yards, stables and barns as well as a pathology lab, extension of a generator building, relocation of a clinical waste bunker, construction of a hydrotherapy pool building and various other ancillary buildings/uses.

2.3.2 There are limited applications for the west of the site, all of which are for the erection of field shelters for horses and ponies.

2.3.3 A planning application for land to the immediate west was made for the redevelopment of a former pet care R&D site to commercial and subsequently residential housing. A ground investigation report for the site showed ground conditions to comprise Made Ground over sand and gravel (superficial deposits) with Chalk below. No significant contamination was identified.

2.4 Site History

2.4.1 Inspection of historical maps indicates the western half of the site has remained undeveloped open fields until present day, with sporadic small buildings (likely stables). The eastern part of the site has been gradually developed to the current configuration of Lanwades Park. A sewage filter bed and nursery were recorded in the north-eastern corner of the site and a small quarry was recorded in the southeast from the 1920s to the 1970s.

2.4.2 A chronological summary of the site's history is provided below.

Date	On-site	Off-site
Late-1800s	Site is recorded as open fields.	Surrounding land is predominantly rural with sporadic buildings. Small historical chalk and gravel pits are recorded 240m west and 250m southeast.
1920s	The north-eastern corner of the site is predominantly recorded as a sewage filter bed. A building and nursery are also recorded in this area. Remainder of site remains as fields, with the exception of some small buildings on the south-eastern boundary labelled as "electricity works". A small pit or localised earthworks is recorded within the south-eastern quadrant of the site.	Lanwades Hall and grounds is recorded adjacent to the site.
1930s to 1950s	Site recorded as Landwades Park although there is no obvious change in layout.	No significant change.
1970s to 1990s	A small animal centre is recorded to the south of Lanwades Hall. The sewage bed and nursery in the northeast are no longer recorded. Two tanks are recorded on the eastern half of the site.	A development is recorded to the immediate east of the site (possibly commercial).
Early-2000s	Additional buildings and access roads are present within the eastern half of the site. The layout is similar to that of present day.	No significant change.

Date	On-site	Off-site
2006 to present day	A building (former incinerator) is recorded in the far eastern part of the site.	Land to the immediate east is redeveloped for residential housing around 2010.

Table 2-2: Summary of site history

2.5 Regulatory Enquiries

2.5.1 Soiltechnics have requested the Local Authority Environmental Health to conduct a search of their records for any pertinent information they may hold for the site and surrounding area. They report three areas of the site, which are on the council's Part 2A inspection list and comprise a former sewage works, an above ground tank and a potentially backfilled pit on site.

2.5.2 A copy of their correspondence, including a plan of the above locations, is presented in Appendix L.

2.6 Anticipated Geology

2.6.1 Based on a review of available records, the site is anticipated to be underlain by the Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated).

2.6.2 A summary of the anticipated geology underlying the site is summarised as follows:

Stratum	Bedrock / superficial	Anticipated thickness (m)	Typical description
Holywell Nodular Chalk Formation and New Pit Chalk Formation	Bedrock	60-70	White Chalk

Table 2-3: Summary of anticipated geology at the site

2.6.3 Although no superficial deposits are recorded on site, Lowestoft Formation (clay/silt/sand/gravel) is recorded to the immediate south of the site. Head deposits and River Terrace deposits are also recorded in the local area.

2.7 Hydrogeology and Groundwater Sensitivity

2.7.1 There are limited borehole records in the surrounding area but these suggest that groundwater is present at depth (20m+) within the Chalk Formation.

2.7.2 The site is located within a Source Protection Zone II (Outer Zone) with the far south-eastern corner within a Source Protection Zone I (Inner Zone) associated with an abstraction point located within the south-eastern corner of the site. The well is recorded as abstracting from the principal aquifer within the Chalk Formation for commercial use/general farming/spray irrigation.

2.7.3 There are no other active water abstractions within 1km of the site.

2.8 Hydrology and Surface Water Sensitivity

2.8.1 The River Kennett is located approximately 300m south-east of the site. There are no other surface water features located within 1km of the site.

2.8.2 There are no active surface water abstraction licenses within 1km of the site.

2.9 Flood Risk

2.9.1 The site falls within a Flood Zone 1 area. This designation indicates there is less than a 0.1% chance of flooding from rivers or the sea in any year.

2.9.2 The site is generally not recorded to be at risk from surface water flooding. However, two small areas to the northwest of the site the potential for surface water flooding during a 1 in 30 year flood event.

2.9.3 The site is recorded in area shown to have a limited potential for groundwater flooding to occur.

2.9.4 It should be noted that this information does not constitute a site-specific Flood Risk Assessment and one may be required for the scheme.

2.10 Non-Mining Ground Instability Hazard

2.10.1 The Envirocheck Report includes hazard ratings due to natural ground instability, which have been derived by the BGS. These hazards have been summarised in the table below.

Hazard	Hazard Potential	Discussions
Collapsible ground	Very low	N/A
Compressible ground	No hazard	N/A
Ground dissolution	Very low	N/A
Landslide	Very low	N/A
Running sand	Very low	N/A
Shrinking or swelling clay	Low	N/A

Table 2-4: Non-Mining Ground Stability Hazards

2.10.2 Although the report indicates a very low risk of ground dissolution, CIRIA report C574 *"Engineering in Chalk"* indicates that the presence of dissolution features should be expected on all calcium carbonate rich chalk sites. The Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated) is considered rich in calcium carbonate and therefore dissolution features should be anticipated and requires further consideration.

2.11 Quarrying and Mining

2.11.1 The site falls outside of a Coal Mining Reporting Area.

2.11.2 A former pit is shown within the south-eastern part of the site between from the 1920s to the 1970s. This is also recorded as a BGS recorded mineral site and area of infilled ground. The pit is recorded as Round Plantation Pit and extracted chalk.

2.11.3 In addition, there are a number of other small chalk and gravel pits in the local area, with the closest located some 220m from the site. All of these are also recorded as potentially infilled ground.

2.12 Landfill and infilled ground

2.12.1 No landfills or areas of infilled ground are recorded in addition to the backfilled quarries detailed above.

2.13 Recent industrial activity

2.13.1 There are no regulated facilities or activities in the vicinity of the site under IPPC or LAPPC control however, there are registered radioactive substances recorded for use on site associated with the Animal Health Trust.

2.13.2 The site is in a primarily residential/rural area. As such there are a limited number of commercial and industrial properties in close proximity to the site. The following table summarises the Contemporary Trade Directory entries within 100m of the site.

Name	Direction	Distance from site	Activity
Elite Stationary	Northeast	0	Office furniture and equipment
J M Rose Farriers	Northeast	0	Farriers
Eastern Business System Ltd	Southeast	65	Photocopiers
B S A S Telecoms Ltd	Southeast	65	Telecommunications Equipment and systems

Table 2-5: Summary of Contemporary Trade Directory Entries

2.13.3 It is considered unlikely that an office equipment suppliers or a farriers will be a significant source of contamination. In addition, the businesses recorded to the southeast are located within a gated residential area and are therefore considered likely to be administration centres rather than commercial premises so also not considered to be potential contamination sources.

2.13.4 A commercial point of interest (tank) is however recorded on site to the south and is considered a possible source. This tank was not observed on site during our investigations so we have no further information as to its purpose.

2.13.5 As the site is not located in close proximity to a watercourse (>300m), records held of discharge consents are not considered relevant to this desk study.

2.13.6 One pollution incident is recorded but it is excess of 450m from the site and was recorded as a category 3 (minor) incident. On this basis, it is not considered to be a potential contamination source.

2.14 Radon

2.14.1 The site is in an area where the above ground Radon Affected Area status is classed as a Lower Probability Radon Area.

2.15 Unexploded Ordnance (UXO) Hazard Screen

2.15.1 A preliminary risk review has been undertaken by a UXO specialist to assess the risk of encountering UXO during ground investigation works undertaken by Soiltechnics only and to identify any precautionary measures required. It should be noted that the risk assessment has not been carried out fully in accordance with CIRIA report C785 'Unexploded Ordnance (UXO) A guide for the construction Industry'.

2.15.2 The risk review concluded that there is a credible risk of encountering UXO during the ground investigation.

3 Tier 1 Preliminary Contamination Risk Assessment

3.1 Objectives

3.1.1 The objective of this preliminary risk assessment (PRA) is to determine the suitability of the site for the proposed redevelopment and end users, in terms of the risk from contamination. The assessment comprises the following steps:

- Identify potential contaminant linkages (PCLs) between sources, pathways and receptors.
- To provide data to assist in the design of potential exploratory and detailed intrusive investigations and to give an early indication of possible remedial requirements, if necessary.

3.2 Evaluation Criteria

3.2.1 The following assessment is undertaken within the legislative framework of the planning system. Therefore, the assessment needs to identify if land contamination could pose an unacceptable risk to human health or the environment, within the context of the proposed development site. In the context of the existing site use, as a minimum, land should not be capable of being determined as 'contaminated land' under Part IIA of the Environmental Protection Act 1990.

3.2.2 The risk criteria for the proposed development is based on a 'minimal risk' approach, whereas under the existing land use a designation of 'contaminated land' would only apply if there is a significant possibility of significant harm (SPOSH).

3.3 Methodology

3.3.1 The objectives listed above are achieved by utilising the information presented within the desk study to develop an initial conceptual site model (iCSM) and identification of potential unacceptable risks. Depending upon the outcome of the Tier 1 assessment, it may be necessary to undertake a Tier 2 generic quantitative risk assessment (GQRA).

3.3.2 An iCSM relies upon the identification and assessment of PCLs. A contaminant linkage comprises of three key components:

- Source – a contaminant or pollutant that is in, on or under the land and that has the potential to cause harm or pollution.
- Pathway – Current and post-development routes by which a receptor is, or could be, affected by a contaminant.
- Receptor – Something that could be adversely affected by a contaminant, for example a person (current and proposed end users or neighbours), controlled waters and ecosystems.

3.3.3 The Tier 1 risk assessment has been produced with reference to the following guidance:

- 'Land contamination risk management' (EA, 2021).
- BS 10175:2011+A2:2017 'Investigation of potentially contaminated sites – Code of Practice'.
- CIRIA C552 'Contaminated land risk assessment- a guide to good practice', 2001.
- BS EN ISO 21365:2020 'Soil quality – Conceptual site models for potentially contaminated sites'
- BS 8576:2013 'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOC)'.

3.4 Source Assessment

3.4.1 The table below summarises identified sources based on the findings of the desk study. Where appropriate, further discussion has been provided in the paragraphs which follow.

Potential Sources	Contaminant(s) of concern	Detail	Viable source?
On-site sources			
Electricity works in the south-eastern corner in the 1920s	PCBs, oils, solvents, metals, asbestos	The electricity works appeared to comprise two small buildings. Although not labelled after the 1920s, the buildings are still recorded on 1990s mapping. Given the age of the works, PCBs are a possibility as are the other possible contaminants although likely to be highly localised to this area.	Y
Sewage filter works in north-eastern part of the site (1920s-1970s)	Metals, inorganics, micro-organisms	Sewage filter works recorded in the north-eastern part of the site until the 1970s. This area of the site has not undergone any significant change since this date so possible that some contaminants persist. In addition, it is included on the council's Part 2A inspection list and is listed for strategic inspection by the Local Authority, although this does not imply it is contaminated.	Y
Plant nursery in north-eastern part of the site (1920s-1970s)	Pesticides, herbicides, asbestos	Nursery recorded in the far north-eastern corner of the site. No evidence of buildings on site therefore presence of asbestos is considered unlikely. Chemical pesticides/herbicides likely to have been used and could be present in the area local to the former nursery.	Y
Tank recorded on historical from the 1970s	Hydrocarbons	Contents of tank unknown. It is included on the council's Part 2A inspection list and is listed for strategic inspection by the Local Authority, although this does not imply it is contaminated.	Y
Infilled quarry recorded on site to the east.	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	Nature of material used to infill the former quarry is unknown and could contain various contaminants. In addition, it is included on the council's Part 2A inspection list and is listed for strategic inspection by the Local Authority, although this does not imply it is contaminated.	Y
	Permanent ground gases (CH4 and CO2)	Depth and nature of material used to infill the former quarry is unknown and could include organic rich materials.	Y
Raised area/bund to the northeast	Various inorganic and organic compounds (hydrocarbons, metals, asbestos),	Nature of material in this area unknown and therefore considered to be a potential source of contamination.	Y

Potential Sources	Contaminant(s) of concern	Detail	Viable source?
Former animal health facility including laboratories (Animal Health Trust)	Various inorganic and organic compounds (hydrocarbons, metals, asbestos), radioactive materials, bio-hazard waste.	Buildings and laboratories restricted to the eastern half of the site and contamination could be present across this area and localised to specific areas depending on former use. It is understood that radioactive material has been removed off site by specialists and therefore no further consideration given.	Y
Former horse incinerator	PAH, metals, inorganics, TPH	The former incinerator is located to the east of the site and localised contaminants could be present. It is also not known where waste materials were disposed of and buried waste material may be present on site.	Y
Above ground fuel storage tanks noted during site reconnaissance (spills and leaks)	Petroleum hydrocarbons (TPH)	There are multiple tanks on site. Some are contained in a brick bund with concrete slab and others are not. No obvious visual or olfactory evidence of spillages were observed around the majority of these locations. However, localised contamination could be present associated with tanks and pipework.	Y
Electricity sub-stations	PCBs	A number of sub-stations are present on site, the age of which is unknown although it is likely they post 1970s (assuming they were built at the same time as the main facility) and therefore the risk from PCBs is likely to be low.	N
Areas of car parking	Petroleum hydrocarbons (TPH)	Multiple car parking areas are present on site. Minor leaks from parked vehicles may be present.	Y
Made Ground within the east of the site associated with development, past development and bunds.	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	The west of the site has remained undeveloped and is unlikely to have any significant Made Ground. Development of the eastern site has been limited to current buildings and therefore significant Made Ground is unlikely (with the exception of the infilled quarry) although some localised, shallow deposits may be present in and around buildings. Made Ground may also be associated with the former filter beds to the north-east.	Y
	Permanent ground gases (CH4 and CO2)	Elevated concentrations of ground gas generated from thick Made Ground with high levels of putrescible material considered unlikely based on history of the site (excluding the infilled pit)	N
Radon	Radon	The site is recorded as being in a Lower Probability Radon Area.	N
Carbonate rich deposits (chalk)	Permanent ground gases (CO2)	Carbonate rich materials can generate carbon dioxide due to natural geochemical and weathering processes. Typically, volume generated are low and do not pose a viable risk for developments.	N
Off-site sources			

Potential Sources	Contaminant(s) of concern	Detail	Viable source?
Adjacent former pet care R&D facility	Various inorganic and organic compounds (hydrocarbons, metals)	Site is immediately adjacent to subject site. Nature and use of buildings unknown but site was redeveloped into residential in 2010. Contamination assessment undertaken for planning indicates no significant contamination present.	N

Table 3-1: Contamination source assessment

3.5 Receptor Assessment

3.5.1 The following table summarises the identified receptors based on current site conditions and our understanding of the proposed end use:

Receptor Category	Principal Receptor	Receptor present?	Detail
Human health	Users of the current site	No	Although security is present on site, the site as a whole is disused.
	End user of the developed site	Yes	Site to be developed for residential purposes.
	Construction operatives and other site investigators	Yes	Site to be developed
	Adjacent site users and off-site members of the public	Yes	Public footpath and residential properties present adjacent to site.
Controlled waters	Surface waters	No	Surface waters are remote from the site, in excess of 300m distance.
	Groundwater	Yes	Principal Aquifer located within the Chalk with SPZ on site. Secondary Aquifers present to the south of the site within the Lowestoft Formation.
Sensitive ecosystems and species	Current site	No	Site is not currently within, or proposed to form, a designated environmentally sensitive area (e.g. SSSI, RAMSAR, AONB, SPA, SAC)
	Developed site	No	
Property	Soft landscaping (current)	Yes	Vegetation is present on site.
	Soft landscaping (proposed)	Yes	Proposed development is assumed to contain vegetation.
	Building materials	No	Concrete classification to be assessed under the geotechnical investigation.

Table 3-2: Receptor assessment

3.6 Pathway Assessment

3.6.1 The following table summarises the generic human health pathway assessment for the site, assuming a range of contaminant sources within the underlying soils. Source-specific pathways are considered within the iCSM in subsequent report sections.

Human Health Exposure Pathway	Disused Commercial land use with fields (current)	Residential land with private gardens (proposed)	Construction operatives	Adjacent Site Users
Ingestion, inhalation and dermal contact with soils and dusts	×	✓	✓	✓
Ingestion, inhalation and dermal contact with site derived dusts indoors	×	✓	✓	×
Ingestion of home-grown vegetables	×	✓	×	×
Inhalation of vapours in outside spaces	×	✓	✓	✓
Intrusion and inhalation of vapours indoors	×	✓	✓	×
Accumulation and Inhalation of ground gas in enclosed structures	×	✓	✓	×
Permeation into below-ground drinking water pipes	×	✓	×	×

Table 3-3: Generic pathway assessment

3.6.2 The following table summarises generic pathways for the site which could be viable for the identified controlled water receptors, given our understanding of the hydrogeological model and assuming a range of contaminants in the sub-surface.

Controlled Water Exposure Pathways	Current Setting	Proposed Setting	Mechanism
Site characteristics			
Leaching via infiltration through unsurfaced areas, and surface run-off	✓	✓	Mobilisation
Leaching via infiltration through cracks/joints in hardstanding areas and drainage infrastructure	✓	✓	Mobilisation
Leaching via saturation from groundwater flooding and shallow/perched groundwater bodies	×	×	Mobilisation
Infiltration through sustainable drainage systems	✓	✓	Mobilisation
Preferential lateral pathways (e.g. underground services)	✓	✓	Migration
Preferential vertical pathways (e.g. piling, vibro-stone columns)	×	×	Migration
Hydrogeological characteristics			
Vertical migration through permeable strata into shallow aquifers and perched groundwater bodies	×	×	Migration
Vertical migration through permeable strata into sensitive aquifers at depth	✓	✓	Migration
Lateral migration within shallow and perched groundwater bodies into surface waters	×	×	Migration

Table 3-4: Generic pathway assessment

3.7 Initial Conceptual Site Model (iCSM)

3.7.1 The table below presents our approach to the assessment of risks associated with PCLs. The categories below are based upon the definitions within CIRIA C552 (2001), with the addition of a 'negligible likelihood' scenario, which is to be used where there is no realistic scenario in which harm could occur.

3.7.2 The initial conceptual site model (iCSM) is presented within the following tables overleaf.

		Consequence of harm			
		Severe	**Medium**	**Mild**	**Minor**
Probability of harm	**High likelihood**	**Risk: Very high** (high – severe)	**Risk: High** (high – medium)	**Risk: Moderate** (high – mild)	**Risk: Moderate/Low** (high – minor)
	Likely	**Risk: High** (likely – severe)	**Risk: Moderate** (likely – medium)	**Risk: Moderate/Low** (likely – mild)	**Risk: Low risk** (likely - minor)
	Low Likelihood	**Risk: Moderate** (low – severe)	**Risk: Moderate/Low** (low – medium)	**Risk: Low** (low – mild)	**Risk: Very low** (low – minor)
	Unlikely	**Risk: Moderate/Low** (unlikely – severe)	**Risk: Low** (unlikely – medium)	**Risk: Very low** (unlikely – mild)	**Risk: Very low** (unlikely – minor)
	Negligible Likelihood	**Risk: Low** (negligible– severe)	**Risk: Very Low** (negligible– medium)	**Risk: Very Low** (negligible– mild)	**Risk: Negligible** (negligible– minor)

Table 3-5: iCSM Risk Ratings

RECEPTOR: PROPOSED END USERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Electricity works in the south-eastern corner in the 1920s	PCBs, oils, solvents, metals, asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Contaminants could be present in the soil associated with this former site use but likely to be relatively localized to this corner of the site.
Sewage filter works in north-eastern part of the site (1920s-1970s)	Metals, inorganics, pathogens	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Sewage filter works recorded in the north-eastern part of the site until the 1970s. This area of the site has not undergone any significant change since this date so possible some contaminants still persist although likely to be local to this area.
Plant nursery in north-eastern part of the site (1920s-1970s)	Pesticides, herbicides, asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Nursery recorded in the far north-eastern corner of the site. No evidence of buildings on site therefore presence of asbestos is considered unlikely. Chemical pesticides/herbicides likely to have been used and could be present in the area local to the former nursery.
Infilled quarry recorded on site to the east.	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Nature of material used to infill the former quarry is unknown and could contain various contaminants. Likely to be localized to this area only.
	Permanent ground gases (CH4 and CO2)	Inhalation of vapours	**Risk: Moderate/Low** (low – medium)	Depth and nature of material used to infill the former quarry is unknown and could include organic rich materials capable of producing landfill gases. However, given the age of the infill and the small size of the quarry, it is likely any gases would only impact a small area of the site.
Raised area/bund to the northeast	Various inorganic and organic compounds (hydrocarbons, metals, asbestos),	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Nature of material in this area unknown and therefore considered to be a potential source of contamination. However, such material is likely to be excavated out during any redevelopment.
Former animal health facility including laboratories (Animal Health Trust)	Various inorganic and organic compounds (hydrocarbons, metals, asbestos), bio-hazard waste.	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Buildings and laboratories restricted to the eastern half of the site and contamination could be present across this area, including being associated with drainage runs.
	Radioactive materials	Radiation	**Risk: Low** (unlikely – medium)	Although radioactive materials have been used at the site, it is understood that these have all been removed by a specialist and therefore the risk is considered low.

RECEPTOR: PROPOSED END USERS				
Former horse incinerator	PAH, metals, inorganics, TPH, pathogens	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	The former incinerator is located to the east of the site and localized contaminants could be present. It is also not known where waste materials were disposed of and buried waste material may be present on site.
Above ground fuel storage tanks noted during site reconnaissance (spills and leaks)	Petroleum hydrocarbons (TPH)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	There are a number of tanks around the site, some bunded and on concrete and others not. Risk of significant hydrocarbon contamination would depend on containment and condition of the tanks. Also, possible risk of contamination from any underground pipework. Vapours arising from gross hydrocarbon contamination could intrude into proposed buildings.
Areas of car parking	Petroleum hydrocarbons (TPH)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	Multiple car parking areas are present on site. Minor leaks from parked vehicles may be present. However, these are likely to be small-scale given cars wouldn't be parked in the same place for any significant period of time and therefore risk to end users is considered to be low.
Made Ground within the east of the site associated with development, past development and bunds.	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Nature of any Made Ground on site is currently unknown and therefore it is considered a potential risk to end users of the site. However, with the exception of the built up area, filter beds and backfilled quarry detailed above, Made Ground is likely to be relatively thin and likely a limited source of contamination.

Table 3-6: iCSM – Proposed End Users

RECEPTOR: CONSTRUCTION WORKERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
General Made Ground associated with historical uses	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Moderate** (likely – medium)	If present, asbestos in soils can present an acute risk to construction workers, particularly during the enabling works phases. Very low and trace concentrations often pose a low risk if appropriate controls are put in place.
	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	No gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.

RECEPTOR: CONSTRUCTION WORKERS				
Historical site uses (electricity works, filter beds, nursery)	PCBs, oils, solvents, metals, asbestos, micro-organisms, pesticides and hert	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	Areas of contamination likely to be relatively localized and no significant concentrations of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk from these historical sources.
Infilled quarry recorded on site to the east.	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Moderate** (likely – medium)	If present, asbestos in soils can present an acute risk to construction workers, particularly during the enabling works phases. Very low and trace concentrations often pose a low risk if appropriate controls are put in place.
	Various inorganic and organic compounds	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	No gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.
	Permanent ground gases (CH4 and CO2)	Inhalation of vapours	**Risk: Moderate/Low** (low – medium)	If deep Made Ground is present and elevated gas concentrations, could be a risk of reduced oxygen within confined spaces. However, probability of significant gas producing material being present is considered low-likelihood at this stage.
Raised area/bund to the north-east	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Moderate** (likely – medium)	If present, asbestos in soils can present an acute risk to construction workers, particularly during the enabling works phases. Very low and trace concentrations often pose a low risk if appropriate controls are put in place.
	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Nature of material in this area unknown and could contain contaminants associated with recent site use as a research facility.
Former animal health facility including laboratories (Animal Health Trust)	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Moderate** (likely – medium)	If present, asbestos in soils can present an acute risk to construction workers, particularly during the enabling works phases. Very low and trace concentrations often pose a low risk if appropriate controls are put in place.
	Various inorganic and organic compounds, bio-hazard waste.	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Buildings and laboratories restricted to the eastern half of the site and contamination could be present across this area and localised to specific areas depending on former use. General contaminants may be present but also more specialised contaminants associated with the site use, which may require specialist treatment/removal.
Above ground fuel storage tanks noted during site reconnaissance (spills and leaks)	Petroleum hydrocarbons (TPH)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Hydrocarbon and BTEX contamination may be present associated with fuel tanks and pipelines.
Unexploded Ordnance	UXO	Direct contact / explosion	**Risk: Moderate** (low – severe)	The Hazard Screen indicates there may be potential for encountering UXO..Further risk assessment is required, to be undertaken by a specialist.

RECEPTOR: CONSTRUCTION WORKERS				
All other contamination sources	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	Considered to be localized and not in significant concentrations. No gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.

Table 3-7: iCSM – Acute Exposure to Construction Workers

RECEPTOR: ADJACENT SITE USERS FOLLOWING COMPLETION				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All potential contaminant sources	Metals, PAHs, TPH, PCBs, pathogens, bio-hazard waste	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Based upon the anticipated contaminant types and levels, and the distance to off-site structures, the chance of a pollutant linkage causing harm is considered low-likelihood. However, given the nature of the site, it cannot be discounted at this stage and further assessment of ground conditions and contamination levels is needed to refine the assessment.

Table 3-8: iCSM – Chronic Exposure to Adjacent Site Users

RECEPTOR: ADJACENT SITE USERS DURING THE CONSTRUCTION PHASE				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All potential contaminant sources	Metals, PAHs, TPH, PCBs, pathogens, bio-hazard waste	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Based upon the anticipated contaminant types and levels, and the distance to off-site structures, the chance of a pollutant linkage causing harm is considered low-likelihood. However, given the nature of the site, it cannot be discounted at this stage and further assessment of ground conditions and contamination levels is needed to refine the assessment.

Table 3-9: iCSM – Acute Exposure to Adjacent Site Users

RECEPTOR: PROPOSED PLANTING				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Contaminants within topsoil and the shallow sub-surface	Metals, pH and inorganics	Direct contact and root uptake	**Risk: Negligible** (negligible– minor)	Much of the site is laid to grass and various trees are present and during our site reconnaissance there were no significant barren areas, signs of poor growth, or evidence of significant vegetative stress.

Table 3-10: iCSM – Phytotoxic Risk to Proposed Planting Scheme

RECEPTOR: CONTROLLED WATERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All potential contaminant sources identified	Various	Leaching and vertical migration (Groundwater)	**Risk: Moderate/Low** (low – medium)	Potential leachable contaminants within the Made Ground and surface soils. There is a potential for contaminants to be mobilised through the infiltration of rainwater and to impact groundwater at depth.

Table 3-11: iCSM – Controlled Waters Risk

3.8 Preliminary Risk Assessment Conclusions and Recommendations

3.8.1 In terms of the proposed development scheme, a minimal risk approach applies, and PCLs have been identified which require further consideration. All the identified PCLs are restricted to the eastern half of the site. No PCLs have been identified to the west, therefore this part of the site is considered suitable for development without any further investigation works or remedial action taking place.

3.8.2 In particular the historical site uses, particularly use as an animal health facility, could give rise to a wide range of contaminants. Further intrusive investigation works are recommended to further refine the assessment and to determine if any remedial measures are necessary.

3.8.3 No radon protection measures are necessary. Given the number of tanks on site and the potential for localised fuel contamination, there is considered a potential risk from vapour intrusion. There is also considered a potential risk from landfill gases associated with the backfilled quarry on site. Intrusive fieldworks are recommended to include a gas monitoring regime to further refine the risk and determine if ground gas protection measures are required.

3.8.4 Overall, each PCL identified as posing a risk of 'Moderate/Low' or higher should be considered as part of an intrusive Tier 2 generic quantitative risk assessment (GQRA). The following table summarises the principal receptors at risk which require further investigation to support the proposed development.

Receptor Category	Principal Receptor	PCL Present Requiring Further Investigation?
Human health	Current site users	No
	Proposed site users (soils, dusts, and vapour)	**Yes**
	Proposed site users (permanent ground gas)	**Yes**
	Proposed site users (radon)	No
	Adjacent site users and off-site members of the public (during the long-term use of the site)	**Yes**
	Adjacent site users and off-site members of the public (during the construction phase)	**Yes**
	Construction operatives	**Yes**
Controlled waters	Surface waters	No
	Groundwater	**Yes**
Property	Soft landscaping (current)	No
	Soft landscaping (proposed)	No
	Potable infrastructure	**Yes**
	Building materials	To be considered by the specifier

Table 3-12: Receptors at Risk Under The Proposed Scheme

3.8.5 In view of the above, potential PCLs are limited to the east of the site only where the site has been developed as an animal health research facility. The western half of the site has remained open fields/paddocks since the earliest available mapping and so the western site area is not considered to contain potential PCLs.

4 Ground Investigation

4.1 Objectives

4.1.1 The ground investigation scope and location of exploratory holes was determined by Soiltechnics Ltd, based upon our overall brief outlined in Section 1.

4.1.2 The objectives of the fieldwork were to:

a) Establish ground and groundwater conditions at the site.
b) Obtain samples for subsequent laboratory testing.
c) Install gas and groundwater monitoring wells and undertake a programme of monitoring visits.

4.1.3 Based on the Tier 1 assessment, potential PCLs are limited to the east of the site only where the site has been developed as an animal health research facility. The western half of the site has remained open fields/paddocks since the earliest available mapping. On this basis, fieldwork was limited to the the eastern part of the site only.

4.2 Fieldwork summary

4.2.1 Fieldwork was undertaken between 21st and 25th November 2022.

4.2.2 A summary of the works completed is set out in the table below, along with the location of the exploratory logs. The exploratory hole location plan is presented within Appendix A.

Exploratory Hole Logs	Method	Qty	Final Depth Range (m bgl)	Comments
Appendix B	Hand Pits	9	0.3 – 1.3	Terminated at scheduled depth.
Appendix B	Machine-excavated trial pits	15	1.2 – 3.50	Trial pits terminated at scheduled depth.
		1	0.7	Trail pit terminated due to presence of service (cable)
Appendix C	Dynamic windowless sampling boreholes	11	1.2 – 3.6	Boreholes terminated due to competency of ground and refusal of sampling equipment.

Table 4-1: Summary of fieldwork undertaken

4.2.3 All soils encountered were described in accordance with BS EN ISO 14688 "Identification and Classification of soil" and in accordance with CIRIA C574 'Engineering in chalk'.

4.3 Unexploded Ordnance (UXO)

4.3.1 In the absence of a UXO Risk Assessment in accordance with CIRIA C681, Soiltechnics commissioned a UXO specialist to undertake a preliminary risk review for the purpose of the ground investigation works phase only.

4.3.2 The review concluded that the UXO risk to the ground investigation works was moderate within the site boundary, and therefore the works were supervised by a UXO specialist.

4.4 Sampling

4.4.1 During the fieldwork, sampling of soil, rock and groundwater for geotechnical purposes has been undertaken in accordance with BS EN ISO 22475-1 *"Geotechnical Investigation and testing – sampling by drilling and excavation and groundwater measurements".*

4.4.2 Samples collected for chemical analysis have been taken and handled in accordance with BS ISO 18400-105:2017 *"Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples".*

4.4.3 Various sampling and sub-sampling methodologies have been adopted as appropriate, with the primary aim of obtaining the highest quality sample class practicable.

4.4.4 Untested chemical and geotechnical samples will be held for a period of 4 weeks from the date of the first report issue, after which they will be disposed of with no further notice.

4.5 In-situ Testing

4.5.1 The following table summarises the field testing carried out. The results are summarised on individual exploratory hole logs where appropriate and detailed within the Appendices indicated.

Tests	Qty	Applicable standard / guidance	Location of Results
Standard penetration test (SPT)	19	BS EN ISO 22476-3	Included within logs Detailed in Appendix D
Pocket penetrometer	15	Manufacturer's instructions	Included within logs Detailed in Appendix D
Soakaway test	5	BRE 365	Appendix E

Table 4-2: Summary of field testing undertaken

4.6 Monitoring Installations

4.6.1 Instrumentation installed within exploratory holes during the fieldwork are shown on the logs within Appendix B and are summarised below:

Installation type	Target Stratum	Qty	Exploratory hole ID
Gas and groundwater monitoring well	Quaternary Deposits and Chalk	4	WS03, WS05, WS07, WS09

Table 4-3: Summary of monitoring installations

4.7 Monitoring visits and groundwater sampling

4.7.1 A summary of the gas and groundwater spot monitoring visits undertaken is outlined in the table below. Results of the post fieldwork monitoring are presented in Appendix G.

4.7.2 The preliminary risk assessment is low but to provide quantitative data to support this assessment, we have undertaken a single round of monitoring, outline below.

Date	Purpose
06/12/2022	Gas and groundwater spot monitoring

Table 4-4: Summary of post fieldwork spot monitoring

4.8 Investigation Constraints

4.8.1 Investigation was undertaken pre-purchase and therefore works were designed to limit damage as much as possible. Machine excavated trial pits were undertaken within fields only. Windowless sampler boreholes and hand pits were undertaken around buildings and car parking areas to reduce damage. Hand pits were undertaken within areas not accessible to mechanical excavation equipment.

5 Laboratory testing

5.1 Overview

5.1.1 Samples obtained from exploratory holes were sent to independent accredited laboratories for geotechnical and chemical testing.

5.2 Geotechnical Testing

5.2.1 The geotechnical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the scheme proposals and our initial understanding of the ground conditions.

5.2.2 Geotechnical laboratory test results are presented in Appendix F, and the total number of geotechnical tests undertaken is summarised below:

Qty	Test
4	Moisture content
4	Atterberg limits
1	Particle size distribution (coarse)
3	Intact dry density
2	BRE SD1 Suite A
2	BRE SD1 Suite B
1	BRE SD1 Suite D

Table 5-1: Summary of geotechnical laboratory testing

5.3 Chemical Testing

5.3.1 The chemical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the initial conceptual site model and fieldwork observations. It should be noted that, due to the nature of the former activities on site, industry specific contamination may still be present (e.g biohazard wastes, pathogens) that have not been tested for at this stage. Although such contaminants will likely degrade with age, some additional testing of these contaminants may be required should purchase and development of the site proceed. This is further elaborated on within subsequent report sections.

5.3.2 Chemical laboratory test results are presented in Appendix H, and the total number of chemical tests undertaken is summarised below:

Sample Type	Qty	Testing	Suite Name
Soils	10	*Basic Contamination Suite* [metals, cyanides, PAHs, phenol]	ST Suite 1
	4	*Comprehensive Contamination Suite* [metals, cyanides, PAHs, TPH CWG, (S)VOCs & inorganics]	ST Suite 17
	1	*PCB (WHO-12)*	-
	4	Total EPH	-
	14	Asbestos screening	-
	2	Full WAC Suite (2-stage leachate)	-

Table 5-2: Summary of chemical laboratory testing

6 Ground Investigation Findings

6.1 Ground Model

6.1.1 Ground conditions encountered were relatively consistent across the site and were broadly in line with those anticipated from the desk study.

6.1.2 The tables below present our generalised interpretation of geological and hydrogeological conditions at the site. Unless otherwise stated in subsequent interpretive report sections, this represents the adopted ground model.

6.1.3 Further detail about the ground conditions encountered is provided in the relevant sub-sections below.

Stratum	Brief description	Top depth range (m bgl)	Adopted model top depth (m bgl)	Adopted model thickness (m)
Topsoil	Dark brown gravelly sandy clay, gravel is flint.	G.L.	G.L.	0.4
Made Ground	Light brown and grey sandy gravelly clay with gravel of chalk, flint and brick.	G.L. – 0.3	G.L.	Generally absent but extending in excess of 1.2m in one location.
Quaternary Deposits	Brown and light brown clayey gravelly sand and soft gravelly very sandy clay. Gravel is flint and chalk.	0.10 –0.60	0.51	1.5
Holywell Nodular Chalk Formation and New Pit Chalk Formation	Structureless chalk composed of sandy gravelly clay.	0.3 – 2.90	1.80	>3m

Table 6-1: Ground Model

Type	Stratum	Groundwater depth and range
Confined water	Quaternary Deposits	0.8m

Table 6-2: Hydrogeological Model

6.2 Topsoil

6.2.1 Topsoil was encountered in all exploratory holes, with the exception of HP02, HP03 and TP04. The base of the unit varied between 0. 1m and 1.0m thick. The Topsoil comprises dark brown, gravelly, sandy clay with gravel consisting of flint.

6.2.2 A typical photograph of topsoil deposits encountered is presented below.

Figure 6-1: Topsoil within TP15

6.3 Made Ground

6.3.1 Made Ground is present to the east of the site, in five locations. Two of the locations are to the north of the former incinerator with Made Ground extending to depths in excess of 0.5m and 1.2m respectively. A thin layer is also present in WS07, located adjacent to the north-easternmost building. Made Ground is also present adjacent to and within the raised bund to the north-east of the site.

6.3.2 Made Ground is variable but generally comprises grey and light brown, slightly sandy to sandy, clayey gravel or gravelly, slightly clayey sand and light brown and light grey, slightly sandy, slightly gravelly clay. Gravels consist of chalk, flint, brick, clinker, concrete and sandstone. Occasional wood and fabric are present in the cohesive deposits in TP04 to the north of the incinerator building. Staining and a strong hydrocarbon odour were also noted between 0.6m and 1.20m in this area.

6.3.3 Photographs of the Made Ground encountered are presented below.

Figure 6-2: Made Ground in HP03

Figure 6-3: Made Ground in TP04

Figure 6-4: Made Ground in HP09 (raised/bunded area to the northeast)

6.4 Quaternary Deposits

6.4.1 Superficial, Quaternary Deposits are present across the site and extend to depths between 0.5m and 2.7m, with a general thickening toward the south and east. Generally, it is less than 2m thick.

6.4.2 The Quaternary Deposits generally comprise orangish brown and light brown, gravelly sands, with gravels consisting of flint and chalk. However locally, more cohesive soils were encountered comprising soft to firm, light brown sandy gravelly clay. Generally, the clay soils overlay the sands and did not extend beyond 1m depth. The exception is TP10, located towards the centre of the site, where deeper deposits were encountered (to 2.7m) and soils comprised sand over clay.

6.4.3 Such deposits are likely to be part of the Lowestoft Formation, though the variability and locally low strength provides some doubt, with such deposits also reminiscent of alluvial and/or Head deposits and as such have been given the more generic term of Quaternary Deposits.

6.4.4 A typical photograph of the Quaternary Deposits encountered is presented below.

Figure 6-5 Quaternary Deposits taken from TP14.

6.5 Chalk

6.5.1 Chalk was encountered across the site. The base of this unit was not penetrated and therefore the thickness is unknown.

6.5.2 Generally, the Chalk Formation comprised structureless chalk composed of sandy gravel with varying concentrations of clay (Grade Dc). Gravels were weak to moderately weak, low to medium density and varied in colour from light brown to white. Occasional to frequent flint gravels were also present. In two boreholes, the Chalk comprised a gravelly sandy clay (Grade Dm). However, SPTs refused at the base of the boreholes suggesting more competent Grade Dc soils below.

6.5.3 A typical photograph of the Chalk encountered is presented below.

Figure 6-6: Chalk – Grade Dm from WS03

Figure 6-7 Chalk - Grade Dc from TP12

6.6 Groundwater

6.6.1 Groundwater was not encountered in any of the excavations with the exception of WS07, with details presented below.

Exploratory hole ID	Groundwater observation
WS07	Groundwater encountered at 0.8m. Standing at 1.9m after 6 hours

Table 6-3: Summary of groundwater observations during the fieldworks

6.6.2 A summary of the groundwater level data obtained during the monitoring phase is presented below and is detailed within Appendix G.

Targeted strata / Aquifer	Exploratory hole ID	Instrument Type(s)	Water depth (m bgl)
Quaternary Deposits and Chalk	WS07	Well	1.95
Quaternary Deposits and Chalk	WS03	Well	Dry
Quaternary Deposits and Chalk	WS05	Well	Dry
Quaternary Deposits and Chalk	WS09	Well	Dry

Table 6-4: Summary of groundwater monitoring visits.

6.6.3 Superficial deposits were encountered across the site despite not being recorded on geological maps. Groundwater was encountered in one location suggesting there may be pockets of confined water or shallow water seepages within these deposits and some limited water strikes should be expected.

6.6.4 Groundwater levels are expected to vary seasonally and in response to recent weather conditions. Long term monitoring will provide a reasonable quantification of such variation.

6.7 Evidence of Possible Contamination

6.7.1 The table below summarises the potential contamination noted during the ground investigation works.

Exploratory hole ID / Area	Depth of observation (m bgl)	Stratum	Description
TP04	0.0-1.2	Made Ground	Made Ground with anthropogenic material
	0.60	Made Ground	Strong hydrocarbon odour and staining between 0.6-1.1m
WS07	0.30 – 0.40	Made Ground	Grey gravel of flint and brick
HP03	0 – 0.30	Made Ground	Light brown gravel of flint, brick and clinker
HP09	0.0-1.3	Made Ground	Made Ground with anthropogenic material

Table 6-5: Summary of potential contamination noted during the investigation works

6.8 Obstructions and Instability

6.8.1 The table below summarises the obstructions encountered that affected the progress of the investigation works.

Strata / Area	Depth range (m bgl)	Issue	Description
Quarternary deposits and Chalk	1.20 – 3.60	Obstruction to WLS rig	Hard stratum. Dense sands and gravels and competent chalk, leading to drill refusal.

Table 6-6: Summary of obstructions and instability encountered during the investigation works

6.8.2 The general stability of trial pits during excavation are also recorded on the trial pit logs. Generally, trial pits were upright and stable.

7 Geotechnical Discussion

7.1 Scheme Overview

7.1.1 The following assessments are made on the investigatory data presented in the preceding sections of this report and are made with reference to the specific nature of the development. Should scheme proposals change then it is recommended that the validity of the conclusions of this report in relation to the revised scheme are checked.

7.1.2 The project will comprise a residential development, although at the time of writing, there are no specific proposals.

7.1.3 In view of the scheme proposals, the geotechnical elements considered in this report are outlined below:

a) Building foundations
b) Drainage
c) Pavement
d) Floor slab

7.2 Geotechnical Category

7.2.1 In accordance with BS EN1997-1:2004 + A1:2013 (Eurocode 7), the project is designated as Geotechnical Category 2. This category includes projects with *conventional types of structures and foundations with no exceptional risk, or difficult ground or loading conditions*. Furthermore, *routine design procedures* are appropriate.

7.2.2 It should be noted that this Report does not constitute a Geotechnical Design Report (GDR) as defined in Eurocode 7. Accordingly, a GDR should be prepared by the designer during the detailed design phase

7.3 Key Geotechnical Issues

7.3.1 In view of the ground conditions, the following list summarises the key geotechnical issues that may impact the scheme and will therefore need to be appropriately managed during the lifecycle of the project:

- Made Ground
- Groundwater
- Chalk: Dissolution features and susceptibility to water
- Existing foundations

7.4 Made Ground

7.4.1 No significant Made Ground was encountered across the majority of the site. However, Made Ground to depths in excess of 1.2m was identified to the north of the incinerator building and around the northern most building and bund area to the north-east. The extent of it is unknown. These deposits are unsuitable for supporting concentrated foundation loads and foundations should extend, as a minimum, through such deposits. On this basis, additional investigations are likely to be required in this area to confirm lateral and vertical extent of such deposits. Should they extend in excess of 2.5m, a traditional spread foundation solution may not be viable in this area and an alternative, such as piling might be recommended. Alternatively, it may be proposed not to put buildings in this area.

7.4.2 Based on historical maps, a backfilled quarry is likely to be present on site as indicated by the red circle on Figure 7-1. This area lies below an existing building and access way and investigations have not been undertaken in this location at this time. This is likely to be an area of deep Made Ground and may require further investigation depending on development proposals. Again, a piled foundation solution may be required in this area should buildings be proposed over the former quarry.

Figure 7-1: Mapping overlays from 1926 and 2006 showing existing layout and location of former quarry

7.5 Groundwater

7.5.1 It is anticipated that significant groundwater will not be encountered during foundation excavations. However, we have observed an inflow in one location within the Quaternary Deposits and therefore localised seepages should be anticipated within shallow soils. We anticipate water, if/where encountered at shallow depth, will be controllable with standard pumping techniques.

7.5.2 Groundwater levels are expected to vary seasonally and in response to weather events.

7.5.3 The inflow of groundwater into excavations may lead to instability and excavation collapse, particularly within any looser sand deposits or Made Ground.

7.6 Chalk: Dissolution Features and susceptibility to water

7.6.1 Reference has been made to CIRIA report C574 *"Engineering in Chalk".* That report indicates that the presence of dissolution features should be expected on all calcium carbonate rich chalk sites. The Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated) is considered rich in calcium carbonate and therefore dissolution features should be anticipated.

7.6.2 Dissolution features pose a hazard to foundations because of the presence of one or more of the following features, which are generally located above the groundwater table:

i) Large variations in intact chalk horizon
ii) Loose chalk or superficial deposits infilling pipes
iii) Cavities or caves within the chalk
iv) Dissolution widened discontinuities in the chalk affecting its load carrying capacity

7.6.3 The risk that these hazards present to a building relates to its vulnerability, which in turn relates to the foundation type. A building on shallow spread type foundations and ground bearing floors is more vulnerable than piled foundations extending through the base of these features supporting a suspended ground floor slab. A qualitative risk assessment has been undertaken and summarised below:

Item	Observation / enquiry	Assessed risk
Surface features	None observed	Low
Variation in density of near surface soils	Uniform density of near surface deposits	Low
Variation in intact chalk horizon	Depth generally between 1-2m with minor variation across the site	Low/medium
Adverse movement in nearby buildings	None recorded	Low
Envirocheck database	Recorded as no hazard to very low hazard	Low
Enquiries to Local Authority building control	Was not mentioned in correspondence and internet searches have not identified any report incidents.	Low

Table 7-1: Qualitative risk assessment of dissolution features

7.6.4 Based on the above, the risk of the site being subject to dissolution features is considered low. Although the risk is considered low, there remains a residual risk that dissolution features could be encountered in the construction phase, identified by voiding or locally loose soil. Accordingly, it is recommended that formation levels be inspected by a suitably competent geotechnical engineer.

7.6.5 During construction, competent chalk could rapidly lose structure/competency if exposed to water (i.e. heavy rain) especially where disturbance is also ongoing, such as tracking with machinery so careful consideration to construction methods is also required. It is recommended that a contractor familiar with similar ground conditions is used for construction works.

7.7 Effect of existing development on new foundations.

7.7.1 Demolition of the existing buildings and removal of existing foundations will disturb near surface soils requiring new foundations to extend into soils which have not been disturbed. Foundations in some areas will therefore need to extend beyond the minimum foundation depth required in order to penetrate Made Ground and extend into the natural deposits.

7.8 Building Foundation Strategy

7.8.1 In view of the key geotechnical issues discussed above and anticipated loadings, spread foundations are considered suitable for the project. If further investigations identify any areas of deep Made Ground (backfilled quarry, around the incinerator), alternative foundations may be required but this would be discussed in any future report.

7.9 Geotechnical Parameters

7.9.1 Characteristic values of geotechnical parameters have been derived, in accordance with Eurocode 7. The following tables present the recommended characteristic values for the strata encountered:

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	18	BS8004:2015 Figure 1
Critical state angle of shearing resistance, ϕ_{cv} (°)	30	BS8004:2015 Equation 4

Table 7-2: Summary of characteristic geotechnical parameters – Quaternary Deposits

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	18	BS8004:2015 Figure 1
Undrained shear strength, c_u (kN/m^2)	140	In situ testing
Undrained deformation modulus, E_u (MN/m^2)	7333.33	In situ testing

Table 7-3: Summary of characteristic geotechnical parameters – Chalk Grade Dm

7.10 Spread Foundations

7.10.1 Both the Quaternary Deposits and Chalk are considered to be of non-plastic or of low volume change potential when classified in accordance with NHBC Standards, Chapter 4.2. Accordingly, and in isolation of other considerations affecting foundation depth, foundations should be founded at a **minimum depth of 0.75 mbgl** to penetrate the zone of shrinkage and swelling caused by seasonal wetting and drying.

7.10.2 All foundations should extend through any Made Ground and into the underlying Quaternary Deposits by a minimum of 0.3m.

7.10.3 Ultimate limit state analyses (bearing capacity) for Quaternary Deposits have been undertaken in accordance with the approach outlined in Annex D of Eurocode 7 to derive the following design bearing resistances:

Type	Size / width (m)	Founding depth (m BGL)	Founding stratum	Bearing resistance	
				Combination 1	Combination 2
Strip	0.45	0.75	Quaternary Deposits	325 kN/m^2	235 kN/m^2
Strip	0.6	0.75	Quaternary Deposits	325 kN/m^2	235 kN/m^2
Strip	0.9	0.75	Quaternary Deposits	325 kN/m^2	235 kN/m^2

Table 7-4: Summary of foundation ultimate limit state analyses

7.10.4 Serviceability limit state (SLS) has been assessed by undertaking settlement analyses in accordance with the approach outlined in Annex F of Eurocode 7 and adopting the following variables:

Stratum	Variable	Value adopted	Derivation
Quaternary Deposits	SPT N Value	10	In situ testing
	Coefficient of volume compressibility, m_v (m^2/MN)	0.2	Literature
	Geological factor, μ_g	1	Literature

Table 7-5: Key geotechnical variables used in settlement analyses – Quaternary Deposits

7.10.5 It should be noted that the above values are reasonably conservative and based on relatively limited insitu testing in the near surface Quaternary deposits (generally due to their sandy nature and competence). If the following bearing resistances are insufficient, some further assurance testing may be possible within the shallow soils which might enable a refinement of the values provided.

7.10.6 The proposed loads are not known at this stage. Accordingly, the maximum bearing pressures have derived to ensure settlement is less than 25mm, which is typically adopted as a maximum tolerable limit. The following table summarises the results.

Foundation type	Founding Stratum	Size / width (m)	SLS bearing resistance
Strip	Quaternary Deposits	0.45	220 kN/m^2
Strip	Quaternary Deposits	0.6	170 kN/m^2
Strip	Quaternary Deposits	0.9	110 kN/m^2

Table 7-6: SLS bearing resistance to ensure total settlement to <25mm – granular Quaternary Deposits

7.10.7 Chalk is not specifically covered in Eurocode 7 or associated documents such as BS8004. Being a rock (or weak rock) the modulus and density of chalk are the driving factors in establishing an allowable bearing capacity of spread foundations limiting settlements to acceptable levels. Chalk has four classification types A to D, with class A to C relating to intact rock, (A being the strongest) and D being the more weathered classification.

7.10.8 Based on investigations completed at this site, and with reference to CIRIA C574 *"Engineering in Chalk"*, foundations will be constructed on chalk deposits which are conservatively considered to be medium density Grade Dc chalk.

7.10.9 Again, with reference to C574 **the suggested allowable bearing pressure for a grade Dc chalk is 225kN/m^2**. At this stress, the settlement is not anticipated to exceed 10-15mm.

7.10.10 Differential settlement is dependent upon the variation of loads imposed on the ground and consistency of the foundation supporting ground. Assuming foundation loads are reasonably uniform and in line with the values outlined above, it is estimated that differential settlement is unlikely to exceed say 25mm. It is likely settlement will be substantially achieved within say 10 years of construction.

7.10.11 It is anticipated that excavations to founding levels will encounter both fine grained and coarse grained soils. Whilst these soils will ultimately generate similar amounts of total settlement under applied foundation loads, the rate at which settlement will occur will differ. Granular soils will produce settlements almost immediately after loads are applied whereas fine grained soils continue to consolidate several years after completion of construction. Accordingly, traversing mixed soil types will be subject to differential settlement. **To minimise the effects of such movement it is recommended that foundation excavations are located on a single geological horizon (Quaternary Deposits or Chalk) and that they are reinforced.**

7.10.12 It should be noted that foundation design is iterative. Accordingly, a final check of ultimate and serviceability limit states should be undertaken following confirmation of foundation size and loads.

7.11 Residential Ground Floor Construction

7.11.1 Ground bearing floor slabs can be adopted where they are remote from trees and where Made Ground and Topsoil deposits are fully removed within the footprint of the building. Following completion of excavations to formation levels it is recommended that the formation is proof rolled to identify any soft areas, which if encountered should be excavated and replaced with suitably compacted engineered fill. It is further recommended that a layer of durable, well graded compacted granular material be placed prior to construction of the floor slabs.

7.11.2 In areas close to existing major vegetation at the site (or where ground floors are elevated requiring in excess of 600mm of fills) then it is recommended that suspended ground floors are adopted with a sub floor void determined in accordance with NHBC Standards.

7.11.3 Consideration should also be given to the loss of structure/competency in the Chalk if present at formation levels and exposed to water (i.e. heavy rain) especially where disturbance is also ongoing. It is recommended that a contractor familiar with similar ground conditions is used for construction works. In wet weather, we would recommend rolling ahead of floor formation.

7.12 Aggressiveness Of Ground To Buried Concrete

7.12.1 The aggressiveness of the ground with respect to buried concrete has been assessed in accordance with Building Research Establishment Special Digest 1: Concrete in Aggressive Ground Third Edition (2005).

7.12.2 The site is interpreted to be a brownfield site where pyrite is unlikely to be present in the natural soils but may be present in the limited Made Ground identified in this investigation.

7.12.3 Laboratory testing has been undertaken on soil samples obtained from the investigation works.

7.12.4 The Made Ground identified is classified as 'disturbed' ground. Accordingly, the amount of oxidizable sulphides has also been considered when categorising the strata.

7.12.5 The classification of all strata is tabulated below:

Stratum	Disturbed / Undisturbed	Design sulphate class	Aggressive chemical environment for concrete class
Topsoil	Undisturbed	DS-1	AC-1
Made Ground	Disturbed	DS-1	AC-1
Quaternary Deposits	Undisturbed	DS-1	AC-1
Chalk	Undisturbed	DS-1	AC-1

Table 7-7: Summary of the aggressiveness of the ground to buried concrete

7.12.6 It should be noted that at this stage, the above is based on limited testing of each soil type. Further testing of all soil types is recommended should the site be purchased and the development proceed to confirm that above assessments.

7.13 Drainage

7.13.1 Infiltration testing has been undertaken at the site in accordance with BRE 365: Soakaway Design (2016). The results are presented as Appendix E and summarised below:

Exploratory hole ID	Stratum tested	Cycle	Infiltration rate (m/s)
TP01	Chalk	1	$1.99x10^{-4}$
		2	$2.42x10^{-4}$
		3	$2.29x10^{-4}$
TP02	Chalk	1	Test failed
TP03	Chalk	1	$1.40x10^{-5}$ *(data extrapolated)*

Table 7-8: Summary of infiltration test results undertaken in accordance with BRE 365

7.13.2 Concentrated ingress of water into Chalk can initiate new dissolution features, particularly in low density Chalk, and destabilise loose backfill of existing ones. For this reason and following recommendations contained in CIRIA report C574 *'Engineering in Chalk'*, soakaways should be sited away from foundations for structures, roads or railways, as indicated below:

- In areas where dissolution features are known to be prevalent, soakaways should be avoided if at all possible, but if unavoidable, should be sited at least 20m away from any foundations.
- Where chalk is of low density, or its density is not known, soakaways should be sited at least 10m away from any foundations.
- Where chalk is of medium density (or higher) the closest part of the soakaway should be at least 5m away from buildings.

7.13.3 The Chalk was generally encountered as low and medium density and therefore for the purpose of soakaway design it is recommended that they are sited a minimum of 10m from foundations. Should soakaways need to be closer based on development proposals, we recommend further density testing of chalk be undertaken to refine the in situ determination of density.

7.13.4 Additionally, it is recommended that trench type soakaways are adopted to minimise the risk of promoting the formation of dissolution features

7.13.5 The Chalk is designated as a principal aquifer. Accordingly, the Environment Agency and Local Authority must be consulted when planning soakaway installations where chalk underlies the site.

7.14 Pavement Foundation

7.14.1 As part of the scheme development it is likely that access roads and hardstanding areas will be constructed at or about existing ground level. Accordingly, it is assumed that formation level will be within the Quaternary Deposits and potentially Chalk Formation. Equilibrium California Bearing Ratio (CBR) value for the subgrade has been estimated based on material composition and following the guidance in Transport Road Research Laboratory Report LR1132: Structural design of bituminous roads.

7.14.2 The subgrade is anticipated to comprise a mix of granular and clay based soils. The clay-based soils will govern the in situ CBR value. On this basis and assuming an average plasticity index of 10%, a low water table and 'thin' pavement the following CBR values are considered appropriate for a variety of construction conditions.

Construction conditions	Equilibrium CBR value (%)
Poor	2.5
Average	4.5
Good	6

Table 7-9: Estimated equilibrium CBR values based on soil conditions (average PI = 10%)

7.14.3 It is recommended that the design values are validated with in situ testing immediately prior to construction. Furthermore, it is recommended that the formation level is trimmed and rolled following the requirements outlined in the Specification for Highway Works Series 600.

7.14.4 The Quaternary Deposits and Chalk Formation deposits soils are considered frost susceptible and this may override the CBR criteria for pavement foundation design purposes.

7.14.5 The silty nature of the Quaternary Deposits and Chalk Formation deposits will render them moisture susceptible with small increases in moisture content giving rise to a rapid loss of support to construction plant. It is therefore recommended that the sub-base is laid as soon as practicable following establishment of formation.

7.15 Suitability For Material Re-use

7.15.1 Significant earthworks are not anticipated to be required at the site. Soils excavated at the site are likely to be suitable for re-use as a general bulk fill. It is recommended that the soils are classified and compacted in accordance with the Specification for Highway Works Series 600.

7.15.2 The silty nature of the Quaternary Deposits and Chalk Formation deposits are moisture susceptible with small increases in moisture content giving rise to a rapid loss of strength and potentially rendering them unacceptable for reuse. Accordingly, material should be placed and compacted as soon as practicable. It is therefore recommended that the sub-base is laid as soon as practicable following establishment of formation.

7.16 Constructability

7.16.1 Under most standard contracts it is the responsibility of the Contractor to design, construct and maintain temporary works. Accordingly, the following discussion is provided for information only.

7.16.2 Excavation sides are anticipated to be stable in the short term. However, some overbreak of the Made Ground and other more granular deposits may occur.

7.16.3 Groundwater may be encountered during excavations to form spread foundations. Flow rates are anticipated to relatively minor but may cause instability of the excavation sides. It is likely that groundwater can be controlled via conventional sump pumping techniques.

7.16.4 In the event that a soft area is located in the course of foundation excavations then excavation should continue to locate stiffer / denser soils.

7.16.5 It is recommended that foundation concrete be poured as soon as practicable after excavation to prevent deterioration of the formation.

7.16.6 It is anticipated that service trench excavations will remain stable in the short term. There is a possibility that locally, excavations may encounter more granular soils, which may include some water. In such cases trench sheet shoring may be required to maintain an open excavation. It is assumed that any water will be controlled with nominal pumping techniques.

7.16.7 During construction, competent chalk could rapidly lose structure/competency if exposed to water (i.e. heavy rain) especially where disturbance is also ongoing, such as tracking with machinery so careful consideration to construction methods is also required. It is recommended that a contractor familiar with similar ground conditions is used for construction works.

8 Tier 2 Generic Quantitative Risk Assessment

8.1 Objectives

8.1.1 The objective of this generic quantitative risk assessment (GQRA) is to further assess the potential contaminant linkages (PCLs) identified by the preliminary risk assessment using the following:

- The findings of the intrusive site investigation and resulting site specific ground and hydrogeological model.
- Laboratory analysis of soils and groundwater.
- Monitoring of ground gases and vapours.

8.2 Fieldwork Observations

8.2.1 Fieldwork observations on the potential for contamination and the underlying ground conditions did not identify any new contaminant sources or significant pathway alterations to the anticipated ground model. Therefore, no PCL additions or amendments are required to be made to the CSM at this stage.

8.3 Laboratory Testing Rationale

8.3.1 Laboratory testing has been scheduled by targeting potential contaminant linkages identified within the iCSM and observations made during fieldworks. The sampling and testing strategy is based on a judgemental approach.

8.3.2 As the site has not yet been purchased by the client, the purpose of the investigation to provide a general overview of contamination at the site. On this basis, it has not been possible to target all identified contamination sources at the site during this investigation. However, we have attempted to target the most likely sources of contamination as well as giving good spatial coverage across the site to characterise the strata encountered.

8.3.3 In addition to the above, the following potential sources of contamination were identified within the iCSM and were subject to targeted sampling and testing as summarised below.

Source	Strata/medium	Qty	Scheduled analysis	Exploratory IDs	Sample Depth Range (m bgl)
Localised hydrocarbon contamination	Made Ground	1	*Comprehensive Contamination Suite* [metals, cyanides, PAHs, TPH CWG, (S)VOCs & inorganics]	TP04	1.1m
Soil mounds/bund	Made Ground	2	*Basic contamination suite* [metals, cyanides, PAHs, phenol] Asbestos screening	HP09	0.6-1.3

Table 8-1: Summary of scheduled laboratory testing

8.3.4 Testing included a broad suites of analysis due to the potential for unknown contamination to be present. However, due to the nature of the former activities on site, industry specific contamination may still be present (e.g biohazard wastes, pathogens) that have not been tested for at this stage.

8.4 Generic Assessment Criteria

8.4.1 Assessment of laboratory test data has been carried out using published generic assessment criteria (GACs). The GACs act as screening values to provide a 'trigger' to an assessor that soil concentrations above these limits might present an unacceptable risk.

8.4.2 Various GAC sources are used within this report. Key assumptions are made in the derivation of screening values in regard to their use and application, and exposure modelling is based on precautionary national scenarios. This generic approach can result in an overly conservative assessment; therefore, the assessor is required to review the outcome of the GQRA screening in the context of the site specific CSM and identified potential contaminant linkages.

8.4.3 Asbestos does not currently have published GACs which can be used for generic assessment purposes, at this stage a present / absent trigger limit has been adopted.

8.4.4 Specific details regarding the published GAC sources chosen and any parameter refinements made are summarised within Appendix I, along with the order of preference where multiple GAC sources are available. The exposure models adopted are discussed in the relevant sections below.

8.5 Human Health GQRA (soils and vapour)

8.5.1 The results of the human health screening assessment for soils and vapours are detailed in Appendix I. The following table outlines the exposure models adopted, along with summarising the outcome of each screening assessment.

Receptor	Exposure Model	Outcome
All human health receptors	Presence of asbestos	No suspected ACMs observed during fieldworks. No fibres detected through laboratory analysis.
Proposed site users	Residential with plant uptake	1 sample showing arsenic exceedance. All other results below GAC screening values.
Construction operatives	Acute occupational exposure (assumed no PPE worn)	No exceedances.
Adjacent site users and the public	Acute off-site public exposure during construction phase	No exceedances.

Table 8-2: Human health GQRA models and outcomes

8.5.2 The table below summarises the instances where contaminants have exceeded the generic screening criteria.

Receptor	Strata	Contaminant	Locations & Depths	Test Result / Range (mg/kg)	GAC (mg/kg)
Proposed site users	Topsoil	Arsenic	HP07 at 0.2m	51	37

Table 8-3: Human health GQRA exceedances

8.6 Proposed Site Users Risk Assessment (soils and vapour)

8.6.1 All reported concentrations of contaminants are below the relevant generic assessment criteria for human health receptors with the exception of a single arsenic concentration. This was located within the treeline close to the former quarry. No other testing has currently been undertaken in this area and therefore additional sampling and testing is likely to be needed in this area to understand how localised the contamination is. All other concentrations of arsenic from elsewhere on site were well below the guideline value.

8.6.2 It should also be noted that fieldwork observations within the vicinity of the incinerator building detected some hydrocarbon odours/staining and exploratory work within this location was limited, and it is therefore possible that higher levels of hydrocarbon contamination may be present in unexplored areas in this location. In addition, there are a number of tanks/pipework/substations on site and although we have undertaken excavations and some testing to target some of these areas, again, there is a possibility that unidentified contamination is present local to these sources.

8.6.3 Overall, based on the laboratory data and field observations to date, we have not detected any significant areas of suspected contamination. However, it is acknowledged that given the history of the site and multiple possible sources of contamination, there are areas which will require further assessment should the development proceed and localised areas of contamination may still be present that would require further assessment. In addition, appropriate due diligence and a watching brief should be carried out during the demolition and enabling works, to identify any unexpected or previously unencountered contamination.

8.7 Construction Workers Risk Assessment

8.7.1 Analysis indicates that contaminant levels do not pose an acute risk to construction workers. In general, standard PPE and hygiene protocols for working on brownfield sites is considered adequate to mitigate against the potential risk from contaminants on site, and no special precautions are required.

8.7.2 Should any areas of possible waste/equipment dumping be identified on site during construction works that could be a source of specific contamination associated with the former site use, specialist decontamination/remediation may be required prior to removal of such wastes.

8.8 Adjacent Site Users Risk Assessment

8.8.1 Based upon the laboratory results and understanding of the site to date, there is not considered to be an unacceptable level of risk to adjacent site users, both during construction and following completion of the development.

8.9 Controlled Waters Risk Assessment

8.9.1 Investigative works undertaken to date have not encountered any suspected area of contamination, and no significant groundwater has been encountered. On this basis, the overall risk to controlled waters is considered to be low.

8.9.2 However, while we have attempted to target likely areas of contamination and give good spatial coverage, localised areas of contamination cannot be discounted based on the past history of the site. On this basis, further investigations may be required following purchase of the site. In addition, appropriate due diligence and a watching brief should be carried out during the demolition and enabling works, to identify any unexpected or previously unencountered contamination.

8.10 Existing drainage

8.10.1 Based on the site reconnaissance, it was considered likely that any biohazard waste would likely be predominantly present in drainage at the site. On this basis, during fieldwork, manhole covers down gradient of the main site were lifted to assess the presence of any obvious silts or sludge material that could potentially indicate waste products within the drainage.

8.10.2 Some drainage runs appeared to be clear although others included some soils/silts. No sampling or testing was undertaken due to possible risk to personnel. Further assessment of the materials within the drainage system may be required.

Figure 8-1: View of existing drainage

Figure 8-2: View of existing drainage

8.11 Ground Gas Monitoring Rationale

8.11.1 Four gas and groundwater monitoring wells were installed at the site. Although the preliminary risk assessment is low, in order to provide quantitative data to support this assessment, we have undertaken a single round of monitoring.

8.11.2 All gas monitoring wells were installed within the Quaternary Deposits and Chalk.

8.12 Ground Gas Monitoring Results

8.12.1 A summary of the gas monitoring results follows, with the full results detailed within Appendix G.

- Gas flow rates were detected up to 0.1 l/hr, which is the limit of detection (0.1 l/hr).
- Steady concentrations of methane were recorded at or below the limit of detection of 0.1%.
- Concentrations of carbon dioxide were in the range of 0.3% to 2%.
- Steady concentrations of oxygen ranged from 17.1% and 20.2%.

8.13 Updated Ground Gas Risk Assessment

8.13.1 Based upon the CSM and on the monitoring results obtained, there are no significant concerns regarding elevated carbon dioxide or depleted oxygen levels. No elevated gas flow rates were detected.

8.13.2 Due to the absence of a significant actively generating ground gas source and open migration pathway, it is considered very unlikely that ground gases could migrate into the proposed structures on site at sufficient speed and volume to pose any viable risk. A CS-1 classification applies.

8.13.3 However, it is acknowledged that deeper Made Ground is potentially present associated with a former quarry, and this has not yet been investigated. Depending on the depth and composition of Made Ground in this area, gas monitoring may be required in and around this area to refine the risk assessment locally.

8.14 Water Supply Pipes

8.14.1 A full site investigation as set out in the UK Water Industry Research (UKWIR) document *'Guidance for the selection of Water supply pipes to be used in Brownfield sites'* has not been undertaken.

8.14.2 The UKWIR document advises a trigger concentration of 0.125mg/kg for the 'extended VOC (volatile organic compounds) suite', which includes the PAH (polycyclic aromatic hydrocarbons) suite that has been included in the soil analysis during this investigation.

8.14.3 No specific testing has been undertaken at present from likely pipe depths (0.5-1.5m bgl) due to the preliminary nature of the investigation. However, it is likely that at these depths soils will be natural and it is unlikely the concentration of PAH congeners will exceed the trigger concentration of 0.125mg/kg. However, in areas of deeper Made Ground this may not be the case. In all cases, given the history of the site, it is likely the water company will require specific testing to be undertaken to confirm barrier pipes are not required. Alternatively, barrier pipes can be installed across the site as a precaution.

8.14.4 In all instances, it is advised to consult the water company for advice to determine if protective pipe is necessary or if further assessment and investigation works are warranted. Irrespective of the assessment made here, water companies may insist on barrier pipe being installed. Once the initial consultation has taken place, Soiltechnics can support you in any further assessments that may be required.

8.15 Updated Conceptual Site Model (uCSM)

8.15.1 Following on from the discussions above, an updated conceptual site model has been tabulated overleaf.

8.15.2 The table below presents our approach to the assessment of risks associated with potential contaminant linkages. The categories are based upon the definitions within CIRIA C552 (2001), with the addition of a 'negligible likelihood' scenario, which is to be used where there is no realistic scenario in which harm could occur.

		Consequence of harm			
		Severe	**Medium**	**Mild**	**Minor**
Probability of harm	**High likelihood**	**Risk: Very high** (high – severe)	**Risk: High** (high – medium)	**Risk: Moderate** (high – mild)	**Risk: Moderate/Low** (high – minor)
	Likely	**Risk: High** (likely – severe)	**Risk: Moderate** (likely – medium)	**Risk: Moderate/Low** (likely – mild)	**Risk: Low risk** (likely - minor)
	Low Likelihood	**Risk: Moderate** (low – severe)	**Risk: Moderate/Low** (low – medium)	**Risk: Low** (low – mild)	**Risk: Very low** (low – minor)
	Unlikely	**Risk: Moderate/Low** (unlikely – severe)	**Risk: Low** (unlikely – medium)	**Risk: Very low** (unlikely – mild)	**Risk: Very low** (unlikely – minor)
	Negligible Likelihood	**Risk: Low** (negligible– severe)	**Risk: Very Low** (negligible– medium)	**Risk: Very Low** (negligible– mild)	**Risk: Negligible** (negligible– minor)

Table 8-4: CSM Risk Ratings

RECEPTOR: PROPOSED END USERS				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** (probability of harm x consequence)	**Discussion**
Electricity works in the south-eastern corner in the 1920s	PCBs, oils, solvents, metals, asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Area is currently within the tree line with limited access and has therefore not been fully investigated at this time. Contaminants could be present in the soil associated with this former site use but likely to be relatively localized to this corner of the site.
Sewage filter works in north-eastern part of the site (1920s-1970s)	Metals, inorganics, pathogens	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Excavations within this area identified Made Ground although this was generally Topsoil/subsoil with limited anthropogenic materials. No evidence of contamination was noted.
Plant nursery in north-eastern part of the site (1920s-1970s)	Pesticides, herbicides, asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Nursery recorded in the far north-eastern corner of the site although the area is now wooded and with limited access the area has not been fully investigated at this time. No evidence of buildings on site therefore presence of asbestos is considered unlikely. Chemical pesticides/herbicides likely to have been used and could be present in the local area.
Infilled quarry recorded on site to the east.	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** (likely – medium)	Nature of material used to infill the former quarry is unknown and could contain various contaminants. Likely to be localized to this area only. Area currently located beneath building/yard area and therefore no investigation undertaken at this stage. Further investigation in this area is recommended post demolition to determine the nature and extent of any Made Ground.
	Permanent ground gases (CH_4 and CO_2)	Inhalation of vapours	**Risk: Moderate/Low** (low – medium)	Depth and nature of material used to infill the former quarry is unknown and could include organic rich materials capable of producing landfill gases. However, given the age of the infill and the small size of the quarry, it is likely any gases would only impact a small area of the site.
Raised area/bund to the north-east	Various inorganic and organic compounds (hydrocarbons, metals, asbestos),	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Made Ground identified to depths in excess of 1.3m and included anthropogenic material. Excavations in this area limited and there may be some variation in the nature of soils used in the bund. However, current testing has not identified any elevated concentrations of contaminants and asbestos was not detected.

RECEPTOR: PROPOSED END USERS				
Former animal health facility including laboratories (Animal Health Trust)	Various inorganic and organic compounds (hydrocarbons, metals, asbestos).	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Based on current investigations and testing, no contamination has been identified across the eastern part of the site. Should any areas of possible waste/equipment dumping be identified on site during construction works that could be a source of specific contamination associated with the former site use, specialist decontamination/remediation may be required prior to removal of such wastes.
	Biohazard waste/pathogens	Ingestion, inhalation and contact with soils and dusts	**Risk: Moderate/Low** (low – medium)	No evidence for such materials was observed at surface on site or within soils. However, there is some silts/soils within drainage that could contain such contaminants and may require further assessment.
Former horse incinerator	PAH, metals, inorganics, TPH	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Made Ground to depths in excess of 1.2m has been identified to the north of the building although laboratory testing has not identified any specific contamination at this stage. Odours and staining were noted however and there is a possibility that contamination may be present in greater concentrations elsewhere in the area. Further investigations are recommended to determine the extent of Made Ground in this area and refine the assessment.
Above ground fuel storage tanks noted during site reconnaissance (spills and leaks)	Petroleum hydrocarbons (TPH)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** (low – medium)	Excavations undertaken near to tanks have not identified any evidence of leaks or spills and laboratory testing has not identified significant concentrations of TPH. On this basis, the risk can be reduced to moderate/low but cannot be reduced further as there remains a possibility of localized contamination associated with pipework/tanks that have not been fully investigated. However, any such contamination is considered likely to be localized.
Areas of car parking	Petroleum hydrocarbons (TPH)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	Multiple car parking areas are present on site. Minor leaks from parked vehicles may be present. However, these are likely to be small-scale given cars wouldn't be parked in the same place for any significant period of time and therefore risk to end users is considered to be low. Current investigations have not identified any visual or olfactory evidence of hydrocarbons within the areas investigated.
Made Ground within the east of the site associated with development, past development and bunds.	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Made Ground on site has been identified as reasonably limited although localized deposits around some of the buildings is likely. Based on testing to date, general Made Ground does not contain elevated concentrations of contaminants and therefore poses a low risk to proposed end users.

RECEPTOR: PROPOSED END USERS				
Elevated arsenic within Topsoil at HP07 location	Arsenic	Ingestion, inhalation and contact with soils and dusts	**Risk: Moderate/Low** (low – medium)	Based on testing to date, elevated concentrations of arsenic are unlikely to be widespread and are likely limited to this locality. Further testing is required to determine the extent and refine the risk assessment to end users.

Table 8-5 : uCSM – Proposed End Users

RECEPTOR: CONSTRUCTION WORKERS				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** (probability of harm x consequence)	**Discussion**
General Made Ground associated with historical uses	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Low** (unlikely – medium)	No asbestos or asbestos containing materials observed during excavations. Asbestos screening did not identify any asbestos fibres within the soils.
	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	No gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.
Historical site uses (electricity works, filter beds, nursery)	PCBs, oils, solvents, metals, asbestos, micro-organisms, pesticides and hert	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	No significant concentrations of high-risk contaminants have been identified as part of this investigation and any unidentified areas of contamination that may be present are likely to be relatively localized. Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk from these historical sources.
Infilled quarry recorded on site to the east.	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Moderate** (likely – medium)	If present, asbestos in soils can present an acute risk to construction workers, particularly during the enabling works phases. Very low and trace concentrations often pose a low risk if appropriate controls are put in place.
	Various inorganic and organic compounds	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	No gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.
	Permanent ground gases (CH4 and CO2)	Inhalation of vapours	**Risk: Moderate/Low** (low – medium)	If deep Made Ground is present and elevated gas concentrations, could be a risk of reduced oxygen within confined spaces. However, probability of significant gas producing material being present is considered low-likelihood at this stage.

RECEPTOR: CONSTRUCTION WORKERS				
Raised area/bund to the north-east	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Low** (unlikely – medium)	Made Ground identified to depths in excess of 1.3m and included anthropogenic material but no obvious evidence of ACM although its presence elsewhere cannot be excluded. Excavations in this area limited and there may be some variation in the nature of soils used in the bund. However, current testing has not identified the presence of asbestos.
	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Made Ground identified to depths in excess of 1.3m and included anthropogenic material. Excavations in this area limited and there may be some variation in the nature of soils used in the bund. However, current testing has not identified any elevated concentrations of contaminants.
Former animal health facility including laboratories (Animal Health Trust)	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Low** (unlikely – medium)	No asbestos of asbestos containing materials observed during excavations. Asbestos screening did not identify any asbestos fibres within the soils.
	Various inorganic and organic compounds	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Based on current investigations and testing, no contamination has been identified across the eastern part of the site. Should any areas of possible waste/equipment dumping be identified on site during construction works that could be a source of specific contamination associated with the former site use, specialist decontamination/remediation may be required prior to removal of such wastes.
	Biohazard waste/pathogens	Ingestion, inhalation and contact with soils and dusts	**Risk: Moderate/Low** (low – medium)	No evidence for such materials was observed at surface on site or within soils. However, there is some silts/soils within drainage that could contain such contaminants and may require further assessment.
Above ground fuel storage tanks noted during site reconnaissance (spills and leaks)	Petroleum hydrocarbons (TPH)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	Based on current testing, no significant hydrocarbon and BTEX contamination has been identified although we cannot discount localized contamination. However, standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.
Unexploded Ordnance	UXO	Direct contact / explosion	**Risk: Moderate** (low – severe)	The Hazard Screen indicates there may be potential for encountering UXO. Further risk assessment is required, to be undertaken by a specialist.
All other contamination sources	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	Considered to be localized and not in significant concentrations. No gross contamination of high-risk contaminants anticipated (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to the mitigate risk.

Table 8-6: iCSM – Acute Exposure to Construction Workers

RECEPTOR: ADJACENT SITE USERS FOLLOWING COMPLETION				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** (probability of harm x consequence)	**Discussion**
All potential contaminant sources	Metals, PAHs, TPH, PCBs, micro-organisms, bio-hazard waste	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	No significant contamination has been identified in this investigation and together with the distance to off-site structures, the chance of a pollutant linkage causing harm is considered low.

Table 8-7: iCSM – Chronic Exposure to Adjacent Site Users

RECEPTOR: ADJACENT SITE USERS DURING THE CONSTRUCTION PHASE				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** (probability of harm x consequence)	**Discussion**
All potential contaminant sources	Metals, PAHs, TPH, PCBs, micro-organisms, bio-hazard waste	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (unlikely – medium)	No significant contamination has been identified in this investigation and together with the distance to off-site structures, the chance of a pollutant linkage causing harm is considered low.

Table 8-8: iCSM – Acute Exposure to Adjacent Site Users

RECEPTOR: PROPOSED PLANTING				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** (probability of harm x consequence)	**Discussion**
Contaminants within topsoil and the shallow sub-surface	Metals, pH and inorganics	Direct contact and root uptake	**Risk: Negligible** (negligible– minor)	Much of the site is laid to grass and various trees are present and during our site reconnaissance there were no significant barren areas, signs of poor growth, or evidence of significant vegetative stress.

Table 8-9: iCSM – Phytotoxic Risk to Proposed Planting Scheme

RECEPTOR: CONTROLLED WATERS				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** (probability of harm x consequence)	**Discussion**
All potential contaminant sources identified	Various	Leaching and vertical migration (Groundwater)	**Risk: Low** (unlikely – medium)	No significant Made Ground or groundwater has been identified. In addition, laboratory testing has not identified any significant areas of contamination. Although there may be localised areas of contamination that have not been identified during this investigation, at this stage, the risk to groundwater is considered low.

Table 8-10: iCSM – Controlled Waters Risk

8.16 Risk Assessment Conclusions

8.16.1 Based on the investigation undertaken to date and the updated CSM, no potential contaminant linkages have been identified above the low-risk threshold for the investigated sources. However, it is acknowledged that this investigation was preliminary and that not all sources have currently been investigated fully. On this basis, PCLs do still remain, which exceed the low-risk threshold and require further investigation to refine the assessment. These are discussed in further detail below.

Contaminant Source	Receptor	Recommended Action	Discussion
Deep Made Ground in the vicinity of the incinerator building	Proposed end users	Supplementary Investigation	Additional investigations and potentially testing are recommended around the incinerator building to determine the extent of any Made Ground. There is a possibility that higher concentrations of TPH contamination are present as odours/staining were noted but concentrations were low in the excavations undertaken. Should additional contamination be identified, appropriate remedial action will need to be determined.
Backfilled quarry	Proposed end users and construction operatives	Supplementary Investigation	At present the nature and extent of backfill material within the quarry is unknown and further investigations are recommended to assess this source and refine the risk.
Arsenic in Topsoil around HP07 location	Proposed end users	Supplementary Investigation	A supplementary phase of investigation is recommended to delineate the extent of contamination and determine appropriate remedial action.
Former electricity works	Proposed end users	Supplementary Investigation	This area has not currently been investigated and it is recommended that any further investigation phase includes some limited sampling/testing in this area to refine the risk.
Former plant nursery	Proposed end users	Supplementary Investigation	This area has not currently been investigated and it is recommended that any further investigation phase includes some limited sampling/testing in this area to refine the risk.
Possible contamination within drainage	Proposed end users and construction operatives	Supplementary Investigation/testing	Some further investigation/testing of material within drainage may be required.
Hydrocarbon contamination in the vicinity of above ground storage tank/pipework	Proposed end users and potentially controlled waters	Supplementary Investigation	Currently no contamination has been identified associated with fuel storage and pipework although it is acknowledged that sampling and testing in the areas was relatively limited given the scope of the investigation. Although the presence of significant contamination is considered unlikely based on works to date. Following removal of tanks, further investigations/watching brief is recommended to refine the risk.

Contaminant Source	Receptor	Recommended Action	Discussion
Waste material/equipment left across the site.	Proposed end users and construction operatives	Watching brief/possible specialist removal	During our site investigation, it was noted that some waste material/equipment had been left stockpiled in areas of the site. Given the nature of the site, it is possible that this could be associated with specific contaminants. Should there be any indication that any of this waste/equipment could be a source of contamination or contain specific chemicals/wastes, specialists should be consulted prior to removal.

Table 8-11: GQRA Risk Assessment Conclusions

8.17 Unexpected and Previously Unencountered Contamination

8.17.1 With the development of any site, there is a residual risk of contamination being found that is unexpected or has not been encountered during investigation or other siteworks.

8.17.2 Should any previously unencountered and unexpected contamination be encountered, works should be temporarily halted and Soiltechnics informed. The Consultant should then assess the situation to determine what remedial action is required and inform the Local Authority at the earliest opportunity.

8.17.3 It is often a requirement of Local Authority planning conditions that the building/demolition contractor has a contamination discovery/contingency strategy in place for dealing with unexpected contamination. Soiltechnics are pleased to provide advice on such a strategy if required.

9 Soil and Waste Management

9.1 Sustainability

9.1.1 Where possible, disposal of soils to landfill should be avoided in preference for more sustainable alternatives. Such alternatives are set out below and rely on appropriate planning and design.

9.1.2 Soiltechnics can provide additional support and guidance to assist in overall material management and soil waste minimisation upon request.

9.2 Waste Hierarchy

9.2.1 Under the Waste Regulations, there is a requirement to apply (where reasonable) the waste management hierarchy, which is summarised below. Within the hierarchy, soil disposal to landfill should be limited to the necessary minimum.

Stage (in order of preference)	Example application
Prevention / Reduce	Design, planning, Site Waste Management Plans (SWMP).
Reuse	Reuse of soils under exemption, permit or Materials Management Plan (MMP), sorting at the point of excavation, screening of excavated material.
Recycling	Recycling aggregate, waste segregation, screening and sorting.
Recovery	Remediation works, transfer to a Soil Treatment Facility
Pre-treatment	Non-hazardous and hazardous soils do not need to be treated, where such treatment would not reduce the volume of waste.
Disposal	If the waste hierarchy steps outline above are followed, the remaining waste can be disposed of to a landfill without any further treatment.

Table 9-1: Waste management hierarchy

9.3 Liability Of Waste Management

9.3.1 Part III of the Finance Act was amended in 2018 to extend the scope of landfill tax to cover any site (not exclusively landfills) operating without an appropriate environmental permit, exemption, or MMP.

9.3.2 These changes have given HMRC the powers to work with the Environment Agency to identify non-compliant sites and pursue and penalise the person(s) illegally disposing of waste, and anyone who knowingly facilitates the disposal. This includes sites filling site-won soils which are surplus to requirement.

9.4 Materials Management

9.4.1 In terms of the development, where reasonably practicable, landfill disposal should be minimised through the reuse of site-won materials on site, or off-site transfer of surplus soils to other development schemes or Soil Treatment Facilities. Early consideration of the site's overall material balance at the design stage is also critical in reducing the need for off-site disposal, limiting costs, and increasing the overall sustainability of the development.

9.4.2 Where Made Ground soils are to be reused onsite or materials transferred between sites, a Materials Management Plan (MMP) or Waste Exemption is recommended.

9.4.3 The process of an MMP allows soils that are suitable for reuse and have a certainty of use to not be considered a waste, and therefore not fall under the waste regulations. This scheme is self-regulated within the industry and is supported in principle by the Environment Agency.

9.5 Waste Characterisation governance

9.5.1 The classification of soils for disposal to landfill is undertaken in accordance with WM3 (v1.2GB), and a Waste Acceptance Criteria assessment (WAC) undertaken in accordance with the limits in Annex II of the Landfill Directive (Directive 1999/31/EC).

9.6 Waste Populations

9.6.1 Based on the site observations, development proposals and laboratory results, the following potential waste populations have been identified for preliminary assessment purposes:

Potential Waste Population	Description
Topsoil	Dark brown gravelly slightly sandy clay, gravel is flint.
General Made Ground	Grey and light brown clays, sands and gravels. Gravels consisted of chalk, flint, brick, clinker, concrete and sandstone. Occasional wood and fabric
Made Ground within the bund	Grey and dark grey slightly gravelly slightly clayey sand. Gravel is flint, sandstone, clinker and concrete.
Hydrocarbon impacted soils	Grey and light brown clays, sands and gravels. Gravels consisted of chalk, flint, brick, clinker, concrete and sandstone. Occasional wood and fabric with staining and hydrocarbon odours.
Clean naturally occurring soils	Natural, uncontaminated clays and sands.

Table 9-2: Potential waste populations

9.6.2 Each of the potential waste populations can be readily identified and segregated at the point of excavation, based upon visual and olfactory observations.

9.7 Sampling And Testing

9.7.1 The hazardous waste classification assessment has been undertaken by adopting the maximum recorded concentration of each compound from all the samples tested within the identified waste population, as outlined in WM3, Approach D.

9.7.2 In addition, sample-specific assessments have been completed for reference.

9.7.3 For the Waste Acceptance Criteria (WAC) assessment a representative composite sample of the general Made Ground was obtained combining soils from multiple exploratory holes. A sample from HP03 was also tested.

9.7.4 At this stage, a sample from the Made Ground in the bund has not been submitted for WAC assessment as soils appeared similar in nature to the general Made Ground. PAHs in the samples taken from one trial pit within the bund were slightly higher than elsewhere (total concentrations were <10mg/kg compared to concentrations <2mg/kg), but are still considered relatively low and consistent with variability of Made Ground.

9.7.5 The rate of testing has been chosen to provide a preliminary waste categorisation only.

9.8 Waste Characterisation

9.8.1 Where testing has been carried out, the waste classification assessment sheets are enclosed within Appendix J, and a summary of the findings is presented in the table below.

9.8.2 Observations from the fieldwork indicate that the underlying natural soils are not impacted by contamination, and therefore are considered suitable for disposal as non-hazardous waste in an inert landfill site without the requirement for further testing.

9.8.3 Due to the elevated organic content of topsoil materials in general, they are typically unsuitable for disposal at an inert landfill, therefore disposal to a non-hazardous waste landfill site is likely to be the appropriate disposal route. However, topsoil is also a nationally limited resource and efforts should be made to avoid landfill disposal where possible. Where topsoil is in surplus, it should be separated from the underlying natural soils and set aside to be recovered elsewhere, for instance through a Direct Transfer scenario or to a Soil Treatment Facility under the DoW CoP.

Potential Waste Population	Hazardous Classification (LoW code)	Landfill Classification	Comments
Topsoil	Non-hazardous (17-05-04)	No WAC testing undertaken	Topsoil typically unsuitable for disposal to inert landfill sites due to high organic carbon content
General Made Ground	Non-hazardous (17-05-04)	Inert	-
Made Ground in the bund	Non-hazardous (17-05-04)	No WAC testing undertaken	Considered similar in composition to general Made Ground based on visual inspection and test data. However, possibility there is variation within soils used in the bund and further testing is recommended to confirm the assessment.
TPH impacted soils	-	-	Although impacted soils were observed, concentrations were below detectable limits and therefore can be disposed of as general Made Ground. However, any similar soils encountered will need additional testing.
Clean, uncontaminated, natural materials	Non-hazardous (17-05-04)	Inert	Considered non-hazardous and inert without any testing required.

Table 9-3: Waste characterisation summary

9.9 Application Of Advice

9.9.1 There is no obligation on any waste operator to accept our waste characterisation assessments. Landfill operators may consider your waste to fall under a different classification and/or may require additional testing of waste soils prior to acceptance. It is therefore recommended that this report along with the chemical results is provided to the preferred facility to confirm (or otherwise) it can accept the waste.

9.9.2 It should be noted that there remains the potential for unexpected or previously unencountered contamination to be encountered. Any such materials intended for waste disposal should be segregated and tested to determine the appropriate classification and disposal route.

9.10 Further Recommendations

9.10.1 Given the history of the site and inherent variability of Made Ground deposits, it is possible that previously unencountered contamination may be present, including asbestos containing materials (ACMs) and more extensive/intensive TPHs around old tanks and pipework. Therefore, it is advisable to provide a watching brief during excavation works to identify and segregate any soils at the point of excavation with visual or olfactory evidence of contamination, in order to minimise the overall volume of any impacted material. Any such materials, if encountered, are likely to require further testing to determine the appropriate disposal route.

9.10.2 As the waste classifications provided are preliminary only and based on limited sampling of soils in-situ, it is recommended to undertake additional sampling and testing during the construction works to fully characterise the waste soils intended for disposal. The overall frequency of testing should be dependent upon the composition, volume and variability of the material excavated.

10 Recommendations for further works

10.1.1 The following table summarises the additional works which should be undertaken prior to commencement of any construction works and in support of the planning conditions.

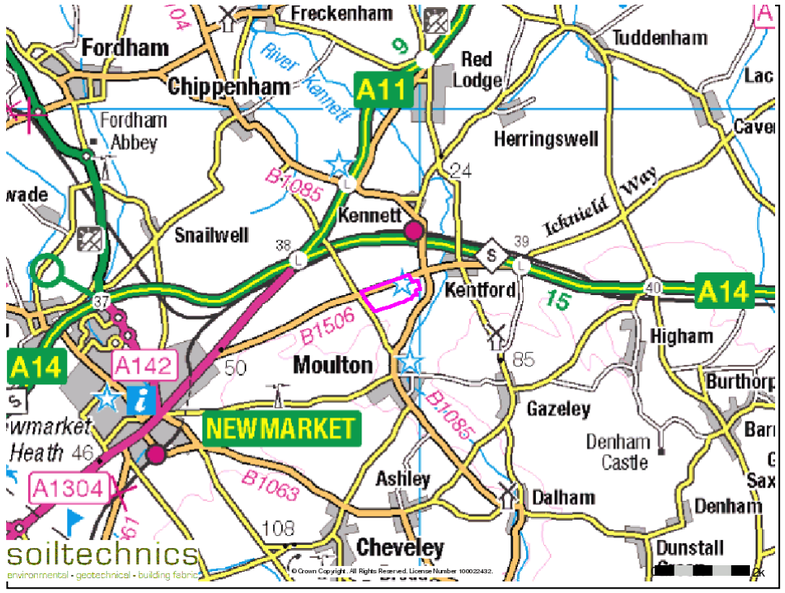
Aspect	Delivered By	Description	Necessity
Supplementary exploratory Investigation and refinement of GQRA	Soiltechnics	The current GQRA has not identified any contamination on site which poses a risk to identified receptors. However, this is a preliminary assessment (pre-purchase) and given the history of the site, there are a number of areas that have not been investigated at this stage and could be a source of localised contamination. On this basis, further targeted investigations are recommended to refine the assessment. This may also include some targeted geotechnical boreholes to refine the foundation strategy for the site i.e in areas where deep Made Ground has been identified or could exist (below existing buildings).	**REQUIRED**
Discovery Strategy	Principal Contractor	The Principal Contractor should have a discovery strategy in place in the event of exposing unexpected or previously unencountered contamination. Soiltechnics should be informed at the earliest opportunity to undertake an assessment, and to inform the Local Authority as appropriate.	**REQUIRED**
Arsenic contamination delineation	Soiltechnics	Elevated arsenic was present in one sample and is considered to be localised contamination. Further investigations should target this area to establish the extent of such contamination and determine what, if any, remedial action is necessary.	**REQUIRED**
Detailed UXO Risk Assessment	3rd Party	The Preliminary Risk Assessment identified that bombing may have occurred in the vicinity of the site, therefore a Detailed UXO Risk Assessment should be undertaken in accordance with CIRIA C785. This must be commissioned directly with a specialist	**RECOMMENDED**
UXO Emergency Response Plan	3rd Party	Regardless of the outcome of UXO risk assessments, UXO may still be encountered unexpectedly. The Principal Contractor should consider the inclusion of an Emergency Response Plan as a precaution.	**RECOMMENDED**
Materials Management Plan	Soiltechnics	Once the overall designs and cut-and-fill requirements for the scheme have been finalised, and before excavation works commence, an MMP is recommended to facilitate the reuse of soils on site and the transfer of materials on or off-site.	**RECOMMENDED**

Table 10-1: Recommended Further Works (Pre-Commencement)

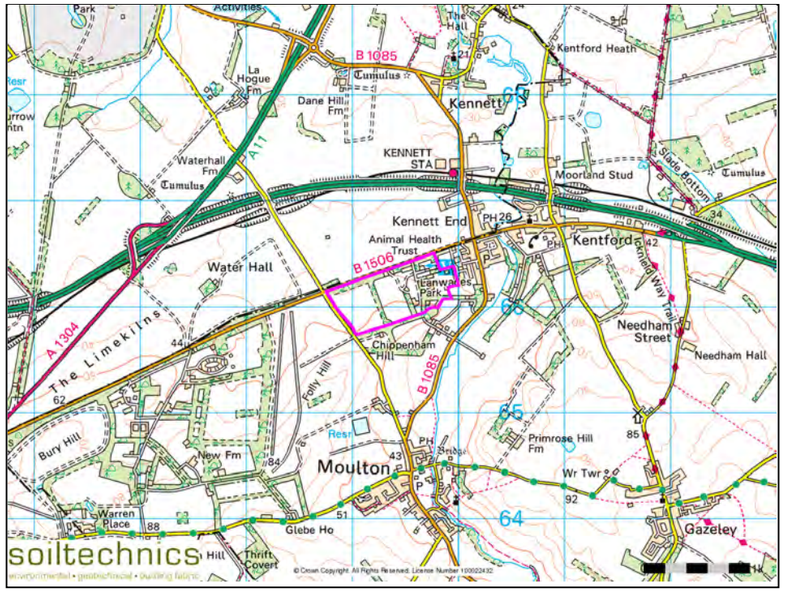
soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix A Drawings

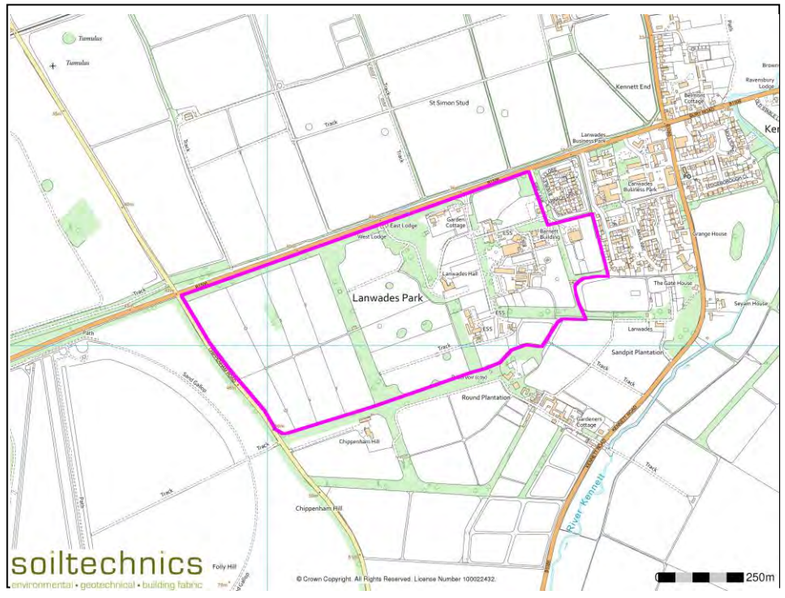
soiltechnics
environmental ▪ geotechnical ▪ building fabric



Neighbourhood extract from Ordnance Survey map



Town extract from Ordnance Survey map



Detail extract from Ordnance Survey map

Title	Scale	Drawing number
Site location plan	Not to scale	01

Key:

Exploratory Holes

- Hand Pit
- Machine Excavated Trial Pit
- Windowless Sampling Borehole
- Monitoring Installation
- Soakaway / Permeability Testing

Site Features

- Extent of investigation area

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

REV	DATE	COMMENT ON VARIATION
A	Jan 2023	First issue

soiltechnics
environmental • geotechnical • building fabric

PROJECT
Lanwades Park, Newmarket

TITLE
Exploratory Hole Location Plan

PROJECT No.	DRAWING	REVISION
STU5875	02	A

Key:

- Site Boundary
- Trial Pit
- Windowless Sampling
- Hand Pit
- Infiltration Testing
- Installation

Potential Contamination Sources

- Tank
- Substation
- Other
- Historic

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

REV	DATE	COMMENT ON VARIATION
A	Jan 2023	First issue

soiltechnics
environmental • geotechnical • building fabric

PROJECT
Lanwades Park, Newmarket

TITLE
Exploratory Hole Location Plan

PROJECT No.	DRAWING	REVISION
STU5875	03	A

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Appendix B Exploratory Hole Logs: Trial Pits

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Key to legends

Composite materials, soils and lithology							
	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample
	W	Water sample
	U	Undisturbed thick-walled sample 100mm diameter sampler
	UT	Undisturbed thin walled sample 100mm diameter sampler
	UTF	Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

▽ Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly very sandy CLAY with occasional rootlets. Gravel is fine to coarse subrounded to angular flint. (TOPSOIL)									
	0.20								
Soft brown slightly gravelly very sandy CLAY. Gravel is fine to coarse subrounded to angular flint. (QUATERNARY DEPOSITS)					PP 0.30	PP=50	0.40	0.60	ES
					PP 0.50	PP=83			
	0.70						0.70	0.80	ES
Soft light brown slightly gravelly very sandy CLAY. Gravel is fine to medium subrounded to subangular flint and chalk. (QUATERNARY DEPOSITS)									
	0.80								
TRIAL PIT TERMINATED AT 0.80m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP01**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly very sandy CLAY with occasional rootlets. Gravel is fine to coarse rounded to angular flint and occasional ash. (MADE GROUND)							0.20	0.30	ES
							0.50	0.60	ES
TRIAL PIT TERMINATED AT 0.60m	0.60								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP02**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto brown sandy slightly clayey medium to coarse subrounded to angular GRAVEL of granite. (MADE GROUND)							0.10	0.20	D
Light brown slightly sandy clayey fine to coarse rounded to angular GRAVEL of chalk, flint, brick and clinker. (MADE GROUND)	0.30						0.40	0.50	ES
TRIAL PIT TERMINATED AT 0.50m	0.50								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP03**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly very sandy CLAY with occasional rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)									
Soft brown gravelly very sandy CLAY. Gravel is fine to coarse subrounded to subangular flint. (QUATERNARY DEPOSITS)	0.30				PP 0.30	PP=58	0.30	0.50	ES
					PP 0.50	PP=75			
TRIAL PIT TERMINATED AT 0.60m	0.60								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP04**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly very sandy CLAY with occasional roots and rootlets up to 20mm in diameter. Gravel is fine to coarse rounded to subangular flint and occasional ash. (TOPSOIL)							0.20	0.40	ES
Soft brown gravelly very sandy CLAY with occasional rootlets. Gravel consists of flint. (QUATERNARY DEPOSITS)	0.30								
TRIAL PIT TERMINATED AT 0.60m	0.60								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown slightly gravelly very sandy CLAY with occasional rootlets. Gravel is fine to medium subrounded to subangular flint. (TOPSOIL)									
	0.20								
Soft orangish brown gravelly very sandy CLAY. Gravel is fine to coarse rounded to angular flint. (QUATERNARY DEPOSITS)					PP 0.30	PP=75	0.30	0.50	ES
					PP 0.50	PP=58			
TRIAL PIT TERMINATED AT 0.60m	0.60								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subang ular flint. (TOPSOIL)							0.20		ES
TRIAL PIT TERMINATED AT 0.30m	0.30								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP07**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy clayey fine to coarse subrounded to angular GRAVEL of flint and chalk with frequent rootlets. (MADE GROUND)							0.10		ES
	0.20								
Firm white and light brown gravelly CLAY. Gravel is flint and chalk. (MADE GROUND)							0.30		ES
	0.40								
Soft brown gravelly sandy CLAY. Gravel is fine to medium subrounded to subangular flint and chalk. (QUATERNARY DEPOSITS)							0.50		ES
	0.70								
Light brown gravelly slightly clayey SAND. Gravel is fine to coarse subrounded to subangular chalk and flint. (QUATERNARY DEPOSITS)							1.10		ES
	1.20								
TRIAL PIT TERMINATED AT 1.20m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 21/11/2022
	Method Hand tools	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP08**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [dense] brown gravelly slightly clayey SAND with cobbles of flint. Gravel is subrounded to subangular medium to coarse flint. (MADE GROUND)							0.20		ES
[Dense] grey gravelly slightly clayey SAND. Gravel is fine to coarse subrounded to angular flint, sandstone, conglomerate and concrete with rare metal fragment. (MADE GROUND)	0.60						0.70		ES
[Dense] dark grey slightly gravelly slightly clayey SAND. Gravel is fine to coarse subrounded to angular flint. (MADE GROUND)	1.00						1.20		ES
...at 1.25m depth, rootlets present.									
TRIAL PIT TERMINATED AT 1.30m	1.30								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 13/01/2023
	Method Hand tools	**Logged by** SH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** AM	**Revision** A
	Co-ordinates -	**Checked by** KB	**HP09**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse subangular to subrounded flint. (TOPSOIL)	0.10						0.00	0.10	ES
Soft mottled orange slightly gravelly slightly sandy CLAY. Gravel is fine to coarse subangular to subrounded flint. (QUATERNARY DEPOSITS)							0.10	0.70	ES
Structureless CHALK composed of slightly sandy clayey subangular to subrounded GRAVEL and COBBLES. Clasts are weak, low to medium density, white. Matrix is white mottled orange. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	0.70						1.00		ES
Structureless CHALK composed of slightly clayey subangular to subrounded GRAVEL. Clasts are moderately weak, low density, white. Matrix is white mottled orange. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.90						2.70		B
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion. Infiltration testing performed.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 3.80m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP01**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse rounded to angular flint. (TOPSOIL)	0.35								
Structureless CHALK composed of sandy slightly clayey subrounded to angular GRAVEL. Clasts are weak, low density, cream with occasional black specks. Matrix is light brown. Occasional flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)							0.60		D
Structureless CHALK composed of subangular GRAVEL and COBBLES. Clasts are weak, low to medium density, white. Matrix is white mottled orange. Occasional flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.40						1.50		ES
...from 2.1m depth, flint gravels becoming rare.							2.70	2.80	ES
TRIAL PIT TERMINATED AT 3.05m	3.05								

Notes Trial pit sides remained upright and stable upon completion. Infiltration testing performed.	**Title** Trial pit record	**Dimensions (w x l)** 0.75m x 3.15m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP02**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft brown slightly sandy gravelly CLAY with rootlets. Gravel is fine to medium subrounded flint. (TOPSOIL)	0.20						0.10		ES
Soft light brown mottled orange slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded flint and chalk. (QUATERNARY DEPOSITS)	0.50						0.50		D
Structureless CHALK composed of slightly sandy clayey subangular to subrounded GRAVEL with frequent subangular cobbles. Clasts are weak, low to medium density, white. Matrix is white mottled orange. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)							1.50		ES
							2.40		ES
Structureless CHALK composed of slightly clayey subangular to subrounded GRAVEL. Clasts are moderately weak, medium density, white. Matrix is white mottled orange. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	3.00								
TRIAL PIT TERMINATED AT 3.20m	3.20						3.20		ES

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.75m x 3.10m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP03**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown slightly gravelly slightly sandy CLAY with frequent roots. Gravel is fine to medium angular to subrounded flint and brick. (MADE GROUND)	0.10						0.05		ES
Light brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium angular to subrounded flint and brick. (MADE GROUND)	0.30						0.40		ES
Light grey slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded chalk, flint and brick. (MADE GROUND)	0.60								
Dark grey slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subangular flint and brick with wood and fabric present. Strong hydrocarbon odour and staining between 0.6-1.1m depth. (MADE GROUND)							1.10	1.20	ES
TRIAL PIT TERMINATED AT 1.20m	1.20								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 1.80m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP04**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)							0.00	0.10	ES
	0.30								
Light brown gravelly slightly clayey SAND. Gravel is fine to coarse rounded to subangular flint and chalk. (QUATERNARY DEPOSITS)							0.60		ES
Soft brown gravelly very sandy CLAY. Gravel is fine to coarse rounded to angular flint. (QUATERNARY DEPOSITS)									
	1.10								
Light brown gravelly slightly clayey SAND. Gravel is fine to coarse rounded to subangular flint and chalk. (QUATERNARY DEPOSITS)							1.50		ES
...from 1.7m depth, occasional cobbles of flint.									
	2.50						2.50		ES
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.20m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded flint. (TOPSOIL)	0.10						0.10		ES
Soft brown and light brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to subrounded flint and chalk. (QUATERNARY DEPOSITS)							0.50		ES
Structureless CHALK composed of slightly sandy slightly clayey GRAVEL and COBBLES. Clasts are weak, low to medium density, white. Matrix is white. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	0.90						1.50		D
							2.30		ES
TRIAL PIT TERMINATED AT 3.50m	3.50						3.50		ES

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 3.40m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded flint. (TOPSOIL)	0.10						0.30		D
Soft brown and light brown slightly gravelly very sandy CLAY. Gravel is fine to medium subangular to subrounded flint. (QUATERNARY DEPOSITS)	0.50						0.80		B
Structureless CHALK composed of slightly sandy slightly gravelly CLAY. Clasts are weak, medium density white. Occasional flint gravels. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dm)									
TRIAL PIT TERMINATED AT 2.00m	2.00						2.00		D

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.60m x 2.40m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP07**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded flint. (TOPSOIL)	0.10								
Soft brown and light brown slightly sandy gravelly CLAY. Gravel is fine to medium subrounded flint. (QUATERNARY DEPOSITS)									
Light brown very gravelly SAND. Gravel is fine to coarse subrounded to subangular chalk. (QUATERNARY DEPOSITS)	0.60						0.60		ES
Structureless CHALK composed of sandy GRAVEL and COBBLES. Clasts are weak, low to medium density, white. Matrix is white. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.10						1.60		B
							3.00		B
TRIAL PIT TERMINATED AT 3.30m	3.30								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.60m x 2.90m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP08**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded flint. (TOPSOIL)	0.10						0.10		ES
Soft brown slightly sandy CLAY. (QUATERNARY DEPOSITS)	0.40								
Light brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint and chalk. (QUATERNARY DEPOSITS)							0.80		B
							1.20		B
Structureless CHALK composed of sandy GRAVEL and COBBLES. Clasts are moderately weak, low density white. Matrix is white (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.90								
TRIAL PIT TERMINATED AT 2.50m	2.50						2.90		B

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 3.10m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP09**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded flint. (TOPSOIL)	0.10						0.00	0.10	ES
Light brown slightly gravelly clayey SAND. Gravel is fine to coarse subangular to subrounded flint. (QUATERNARY DEPOSITS)							1.00		B
Light brown slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded flint and chalk. (QUATERNARY DEPOSITS)	1.50						1.50		B
Structureless CHALK composed of sandy GRAVEL and COBBLES. Clasts are moderately weak, low to medium density, white. Matrix is white. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	2.70								
TRIAL PIT TERMINATED AT 3.30m	3.30						3.30		B

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 3.00m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** JH	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP10**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to angular flint. (TOPSOIL)							0.40		ES
Light brown gravelly slightly clayey SAND. Gravel is fine to coarse subrounded to angular flint and chalk. (QUATERNARY DEPOSITS)	0.60						0.80		B
Structureless CHALK composed of sandy clayey GRAVEL. Clasts are weak, medium density, white with black flecks. Matrix is off-white. Occasional flint gravels. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.80						2.00		D
TRIAL PIT TERMINATED AT 3.00m	3.00						3.00		B

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 3.20m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP11**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)							0.40		ES
Light brown very gravelly slightly clayey SAND with occasional cobbles of flint. Gravel is fine to coarse subrounded to angular flint and chalk. (QUATERNARY DEPOSITS)	0.60						0.80		D
Structureless CHALK composed of sandy silty GRAVEL. Clasts are moderately weak, medium density, white with occasional black flecks. Matrix is cream. Occasional flint gravels. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.70						2.20		ES
							3.10		D
TRIAL PIT TERMINATED AT 3.30m	3.30								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 3.50m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP12**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly very sandy CLAY with frequent rootlets. Gravel is fine to coarse rounded to angular flint. (TOPSOIL)	0.20						0.20		ES
Firm brown slightly gravelly slightly sandy CLAY. Gravel is flint and chalk. (QUATERNARY DEPOSITS)									
TRIAL PIT TERMINATED AT 0.70m	0.70								

Notes Trial pit sides remained upright and stable upon completion. Trial pit terminated due to presence of cable.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 3.00m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP13**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown sandy very gravelly CLAY with occasional cobbles of flint and frequent rootlets and roots up to 30mm in diameter. Gravel is fine to coarse rounded to angular flint. (TOPSOIL)							0.50		D
Light brown very sandy clayey fine to coarse rounded to angular GRAVEL of flint and chalk with frequent cobbles of flint. (QUATERNARY DEPOSITS)	0.60						1.10		ES
...between 1.3m and 1.9m depth, band of flint cobbles.									
Structureless CHALK composed of sandy slightly clayey GRAVEL and COBBLES. Clasts are weak to moderately weak, low to medium density, white with black flecks. Matrix is cream. Occasional flint gravels. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.90						1.90		B
TRIAL PIT TERMINATED AT 2.30m	2.30								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 3.00m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP13A**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown and light brown gravelly sandy CLAY. Gravel is fine to coarse rounded to angular flint and chalk. (TOPSOIL)							0.30		ES
Orangish brown gravelly slightly clayey SAND. Gravel is fine to coarse subrounded to angular flint. (QUATERNARY DEPOSITS)	0.40						0.70		D
Light brown SAND and GRAVEL with frequent cobbles of flint. Gravel is fine to coarse rounded to angular flint and chalk. (QUATERNARY DEPOSITS)	1.10						1.50		B
Structureless CHALK composed of angular sandy GRAVEL. Clasts are weak, low density, white. Matrix is cream. Occasional flint gravel and cobbles. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	2.30						2.40		B
TRIAL PIT TERMINATED AT 3.10m	3.10						3.00		B

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 3.00m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP14**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown gravelly very sandy CLAY with occasional cobbles of flint and frequent rootlets. Gravel is fine to coarse rounded to angular flint. (TOPSOIL)							0.30		ES
Light brown sandy clayey fine to coarse rounded to angular GRAVEL of flint and chalk with frequent cobbles of flint and chalk. (QUATERNARY DEPOSITS)	0.60						1.00		ES
Structureless CHALK composed of sandy slightly clayey GRAVEL and COBBLES. Clasts are weak to moderately weak, low to medium density, white with black flecks. Matrix is cream. Occasional flint gravels. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.30						1.40		B
TRIAL PIT TERMINATED AT 2.50m	2.50						2.40		B

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.50m x 2.80m	**Date(s)** 21/11/2022
	Method Machine excavator	**Logged by** TL	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** KD	**Revision** A
	Co-ordinates -	**Checked by** KB	**TP15**

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Appendix C Exploratory Hole Logs: Boreholes

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Key to legends

Composite materials, soils and lithology							
	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m^2) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m^2). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.	
	SPT – Standard Penetration Test result (N value) (uncorrected)[1,2,3] SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected)[1,2,3]	
	UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample	

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample
	W	Water sample
	U	Undisturbed thick-walled sample 100mm diameter sampler
	UT	Undisturbed thin walled sample 100mm diameter sampler
	UTF	Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

▽ Water strike

Installation details

	Gravel filter		Bentonite
	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Gravel surfacing onto soft dark brown gravelly CLAY. Gravel is fine to coarse rounded to angular flint. (TOPSOIL)											0.20	0.30	ES
	Soft light brown gravelly very sandy CLAY with occasional rootlets. Gravel is fine to coarse subrounded to angular flint and chalk. (QUATERNARY DEPOSITS)	0.45										0.50	0.60	ES
	Medium dense becoming very dense light brown very sandy slightly clayey fine to coarse subrounded to angular GRAVEL of flint and chalk. (QUATERNARY DEPOSITS)	0.70				S 1.20 - 1.62	(16) 50/270mm					0.80	1.20	ES
	BOREHOLE TERMINATED AT 1.62m	1.62												

Notes Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.	**Title** Dynamic windowless sampling record				**Date(s)** 21/11/2022
	Recovery details		**Method** Windowless sampler	**Logged by** TL	**Sheet number** Sheet 1 of 1
	Range (m)	Recovery (%)			
Groundwater observations No groundwater encountered.			**Level (m OD)** -	**Compiled by** KD	**Revision** A
			Co-ordinates -	**Checked by** KB	**WS01**

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)											0.10	0.20	ES
	Soft light brown gravelly very sandy CLAY. Gravel is fine to coarse subrounded to angular flint and chalk. (QUATERNARY DEPOSITS)	0.40										0.70	0.80	ES
	Structureless CHALK composed of sandy GRAVEL. Clasts are weak, medium density, white. Matrix is light brown. Frequent flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.10				S 1.20 - 1.65 S 2.00 - 2.45	(6) 38 (18) 50					1.40	1.60	D
	BOREHOLE TERMINATED AT 2.45m	2.45												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Recovery details		Method	Logged by
Range (m)	Recovery (%)	Windowless sampler	TL
1.10 - 2.00	100	**Level (m OD)** -	**Compiled by** KD
		Co-ordinates -	**Checked by** KB

Date(s)
21/11/2022

Sheet number
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Revision
A

WS02

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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Grass onto dark brown slightly sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)											0.30	0.40	ES
	Structureless CHALK composed of sandy clayey GRAVEL. Clasts are weak, medium density light brown and white. Matrix is light brown. Frequent flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	0.50				S 1.20 - 1.65	(14) 34					1.00	1.20	ES
						S 2.00 - 2.41	(6) 17/260mm					2.20	2.40	ES
	Structureless CHALK composed of gravelly slightly sandy CLAY. Clasts are weak, white and off-white. Occasional flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dm)	2.60				S 3.00 - 3.45	(15) 51					3.00	3.20	ES
	BOREHOLE TERMINATED AT 3.45m	3.45												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Recovery details

Range (m)	Recovery (%)
1.20 - 2.00	100
2.00 - 3.00	100
3.00 - 3.60	100

Title
Dynamic windowless sampling record

Method
Windowless sampler

Logged by
TL

Level (m OD)
-

Compiled by
KD

Co-ordinates
-

Checked by
KB

Date(s)
21/11/2022

Sheet number
Sheet 1 of 1

Revision
A

WS03

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)											0.30		ES
	Firm brown slightly gravelly sandy CLAY with occasional roots and rootlets up to 20mm in diameter. Gravel is fine to coarse subrounded to subangular flint. (QUATERNARY DEPOSITS)	0.40				S 1.20 - 1.50	(17) 50/155mm					0.60		ES
	BOREHOLE TERMINATED AT 1.50m	1.50												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	TL	Sheet 1 of 1
		Level (m OD) -	**Compiled by** KD	**Revision** A
		Co-ordinates -	**Checked by** KB	**WS04**

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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Grass onto soft dark brown slightly sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)	0.30										0.20		ES
	Light brown gravelly clayey SAND. Gravel is fine to coarse subrounded to angular chalk and flint. (QUATERNARY DEPOSITS)											0.70		ES
						S 1.20 - 1.65	(5) 30							
	Structureless CHALK composed of sandy clayey GRAVEL. Clasts are weak, medium density white. Matrix is cream. Frequent flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.40										1.50		D
						S 2.00 - 2.40	(23) 49/250mm							
	BOREHOLE TERMINATED AT 2.40m	2.40												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details	
Range (m)	Recovery (%)
1.20 - 2.00	100

Method
Windowless sampler

Logged by
TL

Sheet number
Sheet 1 of 1

Level (m OD)
-

Compiled by
KD

Revision
A

Co-ordinates
-

Checked by
KB

WS05

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse subrounded to angular flint. (TOPSOIL)	0.30										0.40		ES
	Light brown gravelly clayey SAND. Gravel is fine to coarse rounded to angular flint and chalk. (QUATERNARY DEPOSITS)					S 1.20 - 1.65	(7) 20					1.00		ES
	Structureless CHALK composed of sandy clayey GRAVEL. Clasts are weak, medium density cream and light brown. Matrix is light brown. Frequent flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.40				S 2.00 - 2.35	(22) 50/200mm					1.60		D
	BOREHOLE TERMINATED AT 2.35m	2.35												

Notes
Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details	
Range (m)	Recovery (%)
1.20 - 2.00	100

Method
Windowless sampler

Logged by
TL

Sheet number
Sheet 1 of 1

Level (m OD)
-

Compiled by
KD

Revision
A

Co-ordinates
-

Checked by
KB

WS06

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL - MADE GROUND)													
		0.30										0.35		ES
	Grey sandy clayey subrounded to subangular GRAVEL of flint and brick. (MADE GROUND)	0.40										0.60		ES
	Brown gravelly sandy CLAY. Gravel is fine to coarse subrounded to angular flint. (QUATERNARY DEPOSITS)					S 1.20 - 1.65	(2) 9					1.30		ES
	Structureless CHALK composed of gravelly slightly sandy CLAY. Gravel is weak, low density cream. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dm)	1.40				S 2.00 - 2.45	(16) 52					1.90		D
	BOREHOLE TERMINATED AT 2.45m	2.45												

Notes
Service pit excavated to 1.2m depth. Silting up at 1.9m depth. Borehole terminated due to competency of ground.

Groundwater observations
Groundwater encountered at 0.8m depth. Water standing at 1.9m 6 hours later.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	TL	Sheet 1 of 1
1.20 - 2.00	90	**Level (m OD)** -	**Compiled by** KD	**Revision** A
		Co-ordinates -	**Checked by** KB	**WS07**

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse subrounded to angular flint. (TOPSOIL)	0.30										0.20		ES
	Medium dense becoming very dense light brown gravelly SAND. Gravel is fine to coarse subrounded to angular flint. (QUATERNARY DEPOSITS)					S 1.20 - 1.39	(25/30mm) 50/160mm					0.80		ES
	BOREHOLE TERMINATED AT 1.39m	1.39												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	TL	Sheet 1 of 1
		Level (m OD) -	**Compiled by** KD	**Revision** A
		Co-ordinates -	**Checked by** KB	**WS08**

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft dark brown gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)											0.10		ES
	Firm light brown gravelly sandy CLAY. Gravel is fine to coarse subrounded to subangular flint. (QUATERNARY DEPOSITS)	0.30												
	Medium dense light brown slightly sandy clayey fine to coarse rounded to angular GRAVEL of flint and chalk. (QUATERNARY DEPOSITS)	0.60										0.70		ES
						S 1.20 - 1.65	(20) 22							
	Structureless CHALK composed of sandy very clayey GRAVEL. Clasts are weak, medium density white. Matrix is white. Occasional flint gravel. (HOLYWELL NODULAR CHALK FORMATION AND NEW PIT CHALK FORMATION (UNDIFFERENTIATED) - Grade Dc)	1.60										1.80		D
						S 2.00 - 2.45	(10) 20							
												2.50		D
						S 3.00 - 3.43	(20) 50/280mm							
	BOREHOLE TERMINATED AT 3.43m	3.43												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	TL	Sheet 1 of 1
1.20 - 2.00	100	**Level (m OD)**	**Compiled by**	**Revision**
2.00 - 3.00	90	-	KD	A
		Co-ordinates	**Checked by**	**WS09**
		-	KB	

Lanwades Park, Kentford, Newmarket
STU5875

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)											0.30		ES
	Stiff light brown slightly sandy gravelly CLAY. Gravel is fine to coarse rounded to angular flint and chalk. (QUATERNARY DEPOSITS)	1.00				S 1.20 - 1.65	(18) 50					1.10		D
	BOREHOLE TERMINATED AT 1.65m	1.65												

Notes Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.	**Title** Dynamic windowless sampling record				**Date(s)** 21/11/2022
	Recovery details		**Method** Windowless sampler	**Logged by** TL	**Sheet number** Sheet 1 of 1
	Range (m)	Recovery (%)			
Groundwater observations No groundwater encountered.			**Level (m OD)** -	**Compiled by** KD	**Revision** A
			Co-ordinates -	**Checked by** KB	**WS10**

Lanwades Park, Kentford, Newmarket
STU5875

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to coarse subrounded to subangular flint. (TOPSOIL)	0.30										0.10		ES
	Soft brown gravelly very sandy CLAY. Gravel is fine to coarse rounded to angular flint. (QUATERNARY DEPOSITS)	1.00										0.60		ES
	Dense light brown gravelly clayey SAND. Gravel is fine to coarse subrounded to subangular flint and chalk. (QUATERNARY DEPOSITS)					S 1.20 - 1.40	(25/50mm) 50/150mm					1.10		D
	BOREHOLE TERMINATED AT 1.40m	1.40												

Notes
Service pit excavated to 1.2m depth. Borehole terminated due to competency of ground.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
21/11/2022

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	TL	Sheet 1 of 1
1.00 - 1.20	100	**Level (m OD)** -	**Compiled by** KD	**Revision** A
		Co-ordinates -	**Checked by** KB	**WS11**

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Appendix D In Situ Test Results

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Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
HP01	0.10	0.5/1/1	0.83	42
HP01	0.30	1.5/1/0.5	1.00	50
HP01	0.50	2.5/1/1.5	1.67	83
HP02	0.10	1.5/1.5/1.5	1.50	75
HP02	0.30	1.5/1.5/1.5	1.50	75
HP02	0.50	1.5/1.5/1.5	1.50	75
HP04	0.10	1.5/1/1.5	1.33	67
HP04	0.30	1/1.5/1	1.17	58
HP04	0.50	1.5/1.5/1.5	1.50	75
HP05	0.10	1.5/1.5/1.5	1.50	75
HP05	0.30	1.5/1.5/1.5	1.50	75
HP05	0.50	1.5/1.5/1.5	1.50	75
HP06	0.10	1.5/1/1.5	1.33	67
HP06	0.30	1.5/1.5/1.5	1.50	75
HP06	0.50	1/1/1.5	1.17	58

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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS01	1.20	7/9	11/13/16/10	16	50	150	270
WS02	1.20	2/4	8/8/9/13	6	38	150	300
WS02	2.00	8/10	13/14/16/7	18	50	150	300
WS03	1.20	7/7	7/8/8/11	14	34	150	300
WS03	2.00	3/3	4/4/4/5	6	17	150	260
WS03	3.00	7/8	11/12/13/15	15	51	150	300
WS04	1.20	7/10	19/27/4	17	50	150	155
WS05	1.20	2/3	5/7/8/10	5	30	150	300
WS05	2.00	9/14	14/14/15/6	23	49	150	250
WS06	1.20	3/4	4/5/5/6	7	20	150	300
WS06	2.00	10/12	19/19/12	22	50	150	200
WS07	1.20	1/1	1/1/2/5	2	9	150	300
WS07	2.00	7/9	11/13/14/14	16	52	150	300
WS08	1.20	25	50	25	50	30	160
WS09	1.20	9/11	7/6/5/4	20	22	150	300
WS09	2.00	5/5	5/5/5/5	10	20	150	300
WS09	3.00	9/11	13/12/14/11	20	50	150	280
WS10	1.20	8/10	12/13/15/10	18	50	150	300
WS11	1.20	25	50	25	50	50	150

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Appendix E In situ Permeability Testing Results

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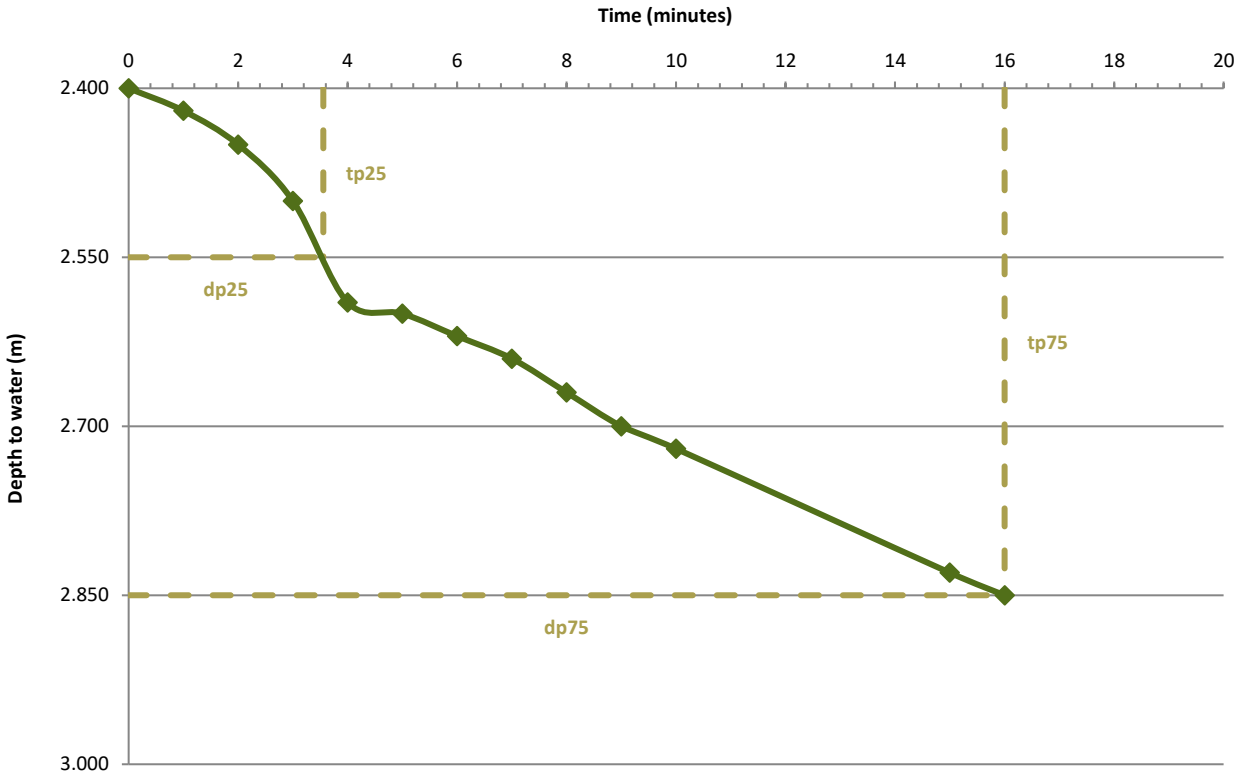
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Dimensions (m)
TP01	1	21/11/2022	0.70m x 3.80m

Depth at start of test (m)	Groundwater observations (at time of excavation)
2.4	No groundwater encountered.



$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} Effective storage volume of water between 75% (dp75) and 25% (dp25) effective depth	**0.798**	**m^3**
a_{p50} Internal surface area up to 50% effective depth and including the base	**5**	**m^2**
$t_{p75} - t_{p25}$ Time for the water level to fall from 75% to 25% effective depth	**747**	**s**
f Soil infiltration rate	**1.99E-04**	**m/s**

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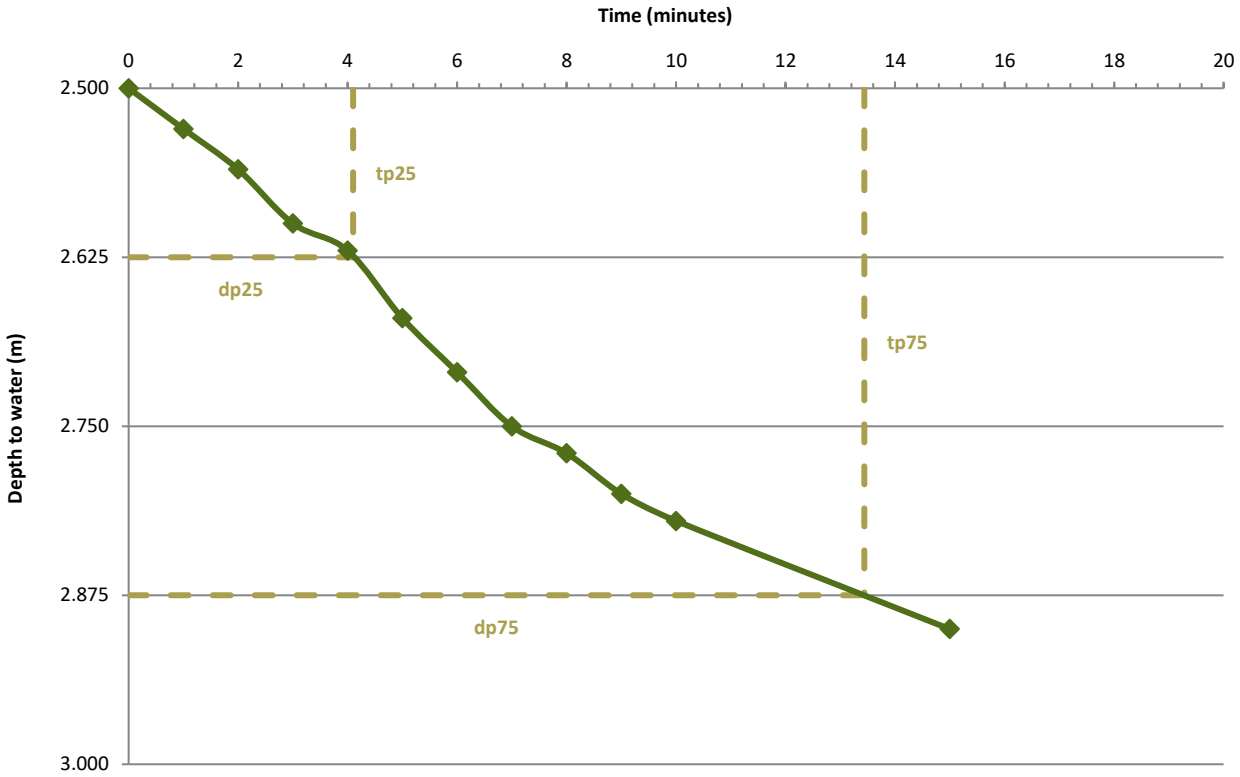
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Dimensions (m)
TP01	2	21/11/2022	0.70m x 3.80m

Depth at start of test (m)	Groundwater observations (at time of excavation)
2.5	No groundwater encountered.



$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} Effective storage volume of water between 75% (dp75) and 25% (dp25) effective depth	**0.665**	**m^3**
a_{p50} Internal surface area up to 50% effective depth and including the base	**5**	**m^2**
$t_{p75} - t_{p25}$ Time for the water level to fall from 75% to 25% effective depth	**560**	**s**
f Soil infiltration rate	**2.42E-04**	**m/s**

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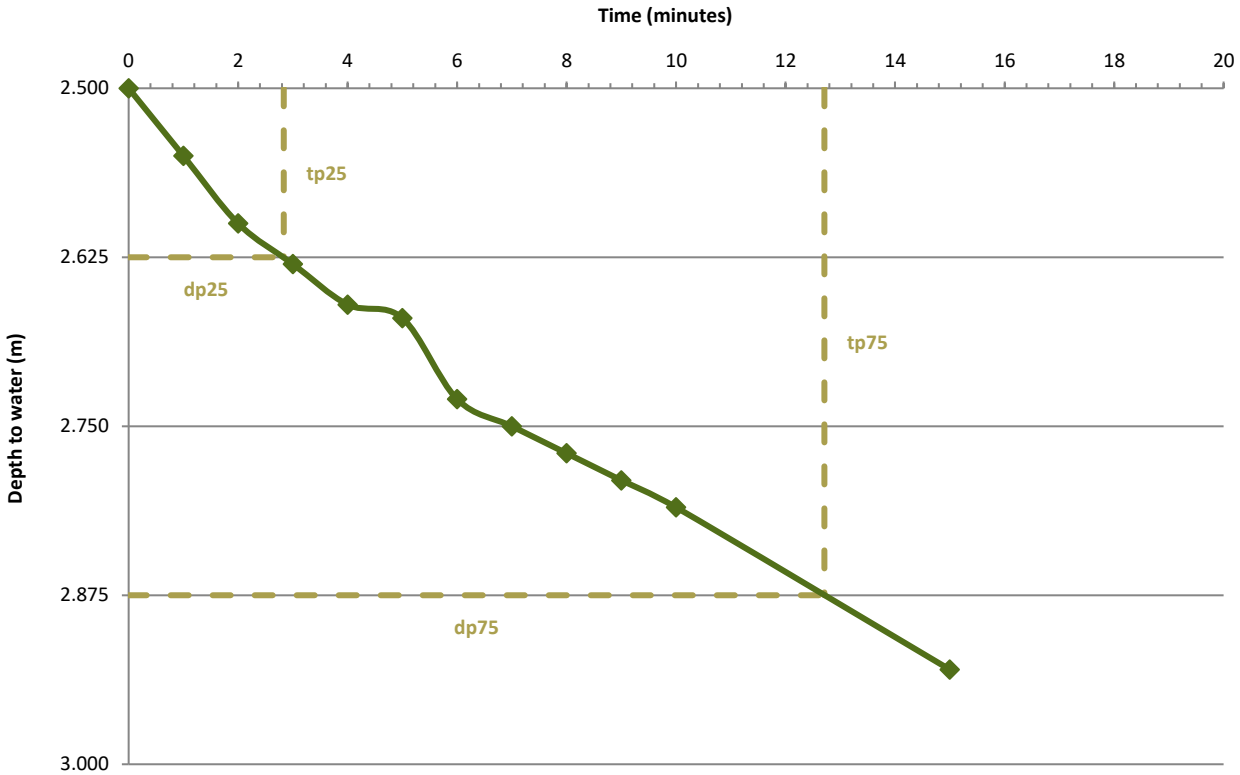
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Dimensions (m)
TP01	3	21/11/2022	0.70m x 3.80m

Depth at start of test (m)	Groundwater observations (at time of excavation)
2.5	No groundwater encountered.



$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} Effective storage volume of water between 75% (dp75) and 25% (dp25) effective depth	**0.665**	**m^3**
a_{p50} Internal surface area up to 50% effective depth and including the base	**5**	**m^2**
$t_{p75} - t_{p25}$ Time for the water level to fall from 75% to 25% effective depth	**593**	**s**
f Soil infiltration rate	**2.29E-04**	**m/s**

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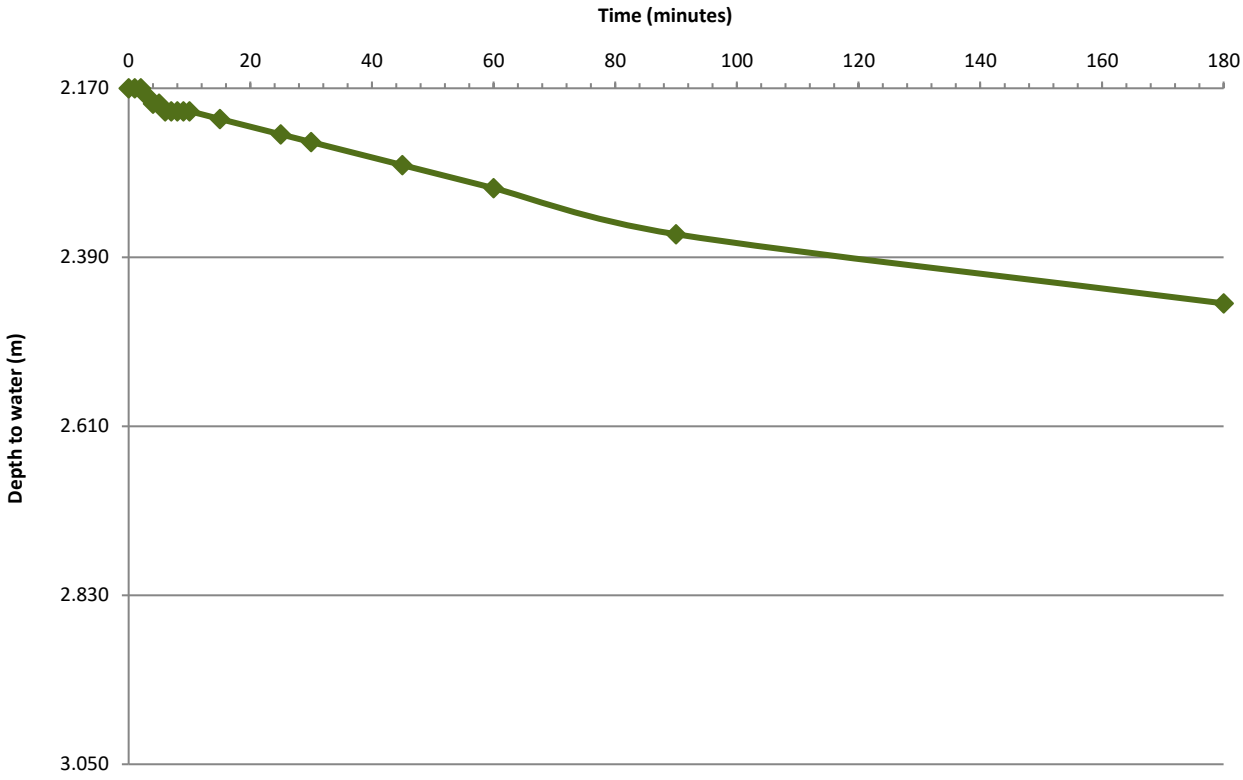
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Dimensions (m)
TP02	1	21/11/2022	0.75m x 3.15m

Depth at start of test (m)	Groundwater observations (at time of excavation)
2.17	No groundwater encountered.



Insufficient infiltration over 180 minutes of monitoring therefore unable to calculate soil infiltration rate.

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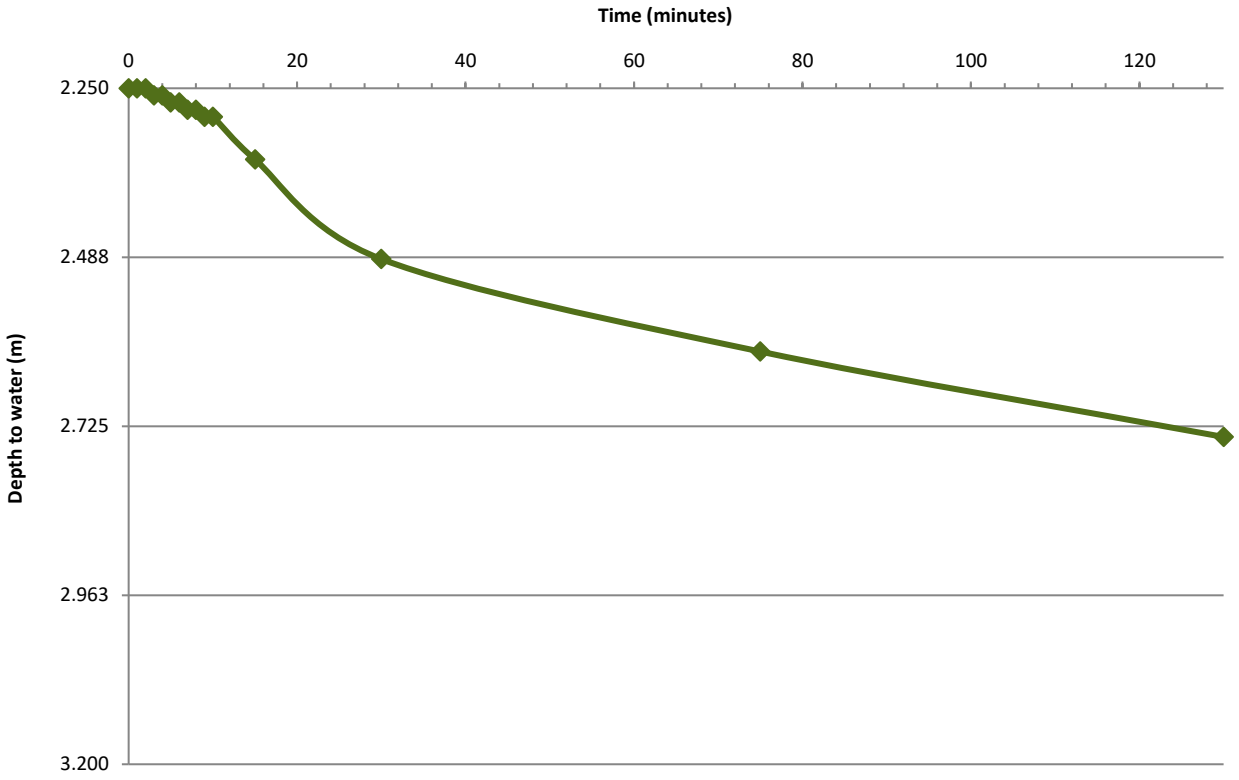
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Dimensions (m)
TP03	1	21/11/2022	0.75m x 3.10m

Depth at start of test (m)	Groundwater observations (at time of excavation)
2.25	No groundwater encountered.



Insufficient infiltration over 130 minutes of monitoring therefore unable to calculate soil infiltration rate.

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Appendix F Geotechnical Laboratory Test Results

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

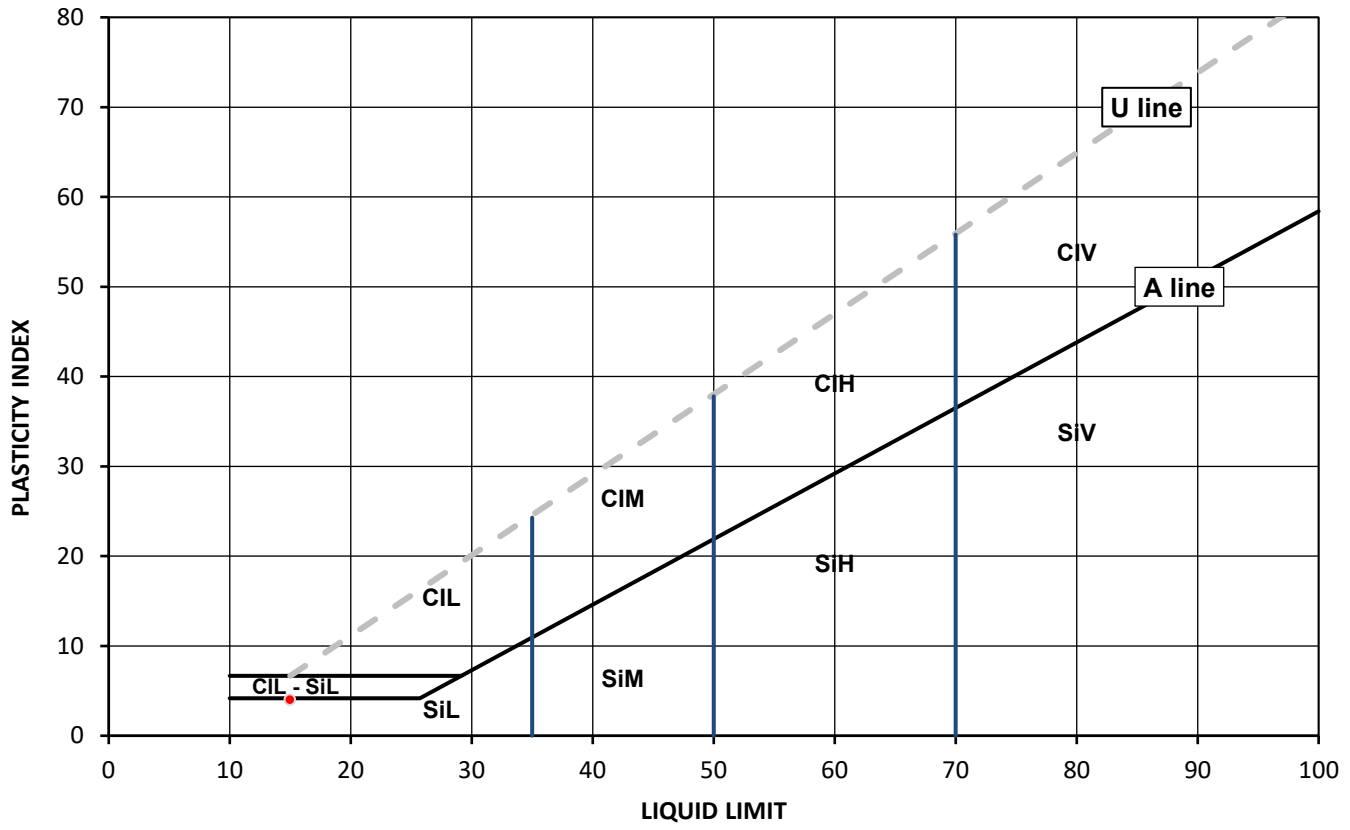
Client:	Soiltechnics Limited	Client Reference:	STU5875
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-11180
		Date Sampled:	22/11/2022
		Date Received:	02/12/2022
Contact:	Admin	Date Tested:	07/12/2022
Site Address:	Lanwades Park, Kentford, Newmarket	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2520578	Depth Top [m]:	0.50
Hole No.:	TP030.502	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	D
Sample Description:	Cream colour slightly gravelly CHALK		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
9.3	15	11	4	86



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

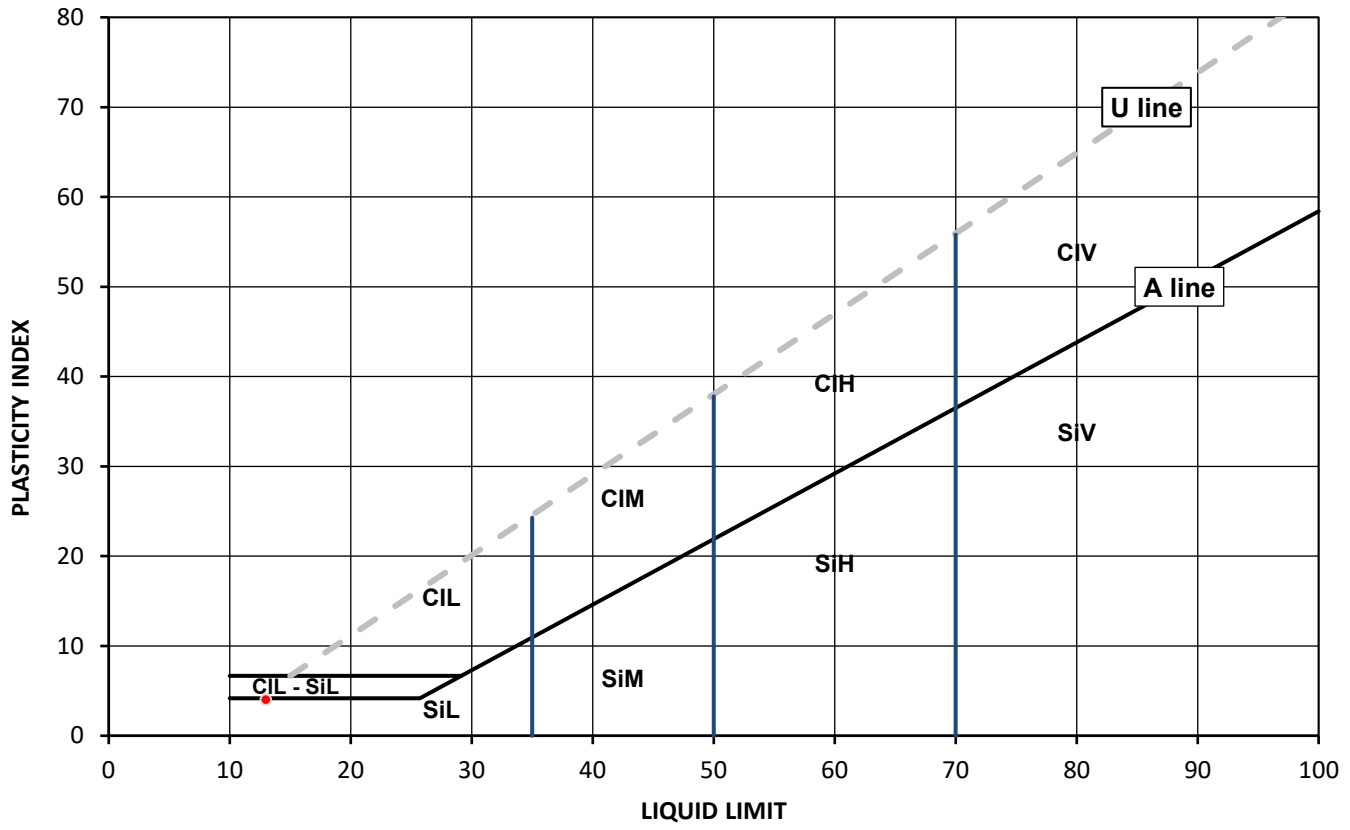
Client:	Soiltechnics Limited	Client Reference:	STU5875
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-11180
		Date Sampled:	23/11/2022
		Date Received:	02/12/2022
Contact:	Admin	Date Tested:	07/12/2022
Site Address:	Lanwades Park, Kentford, Newmarket	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2520579	Depth Top [m]:	1.50
Hole No.:	TP061.503	Depth Base [m]:	Not Given
Sample Reference:	3	Sample Type:	D
Sample Description:	Cream colour slightly gravelly CHALK		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
7.5	13	9	4	81



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

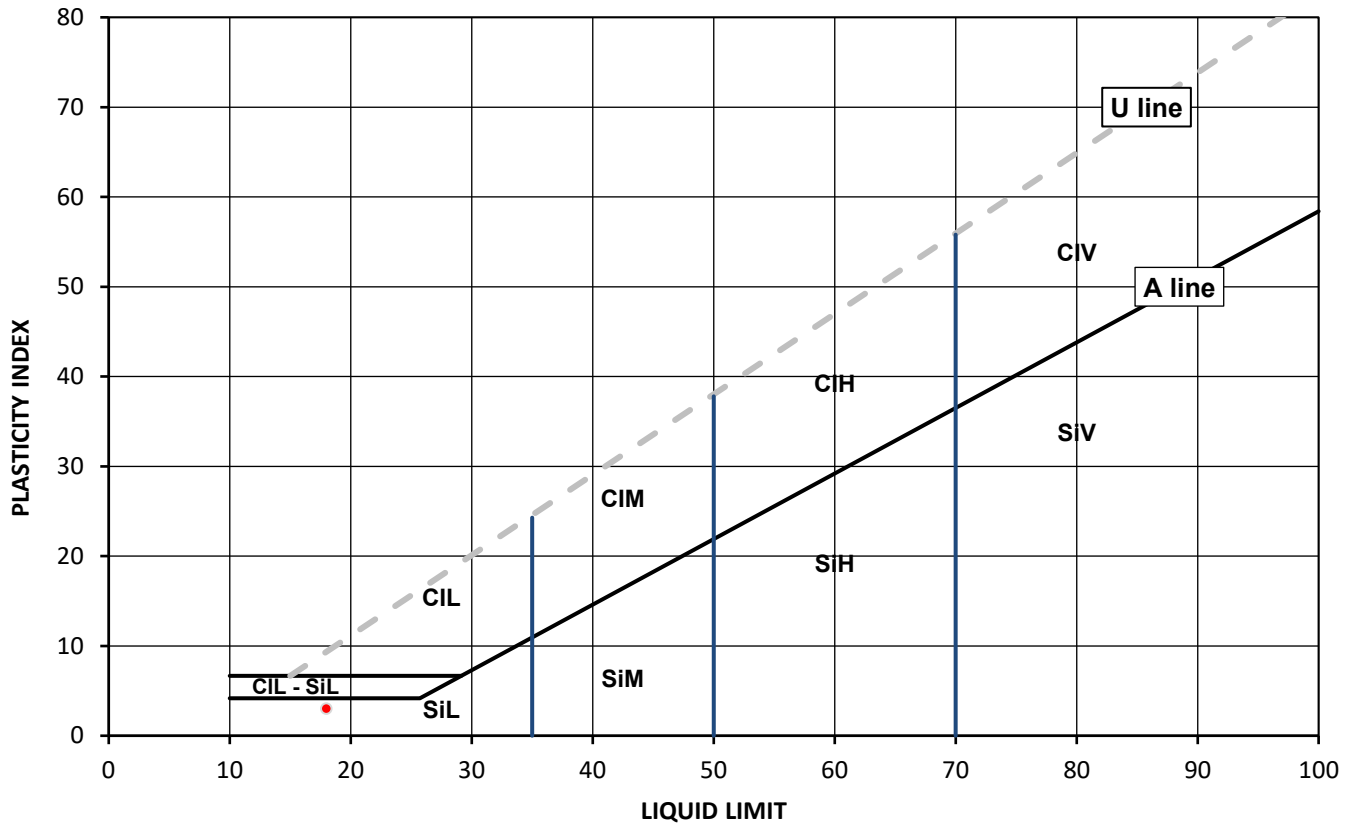
Client:	Soiltechnics Limited	Client Reference:	STU5875
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-11180
		Date Sampled:	24/11/2022
		Date Received:	02/12/2022
Contact:	Admin	Date Tested:	07/12/2022
Site Address:	Lanwades Park, Kentford, Newmarket	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2520583	Depth Top [m]:	0.70
Hole No.:	TP140.702	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	D
Sample Description:	Yellowish brown slightly gravelly slightly clayey SAND		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
9.8	18	15	3	94



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

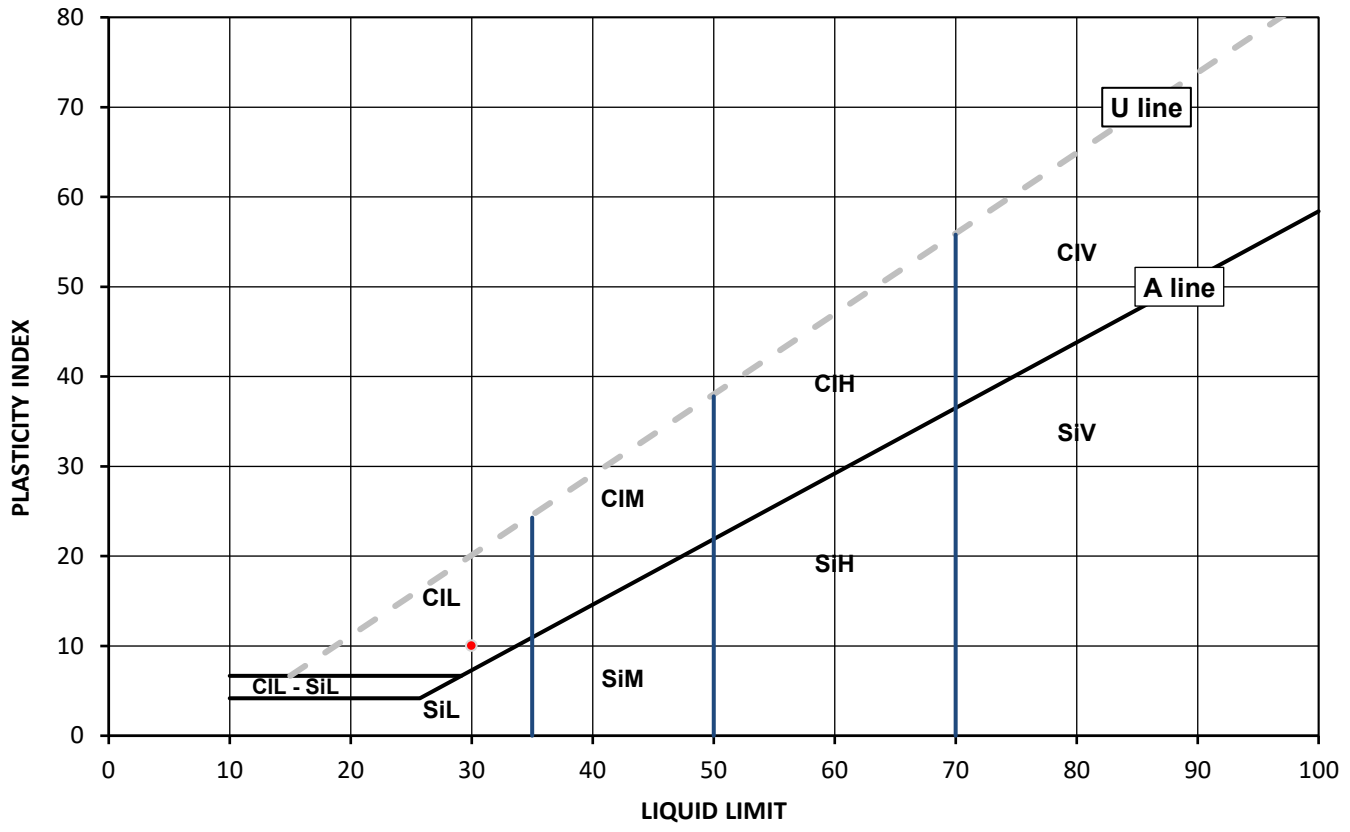
Client:	Soiltechnics Limited	Client Reference:	STU5875
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-11180
		Date Sampled:	24/11/2022
		Date Received:	02/12/2022
Contact:	Admin	Date Tested:	07/12/2022
Site Address:	Lanwades Park, Kentford, Newmarket	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2520584	Depth Top [m]:	1.50
Hole No.:	WS051.503	Depth Base [m]:	Not Given
Sample Reference:	3	Sample Type:	D
Sample Description:	Cream colour slightly gravelly CHALK		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	30	20	10	98



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 232.12

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY

Contact: Admin

Site Address: Lanwades Park, Kentford, Newmarket

Client Reference: STU5875
Job Number: 22-11180
Date Sampled: 22/11 - 24/11/2022
Date Received: 02/12/2022
Date Tested: 07/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-1 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2520578	TP030.502	2	0.50	Not Given	D	Cream colour slightly gravelly CHALK	Atterberg 1 Point	9.3		86	15	11	4						
2520579	TP061.503	3	1.50	Not Given	D	Cream colour slightly gravelly CHALK	Atterberg 1 Point	7.5		81	13	9	4						
2520583	TP140.702	2	0.70	Not Given	D	Yellowish brown slightly gravelly slightly clayey SAND	Atterberg 1 Point	9.8		94	18	15	3						
2520584	WS051.503	3	1.50	Not Given	D	Cream colour slightly gravelly CHALK	Atterberg 1 Point	24		98	30	20	10						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin

Site Address: Lanwades Park, Kentford, Newmarket

Client Reference: STU5875
Job Number: 22-11180
Date Sampled: 22/11 - 24/11/2022
Date Received: 02/12/2022
Date Tested: 07/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
2520578	TP030.502	2	0.50	Not Given	D	Cream colour slightly gravelly CHALK		9.3	Sample was quartered, oven dried at 106 °C			
2520579	TP061.503	3	1.50	Not Given	D	Cream colour slightly gravelly CHALK		7.5	Sample was quartered, oven dried at 106 °C			
2520583	TP140.702	2	0.70	Not Given	D	Yellowish brown slightly gravelly slightly clayey SAND		9.8	Sample was quartered, oven dried at 106 °C			
2520584	WS051.503	3	1.50	Not Given	D	Cream colour slightly gravelly CHALK		24	Sample was quartered, oven dried at 106 °C			

Comments:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 099.16

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

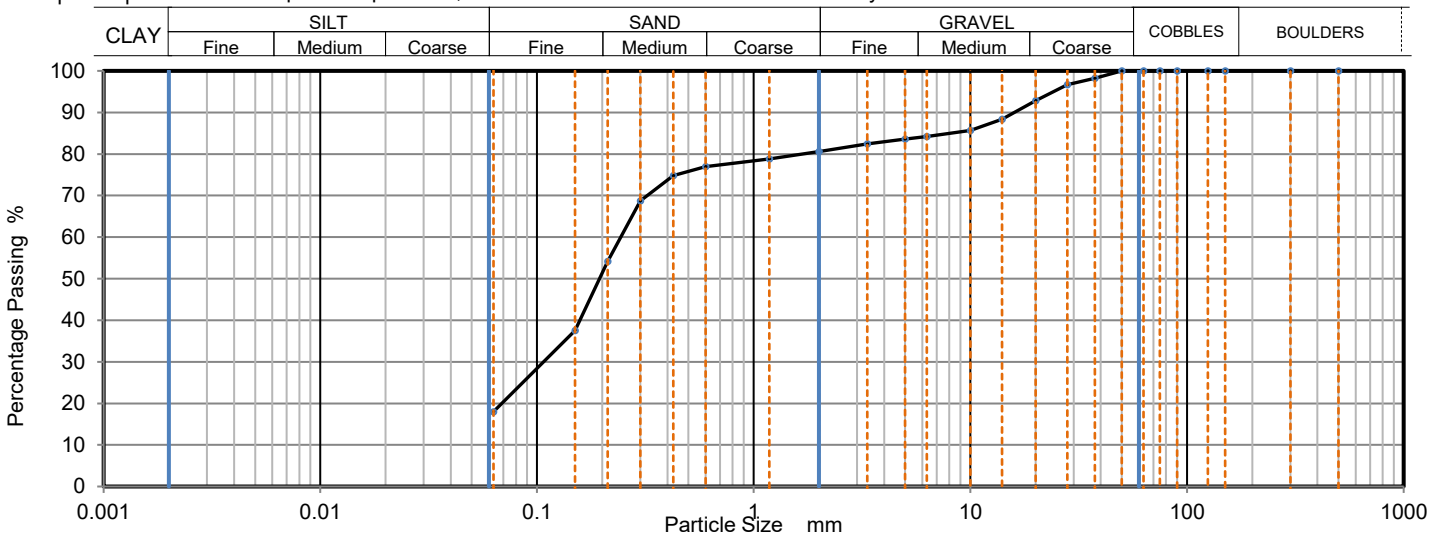
Environmental Science

Client:	Soiltechnics Limited	Client Reference:	STU5875
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-11180
		Date Sampled:	22/11/2022
		Date Received:	02/12/2022
Contact:	Admin	Date Tested:	07/12/2022
Site Address:	Lanwades Park, Kentford, Newmarket	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2520677	Depth Top [m]:	0.80
Hole No.:	TP110.802	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Sample Description:	Yellowish brown clayey gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	97		
20	93		
14	88		
10	86		
6.3	84		
5	84		
3.35	82		
2	81		
1.18	79		
0.6	77		
0.425	75		
0.3	69		
0.212	54		
0.15	38		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	62
Fines <0.063mm	18

Grading Analysis		
D100	mm	50
D60	mm	0.244
D30	mm	0.107
D10	mm	
Uniformity Coefficient		> 3.9
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 100.21

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin

Site Address: Lanwades Park, Kentford, Newmarket

Client Reference: STU5875
Job Number: 22-11180
Date Sampled: 23/11 - 24/11/2022
Date Received: 02/12/2022
Date Tested: 07/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2520580	TP072.003	3	2.00	Not Given	D	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	20	2.03	1.75	16	
2520581	TP112.003	3	2.00	Not Given	D	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.00	1.60	25	
2520582	TP123.104	4	3.10	Not Given	D	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.00	1.61	25	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 132.14

Admin
Soiltechnics Limited
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

e: admin@soiltechnics.net

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 22-11182

Project / Site name:	Lanwades Park, Kentford, Newmarket	Samples received on:	02/12/2022
Your job number:	STU5875	Samples instructed on/ Analysis started on:	02/12/2022
Your order number:	POR014189	Analysis completed by:	16/12/2022
Report Issue Number:	1	Report issued on:	16/12/2022
Samples Analysed:	5 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-11182
Project / Site name: Lanwades Park, Kentford, Newmarket
Your Order No: POR014189

Lab Sample Number				2520590	2520591	2520592	2520593	2520594
Sample Reference				TP020.601	TP070.301	TP120.802	TP13A0.501	HP030.101
Sample Number				1	1	2	1	1
Depth (m)				0.60	0.70	0.80	0.50	0.10-0.20
Date Sampled				22/11/2022	23/11/2022	24/11/2022	24/11/2022	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	22	< 0.1	13	85
Moisture Content	%	0.01	NONE	7.9	12	6.9	9.5	2.3
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5	0.5	0.5

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.4	8.5	7.9	9.1
Total Sulphate as SO4	%	0.005	MCERTS	-	0.034	-	0.01	0.016
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0035	0.0031	0.0036	0.0034	0.0044
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	3.5	3.1	3.6	3.4	4.4
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	-	6.3
Total Sulphur	%	0.005	MCERTS	-	0.014	-	0.008	0.011
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-	-	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-	-	-	6.6
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	-	3.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 22-11182
Project / Site name: Lanwades Park, Kentford, Newmarket

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2520590	TP020.601	1	0.6	Brown sand with gravel.
2520591	TP070.301	1	0.7	Brown clay and sand with stones and vegetation.
2520592	TP120.802	2	0.8	Brown sand with gravel and vegetation.
2520593	TP13A0.501	1	0.5	Brown sand with stones and vegetation.
2520594	HP030.101	1	0.10-0.20	Brown gravelly sand with stones and vegetation.

Analytical Report Number : 22-11182
Project / Site name: Lanwades Park, Kentford, Newmarket

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 22-11182
Project / Site name: Lanwades Park, Kentford, Newmarket

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HP030.101	1	S	2520594	a	None Supplied	None Supplied	None Supplied

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environmental ▪ geotechnical ▪ building fabric

Appendix G Post Fieldwork Monitoring

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Ground gas and groundwater monitoring results

Notes

1) The instrument limit of detection has been adopted where no gas flows or concentrations have been recorded (indicated in grey italics).
2) Atmospheric temperature (*) data sourced from local weather station data.
3) CH4 = methane; CO2 = carbon dioxide; O2 = oxygen; PPM = parts per million CO = carbon monoxide; H2S = hydrogen sulphide.
4) Gas Screening Values (GSVs) are rounded to 3 decimal places.

							Worst case scenario	0.0	0.0	0.0	2.0	2.0	17.1	17.1	0	0	0.00	0.00	0.00	0.00	GREEN	GREEN	ONE	
							Average scenario	0.0	0.0	0.0	1.6	1.6	17.8	17.8	0	0	0.00	0.00	0.00	0.00	GREEN	GREEN	ONE	
Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases (PPM)		GSV (CH_4)		GSV (CO_2)		Indicative NHBC Guideline		Indicative (steady) CIRIA Characteristic Situation	Notes
				Response Zone (mBGL)	Flooded				l/Hr	Peak	Steady	Peak	Steady	Minimum	Average	CO	H_2S	Peak	Steady	Peak	Steady	Peak	Steady		
06/12/2022	14:10	WS03	1		No	1027	5	Dry	0	0.0	0.0	1.2	1.2	18.4	18.4	0	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
06/12/2022	14:22	WS05	1		No	1027	5	Dry	0	0.0	0.0	1.6	1.6	18.0	18.0	0	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
06/12/2022	13:57	WS07	1	1.00 - 2.00	No	1027	5	1.95	0	0.0	0.0	1.7	1.7	17.1	17.1	0	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
06/12/2022	14:32	WS09	1	1.00 - 3.00	No	1027	5	Dry	-0.1	0.0	0.0	2.0	2.0	17.7	17.7	0	0	0.000	0.000	0.002	0.002	GREEN	GREEN	CS-1	

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix H Geoenvironmental Laboratory Test Results

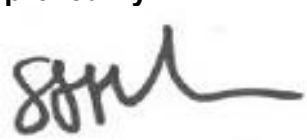
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-46482-1
Initial Date of Issue:	22-Dec-2022
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STU875 Lanwades Park, Kentford, Newmarket

Quotation No.:		**Date Received:**	05-Dec-2022
Order No.:	POR014188	**Date Instructed:**	05-Dec-2022
No. of Samples:	26		
Turnaround (Wkdays):	5	**Results Due:**	09-Dec-2022
Date Approved:	22-Dec-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited				**Chemtest Job No.:**	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:				**Chemtest Sample ID.:**	1557534	1557535	1557536	1557537	1557538	1557539	1557540	1557541	1557542
Order No.: POR014188				Client Sample Ref.:	2	1	1	1	3	1	1	1	1
				Client Sample ID.:	HP020.502	HP040.301	HP060.301	HP070.201	HP080.503	TP010.001	TP020.601	TP030.101	TP040.051
				Sample Location:	HP02	HP04	HP06	HP07	HP08	TP01	TP02	TP03	TP04
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.50	0.30	0.30	0.20	0.50	0.00	0.60	0.10	0.05
				Bottom Depth (m):	0.60	0.50	0.50			0.10			
				Date Sampled:	21-Nov-2022	21-Nov-2022	21-Nov-2022	24-Nov-2022	25-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
				Asbestos Lab:						DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A						-	-	-	-
Asbestos Identification	U	2192		N/A						No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	8.5	10	7.4	8.3	8.5				
Soil Colour	N	2040		N/A	Brown	Brown		Brown					
Other Material	N	2040		N/A	Stones and Roots	Stones		Stones and Roots					
Soil Texture	N	2040		N/A	Sand	Sand		Sand					
pH	M	2010		4.0	9.6	8.6		8.3	10.5				
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40		0.72	< 0.40				
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010					< 0.010				
Nitrate (Water Soluble)	N	2220	g/l	0.010					< 0.010				
Cyanide (Complex)	M	2300	mg/kg	0.50	0.70	< 0.50		< 0.50	< 0.50				
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50				
Cyanide (Total)	M	2300	mg/kg	0.50	0.80	< 0.50		< 0.50	< 0.50				
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50					2.3				
Arsenic	M	2455	mg/kg	0.5	11	13		51	11				
Beryllium	U	2455	mg/kg	0.5	0.6	0.6		0.6	< 0.5				
Cadmium	M	2455	mg/kg	0.10	0.26	0.14		0.30	0.11				
Chromium	M	2455	mg/kg	0.5	25	19		20	15				
Copper	M	2455	mg/kg	0.50	8.8	9.3		15	7.1				
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05				
Nickel	M	2455	mg/kg	0.50	13	16		24	13				
Lead	M	2455	mg/kg	0.50	17	13		31	11				
Selenium	M	2455	mg/kg	0.25	0.55	0.57		0.75	0.41				
Vanadium	U	2455	mg/kg	0.5	45	41		41	31				
Zinc	M	2455	mg/kg	0.50	45	37		66	26				
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50				
Organic Matter	M	2625	%	0.40	0.97	0.50		1.4	< 0.40				
Total TPH >C6-C40	M	2670	mg/kg	10		< 10	< 10	< 10					
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0					< 1.0				
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0					< 1.0				
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0					< 1.0				
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0					< 1.0				
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0					< 1.0				
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0					< 1.0				

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557534	1557535	1557536	1557537	1557538	1557539	1557540	1557541	1557542
Order No.: POR014188			Client Sample Ref.:		2	1	1	1	3	1	1	1	1
			Client Sample ID.:		HP020.502	HP040.301	HP060.301	HP070.201	HP080.503	TP010.001	TP020.601	TP030.101	TP040.051
			Sample Location:		HP02	HP04	HP06	HP07	HP08	TP01	TP02	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	0.30	0.30	0.20	0.50	0.00	0.60	0.10	0.05
			Bottom Depth (m):		0.60	0.50	0.50			0.10			
			Date Sampled:		21-Nov-2022	21-Nov-2022	21-Nov-2022	24-Nov-2022	25-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
			Asbestos Lab:							DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0					< 1.0				
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0				
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0					< 1.0				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0					< 1.0				
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0					< 5.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0					< 10				
Dichlorodifluoromethane	U	2760	µg/kg	1.0					< 1.0				
Chloromethane	M	2760	µg/kg	1.0					< 1.0				
Vinyl Chloride	M	2760	µg/kg	1.0					< 1.0				
Bromomethane	M	2760	µg/kg	20					< 20				
Chloroethane	U	2760	µg/kg	2.0					< 2.0				
Trichlorofluoromethane	M	2760	µg/kg	1.0					< 1.0				
1,1-Dichloroethene	M	2760	µg/kg	1.0					< 1.0				
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0					< 1.0				
1,1-Dichloroethane	M	2760	µg/kg	1.0					< 1.0				
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0					< 1.0				
Bromochloromethane	U	2760	µg/kg	5.0					< 5.0				
Trichloromethane	M	2760	µg/kg	1.0					< 1.0				
1,1,1-Trichloroethane	M	2760	µg/kg	1.0					< 1.0				
Tetrachloromethane	M	2760	µg/kg	1.0					< 1.0				
1,1-Dichloropropene	U	2760	µg/kg	1.0					< 1.0				
Benzene	M	2760	µg/kg	1.0					< 1.0				
1,2-Dichloroethane	M	2760	µg/kg	2.0					< 2.0				
Trichloroethene	N	2760	µg/kg	1.0					< 1.0				
1,2-Dichloropropane	M	2760	µg/kg	1.0					< 1.0				
Dibromomethane	M	2760	µg/kg	1.0					< 1.0				
Bromodichloromethane	M	2760	µg/kg	5.0					< 5.0				
cis-1,3-Dichloropropene	N	2760	µg/kg	10					< 10				
Toluene	M	2760	µg/kg	1.0					< 1.0				

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557534	1557535	1557536	1557537	1557538	1557539	1557540	1557541	1557542
Order No.: POR014188			Client Sample Ref.:		2	1	1	1	3	1	1	1	1
			Client Sample ID.:		HP020.502	HP040.301	HP060.301	HP070.201	HP080.503	TP010.001	TP020.601	TP030.101	TP040.051
			Sample Location:		HP02	HP04	HP06	HP07	HP08	TP01	TP02	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	0.30	0.30	0.20	0.50	0.00	0.60	0.10	0.05
			Bottom Depth (m):		0.60	0.50	0.50			0.10			
			Date Sampled:		21-Nov-2022	21-Nov-2022	21-Nov-2022	24-Nov-2022	25-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
			Asbestos Lab:							DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Trans-1,3-Dichloropropene	N	2760	µg/kg	10					< 10				
1,1,2-Trichloroethane	M	2760	µg/kg	10					< 10				
Tetrachloroethene	M	2760	µg/kg	1.0					< 1.0				
1,3-Dichloropropane	U	2760	µg/kg	2.0					< 2.0				
Dibromochloromethane	U	2760	µg/kg	10					< 10				
1,2-Dibromoethane	M	2760	µg/kg	5.0					< 5.0				
Chlorobenzene	M	2760	µg/kg	1.0					< 1.0				
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0					< 2.0				
Ethylbenzene	M	2760	µg/kg	1.0					< 1.0				
m & p-Xylene	M	2760	µg/kg	1.0					< 1.0				
o-Xylene	M	2760	µg/kg	1.0					< 1.0				
Styrene	M	2760	µg/kg	1.0					< 1.0				
Tribromomethane	U	2760	µg/kg	1.0					< 1.0				
Isopropylbenzene	M	2760	µg/kg	1.0					< 1.0				
Bromobenzene	M	2760	µg/kg	1.0					< 1.0				
1,2,3-Trichloropropane	N	2760	µg/kg	50					< 50				
N-Propylbenzene	U	2760	µg/kg	1.0					< 1.0				
2-Chlorotoluene	M	2760	µg/kg	1.0					< 1.0				
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0					< 1.0				
4-Chlorotoluene	U	2760	µg/kg	1.0					< 1.0				
Tert-Butylbenzene	U	2760	µg/kg	1.0					< 1.0				
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0					< 1.0				
Sec-Butylbenzene	U	2760	µg/kg	1.0					< 1.0				
1,3-Dichlorobenzene	M	2760	µg/kg	1.0					< 1.0				
4-Isopropyltoluene	U	2760	µg/kg	1.0					< 1.0				
1,4-Dichlorobenzene	M	2760	µg/kg	1.0					< 1.0				
N-Butylbenzene	U	2760	µg/kg	1.0					< 1.0				
1,2-Dichlorobenzene	M	2760	µg/kg	1.0					< 1.0				
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50					< 50				
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0					< 1.0				
Hexachlorobutadiene	N	2760	µg/kg	1.0					< 1.0				
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0					< 2.0				
Carbon Disulphide	N	2760	µg/kg	50					< 50				
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0					< 1.0				
N-Nitrosodimethylamine	N	2790	mg/kg	0.050					< 0.050				
Phenol	N	2790	mg/kg	0.050					< 0.050				

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557534	1557535	1557536	1557537	1557538	1557539	1557540	1557541	1557542
Order No.: POR014188			Client Sample Ref.:		2	1	1	1	3	1	1	1	1
			Client Sample ID.:		HP020.502	HP040.301	HP060.301	HP070.201	HP080.503	TP010.001	TP020.601	TP030.101	TP040.051
			Sample Location:		HP02	HP04	HP06	HP07	HP08	TP01	TP02	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	0.30	0.30	0.20	0.50	0.00	0.60	0.10	0.05
			Bottom Depth (m):		0.60	0.50	0.50			0.10			
			Date Sampled:		21-Nov-2022	21-Nov-2022	21-Nov-2022	24-Nov-2022	25-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
			Asbestos Lab:							DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
2-Chlorophenol	N	2790	mg/kg	0.050					< 0.050				
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050					< 0.050				
1,3-Dichlorobenzene	N	2790	mg/kg	0.050					< 0.050				
1,4-Dichlorobenzene	N	2790	mg/kg	0.050					< 0.050				
1,2-Dichlorobenzene	N	2790	mg/kg	0.050					< 0.050				
2-Methylphenol	N	2790	mg/kg	0.050					< 0.050				
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050					< 0.050				
Hexachloroethane	N	2790	mg/kg	0.050					< 0.050				
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050					< 0.050				
4-Methylphenol	N	2790	mg/kg	0.050					< 0.050				
Nitrobenzene	N	2790	mg/kg	0.050					< 0.050				
Isophorone	N	2790	mg/kg	0.050					< 0.050				
2-Nitrophenol	N	2790	mg/kg	0.050					< 0.050				
2,4-Dimethylphenol	N	2790	mg/kg	0.050					< 0.050				
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050					< 0.050				
2,4-Dichlorophenol	N	2790	mg/kg	0.050					< 0.050				
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050					< 0.050				
Naphthalene	N	2790	mg/kg	0.050					< 0.050				
4-Chloroaniline	N	2790	mg/kg	0.050					< 0.050				
Hexachlorobutadiene	N	2790	mg/kg	0.050					< 0.050				
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050					< 0.050				
2-Methylnaphthalene	N	2790	mg/kg	0.050					< 0.050				
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050					< 0.050				
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050					< 0.050				
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050					< 0.050				
2-Chloronaphthalene	N	2790	mg/kg	0.050					< 0.050				
2-Nitroaniline	N	2790	mg/kg	0.050					< 0.050				
Acenaphthylene	N	2790	mg/kg	0.050					< 0.050				
Dimethylphthalate	N	2790	mg/kg	0.050					< 0.050				
2,6-Dinitrotoluene	N	2790	mg/kg	0.050					< 0.050				
Acenaphthene	N	2790	mg/kg	0.050					< 0.050				
3-Nitroaniline	N	2790	mg/kg	0.050					< 0.050				
Dibenzofuran	N	2790	mg/kg	0.050					< 0.050				
4-Chlorophenylphenylether	N	2790	mg/kg	0.050					< 0.050				
2,4-Dinitrotoluene	N	2790	mg/kg	0.050					< 0.050				
Fluorene	N	2790	mg/kg	0.050					< 0.050				

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited					**Chemtest Job No.:**	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:					**Chemtest Sample ID.:**	1557534	1557535	1557536	1557537	1557538	1557539	1557540	1557541	1557542
Order No.: POR014188					Client Sample Ref.:	2	1	1	1	3	1	1	1	1
					Client Sample ID.:	HP020.502	HP040.301	HP060.301	HP070.201	HP080.503	TP010.001	TP020.601	TP030.101	TP040.051
					Sample Location:	HP02	HP04	HP06	HP07	HP08	TP01	TP02	TP03	TP04
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	0.30	0.30	0.20	0.50	0.00	0.60	0.10	0.05
					Bottom Depth (m):	0.60	0.50	0.50			0.10			
					Date Sampled:	21-Nov-2022	21-Nov-2022	21-Nov-2022	24-Nov-2022	25-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
					Asbestos Lab:						DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Diethyl Phthalate	N	2790	mg/kg	0.050						< 0.050				
4-Nitroaniline	N	2790	mg/kg	0.050						< 0.050				
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050						< 0.050				
Azobenzene	N	2790	mg/kg	0.050						< 0.050				
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050						< 0.050				
Hexachlorobenzene	N	2790	mg/kg	0.050						< 0.050				
Pentachlorophenol	N	2790	mg/kg	0.050						< 0.050				
Phenanthrene	N	2790	mg/kg	0.050						< 0.050				
Anthracene	N	2790	mg/kg	0.050						< 0.050				
Carbazole	N	2790	mg/kg	0.050						< 0.050				
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050						< 0.050				
Fluoranthene	N	2790	mg/kg	0.050						< 0.050				
Pyrene	N	2790	mg/kg	0.050						< 0.050				
Butylbenzyl Phthalate	N	2790	mg/kg	0.050						< 0.050				
Benzo[a]anthracene	N	2790	mg/kg	0.050						< 0.050				
Chrysene	N	2790	mg/kg	0.050						< 0.050				
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050						< 0.050				
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050						< 0.050				
Benzo[b]fluoranthene	N	2790	mg/kg	0.050						< 0.050				
Benzo[k]fluoranthene	N	2790	mg/kg	0.050						< 0.050				
Benzo[a]pyrene	N	2790	mg/kg	0.050						< 0.050				
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050						< 0.050				
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050						< 0.050				
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050						< 0.050				
4-Nitrophenol	N	2790	mg/kg	0.050						< 0.050				
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		0.19						
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Fluoranthene	M	2800	mg/kg	0.10	0.30	< 0.10		0.22						
Pyrene	M	2800	mg/kg	0.10	0.28	< 0.10		0.28						
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10						

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557534	1557535	1557536	1557537	1557538	1557539	1557540	1557541	1557542
Order No.: POR014188			Client Sample Ref.:		2	1	1	1	3	1	1	1	1
			Client Sample ID.:		HP020.502	HP040.301	HP060.301	HP070.201	HP080.503	TP010.001	TP020.601	TP030.101	TP040.051
			Sample Location:		HP02	HP04	HP06	HP07	HP08	TP01	TP02	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	0.30	0.30	0.20	0.50	0.00	0.60	0.10	0.05
			Bottom Depth (m):		0.60	0.50	0.50			0.10			
			Date Sampled:		21-Nov-2022	21-Nov-2022	21-Nov-2022	24-Nov-2022	25-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
			Asbestos Lab:							DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10					
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10					
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10					
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10					
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10					
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0		< 2.0					
PCB 81	N	2815	mg/kg	0.010			< 0.010						
PCB 77	U	2815	mg/kg	0.010			< 0.010						
PCB 105	N	2815	mg/kg	0.010			< 0.010						
PCB 114	N	2815	mg/kg	0.010			< 0.010						
PCB 118	N	2815	mg/kg	0.010			< 0.010						
PCB 123	N	2815	mg/kg	0.010			< 0.010						
PCB 126	N	2815	mg/kg	0.010			< 0.010						
PCB 156	N	2815	mg/kg	0.010			< 0.010						
PCB 157	N	2815	mg/kg	0.010			< 0.010						
PCB 167	N	2815	mg/kg	0.010			< 0.010						
PCB 169	N	2815	mg/kg	0.010			< 0.010						
PCB 189	N	2815	mg/kg	0.010			< 0.010						
Total PCBs (12 Congeners)	N	2815	mg/kg	0.12			< 0.12						
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10				
VOC TIC	N	2760	µg/kg	N/A					None Detected				

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited				**Chemtest Job No.:**	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:				**Chemtest Sample ID.:**	1557543	1557544	1557545	1557546	1557547	1557548	1557549	1557550	1557551
Order No.: POR014188				Client Sample Ref.:	2	2	4	1	1	1	1	1	1
				Client Sample ID.:	TP040.402	TP041.103	TP050.004	TP080.601	TP090.101	TP100.001	TP110.401	TP130.201	TP140.301
				Sample Location:	TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.40	1.10	0.00	0.60	0.10	0.00	0.40	0.20	0.30
				Bottom Depth (m):		1.20	0.10			0.10			
				Date Sampled:	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	24-Nov-2022	24-Nov-2022
				Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A			-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	10							
Soil Colour	N	2040		N/A	Brown								
Other Material	N	2040		N/A	Stones and Roots								
Soil Texture	N	2040		N/A	Sand								
pH	M	2010		4.0	8.3	8.5							
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.47	1.1							
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		0.19							
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010							
Cyanide (Complex)	M	2300	mg/kg	0.50	< 0.50	< 0.50							
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50							
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50							
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		5.2							
Arsenic	M	2455	mg/kg	0.5	9.9	13							
Beryllium	U	2455	mg/kg	0.5	< 0.5	0.5							
Cadmium	M	2455	mg/kg	0.10	0.14	0.20							
Chromium	M	2455	mg/kg	0.5	16	21							
Copper	M	2455	mg/kg	0.50	13	25							
Mercury	M	2455	mg/kg	0.05	< 0.05	0.07							
Nickel	M	2455	mg/kg	0.50	12	17							
Lead	M	2455	mg/kg	0.50	24	26							
Selenium	M	2455	mg/kg	0.25	0.53	0.58							
Vanadium	U	2455	mg/kg	0.5	34	45							
Zinc	M	2455	mg/kg	0.50	39	48							
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50							
Organic Matter	M	2625	%	0.40	2.2	0.96							
Total TPH >C6-C40	M	2670	mg/kg	10									
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0							
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0							
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0		< 1.0							
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0		< 1.0							
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0		< 1.0							
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0		< 1.0							

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557543	1557544	1557545	1557546	1557547	1557548	1557549	1557550	1557551
Order No.: POR014188			Client Sample Ref.:		2	2	4	1	1	1	1	1	1
			Client Sample ID.:		TP040.402	TP041.103	TP050.004	TP080.601	TP090.101	TP100.001	TP110.401	TP130.201	TP140.301
			Sample Location:		TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	1.10	0.00	0.60	0.10	0.00	0.40	0.20	0.30
			Bottom Depth (m):			1.20	0.10			0.10			
			Date Sampled:		22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	24-Nov-2022	24-Nov-2022
			Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0		< 1.0							
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0							
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0							
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0		< 1.0							
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0							
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0							
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10							
Dichlorodifluoromethane	U	2760	µg/kg	1.0		< 1.0							
Chloromethane	M	2760	µg/kg	1.0		< 1.0							
Vinyl Chloride	M	2760	µg/kg	1.0		< 1.0							
Bromomethane	M	2760	µg/kg	20		< 20							
Chloroethane	U	2760	µg/kg	2.0		< 2.0							
Trichlorofluoromethane	M	2760	µg/kg	1.0		< 1.0							
1,1-Dichloroethene	M	2760	µg/kg	1.0		< 1.0							
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0		< 1.0							
1,1-Dichloroethane	M	2760	µg/kg	1.0		< 1.0							
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0		< 1.0							
Bromochloromethane	U	2760	µg/kg	5.0		< 5.0							
Trichloromethane	M	2760	µg/kg	1.0		< 1.0							
1,1,1-Trichloroethane	M	2760	µg/kg	1.0		< 1.0							
Tetrachloromethane	M	2760	µg/kg	1.0		< 1.0							
1,1-Dichloropropene	U	2760	µg/kg	1.0		< 1.0							
Benzene	M	2760	µg/kg	1.0		< 1.0							
1,2-Dichloroethane	M	2760	µg/kg	2.0		< 2.0							
Trichloroethene	N	2760	µg/kg	1.0		< 1.0							
1,2-Dichloropropane	M	2760	µg/kg	1.0		< 1.0							
Dibromomethane	M	2760	µg/kg	1.0		< 1.0							
Bromodichloromethane	M	2760	µg/kg	5.0		< 5.0							
cis-1,3-Dichloropropene	N	2760	µg/kg	10		< 10							
Toluene	M	2760	µg/kg	1.0		< 1.0							

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557543	1557544	1557545	1557546	1557547	1557548	1557549	1557550	1557551
Order No.: POR014188			Client Sample Ref.:		2	2	4	1	1	1	1	1	1
			Client Sample ID.:		TP040.402	TP041.103	TP050.004	TP080.601	TP090.101	TP100.001	TP110.401	TP130.201	TP140.301
			Sample Location:		TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	1.10	0.00	0.60	0.10	0.00	0.40	0.20	0.30
			Bottom Depth (m):			1.20	0.10			0.10			
			Date Sampled:		22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	24-Nov-2022	24-Nov-2022
			Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Trans-1,3-Dichloropropene	N	2760	µg/kg	10		< 10							
1,1,2-Trichloroethane	M	2760	µg/kg	10		< 10							
Tetrachloroethene	M	2760	µg/kg	1.0		< 1.0							
1,3-Dichloropropane	U	2760	µg/kg	2.0		< 2.0							
Dibromochloromethane	U	2760	µg/kg	10		< 10							
1,2-Dibromoethane	M	2760	µg/kg	5.0		< 5.0							
Chlorobenzene	M	2760	µg/kg	1.0		< 1.0							
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0		< 2.0							
Ethylbenzene	M	2760	µg/kg	1.0		< 1.0							
m & p-Xylene	M	2760	µg/kg	1.0		< 1.0							
o-Xylene	M	2760	µg/kg	1.0		< 1.0							
Styrene	M	2760	µg/kg	1.0		< 1.0							
Tribromomethane	U	2760	µg/kg	1.0		< 1.0							
Isopropylbenzene	M	2760	µg/kg	1.0		< 1.0							
Bromobenzene	M	2760	µg/kg	1.0		< 1.0							
1,2,3-Trichloropropane	N	2760	µg/kg	50		< 50							
N-Propylbenzene	U	2760	µg/kg	1.0		< 1.0							
2-Chlorotoluene	M	2760	µg/kg	1.0		< 1.0							
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0		< 1.0							
4-Chlorotoluene	U	2760	µg/kg	1.0		< 1.0							
Tert-Butylbenzene	U	2760	µg/kg	1.0		< 1.0							
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0		< 1.0							
Sec-Butylbenzene	U	2760	µg/kg	1.0		< 1.0							
1,3-Dichlorobenzene	M	2760	µg/kg	1.0		< 1.0							
4-Isopropyltoluene	U	2760	µg/kg	1.0		< 1.0							
1,4-Dichlorobenzene	M	2760	µg/kg	1.0		< 1.0							
N-Butylbenzene	U	2760	µg/kg	1.0		< 1.0							
1,2-Dichlorobenzene	M	2760	µg/kg	1.0		< 1.0							
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50		< 50							
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0		< 1.0							
Hexachlorobutadiene	N	2760	µg/kg	1.0		< 1.0							
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0		< 2.0							
Carbon Disulphide	N	2760	µg/kg	50		< 50							
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0		< 1.0							
N-Nitrosodimethylamine	N	2790	mg/kg	0.050		< 0.050							
Phenol	N	2790	mg/kg	0.050		< 0.050							

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited					**Chemtest Job No.:**	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:					**Chemtest Sample ID.:**	1557543	1557544	1557545	1557546	1557547	1557548	1557549	1557550	1557551
Order No.: POR014188					Client Sample Ref.:	2	2	4	1	1	1	1	1	1
					Client Sample ID.:	TP040.402	TP041.103	TP050.004	TP080.601	TP090.101	TP100.001	TP110.401	TP130.201	TP140.301
					Sample Location:	TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	1.10	0.00	0.60	0.10	0.00	0.40	0.20	0.30
					Bottom Depth (m):		1.20	0.10			0.10			
					Date Sampled:	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	24-Nov-2022	24-Nov-2022
					Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
2-Chlorophenol	N	2790	mg/kg	0.050		< 0.050								
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050		< 0.050								
1,3-Dichlorobenzene	N	2790	mg/kg	0.050		< 0.050								
1,4-Dichlorobenzene	N	2790	mg/kg	0.050		< 0.050								
1,2-Dichlorobenzene	N	2790	mg/kg	0.050		< 0.050								
2-Methylphenol	N	2790	mg/kg	0.050		< 0.050								
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050		< 0.050								
Hexachloroethane	N	2790	mg/kg	0.050		< 0.050								
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050		< 0.050								
4-Methylphenol	N	2790	mg/kg	0.050		< 0.050								
Nitrobenzene	N	2790	mg/kg	0.050		< 0.050								
Isophorone	N	2790	mg/kg	0.050		< 0.050								
2-Nitrophenol	N	2790	mg/kg	0.050		< 0.050								
2,4-Dimethylphenol	N	2790	mg/kg	0.050		< 0.050								
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050		< 0.050								
2,4-Dichlorophenol	N	2790	mg/kg	0.050		< 0.050								
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050		< 0.050								
Naphthalene	N	2790	mg/kg	0.050		< 0.050								
4-Chloroaniline	N	2790	mg/kg	0.050		< 0.050								
Hexachlorobutadiene	N	2790	mg/kg	0.050		< 0.050								
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050		< 0.050								
2-Methylnaphthalene	N	2790	mg/kg	0.050		< 0.050								
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050		< 0.050								
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050		< 0.050								
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050		< 0.050								
2-Chloronaphthalene	N	2790	mg/kg	0.050		< 0.050								
2-Nitroaniline	N	2790	mg/kg	0.050		< 0.050								
Acenaphthylene	N	2790	mg/kg	0.050		< 0.050								
Dimethylphthalate	N	2790	mg/kg	0.050		< 0.050								
2,6-Dinitrotoluene	N	2790	mg/kg	0.050		< 0.050								
Acenaphthene	N	2790	mg/kg	0.050		< 0.050								
3-Nitroaniline	N	2790	mg/kg	0.050		< 0.050								
Dibenzofuran	N	2790	mg/kg	0.050		< 0.050								
4-Chlorophenylphenylether	N	2790	mg/kg	0.050		< 0.050								
2,4-Dinitrotoluene	N	2790	mg/kg	0.050		< 0.050								
Fluorene	N	2790	mg/kg	0.050		< 0.050								

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited					**Chemtest Job No.:**	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:					**Chemtest Sample ID.:**	1557543	1557544	1557545	1557546	1557547	1557548	1557549	1557550	1557551
Order No.: POR014188					Client Sample Ref.:	2	2	4	1	1	1	1	1	1
					Client Sample ID.:	TP040.402	TP041.103	TP050.004	TP080.601	TP090.101	TP100.001	TP110.401	TP130.201	TP140.301
					Sample Location:	TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	1.10	0.00	0.60	0.10	0.00	0.40	0.20	0.30
					Bottom Depth (m):		1.20	0.10			0.10			
					Date Sampled:	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	24-Nov-2022	24-Nov-2022
					Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Diethyl Phthalate	N	2790	mg/kg	0.050		< 0.050								
4-Nitroaniline	N	2790	mg/kg	0.050		< 0.050								
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050		< 0.050								
Azobenzene	N	2790	mg/kg	0.050		< 0.050								
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050		< 0.050								
Hexachlorobenzene	N	2790	mg/kg	0.050		< 0.050								
Pentachlorophenol	N	2790	mg/kg	0.050		< 0.050								
Phenanthrene	N	2790	mg/kg	0.050		0.18								
Anthracene	N	2790	mg/kg	0.050		< 0.050								
Carbazole	N	2790	mg/kg	0.050		< 0.050								
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050		< 0.050								
Fluoranthene	N	2790	mg/kg	0.050		0.44								
Pyrene	N	2790	mg/kg	0.050		0.39								
Butylbenzyl Phthalate	N	2790	mg/kg	0.050		< 0.050								
Benzo[a]anthracene	N	2790	mg/kg	0.050		0.15								
Chrysene	N	2790	mg/kg	0.050		0.19								
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050		0.35								
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050		< 0.050								
Benzo[b]fluoranthene	N	2790	mg/kg	0.050		0.20								
Benzo[k]fluoranthene	N	2790	mg/kg	0.050		0.067								
Benzo[a]pyrene	N	2790	mg/kg	0.050		0.18								
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050		0.089								
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050		< 0.050								
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050		0.11								
4-Nitrophenol	N	2790	mg/kg	0.050		< 0.050								
Naphthalene	M	2800	mg/kg	0.10	< 0.10									
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10									
Acenaphthene	M	2800	mg/kg	0.10	< 0.10									
Fluorene	M	2800	mg/kg	0.10	< 0.10									
Phenanthrene	M	2800	mg/kg	0.10	< 0.10									
Anthracene	M	2800	mg/kg	0.10	< 0.10									
Fluoranthene	M	2800	mg/kg	0.10	< 0.10									
Pyrene	M	2800	mg/kg	0.10	< 0.10									
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10									
Chrysene	M	2800	mg/kg	0.10	< 0.10									
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10									

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557543	1557544	1557545	1557546	1557547	1557548	1557549	1557550	1557551
Order No.: POR014188			Client Sample Ref.:		2	2	4	1	1	1	1	1	1
			Client Sample ID.:		TP040.402	TP041.103	TP050.004	TP080.601	TP090.101	TP100.001	TP110.401	TP130.201	TP140.301
			Sample Location:		TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	1.10	0.00	0.60	0.10	0.00	0.40	0.20	0.30
			Bottom Depth (m):			1.20	0.10			0.10			
			Date Sampled:		22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022	24-Nov-2022	24-Nov-2022
			Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10								
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10								
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10								
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10								
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10								
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0								
PCB 81	N	2815	mg/kg	0.010									
PCB 77	U	2815	mg/kg	0.010									
PCB 105	N	2815	mg/kg	0.010									
PCB 114	N	2815	mg/kg	0.010									
PCB 118	N	2815	mg/kg	0.010									
PCB 123	N	2815	mg/kg	0.010									
PCB 126	N	2815	mg/kg	0.010									
PCB 156	N	2815	mg/kg	0.010									
PCB 157	N	2815	mg/kg	0.010									
PCB 167	N	2815	mg/kg	0.010									
PCB 169	N	2815	mg/kg	0.010									
PCB 189	N	2815	mg/kg	0.010									
Total PCBs (12 Congeners)	N	2815	mg/kg	0.12									
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10							
VOC TIC	N	2760	µg/kg	N/A		None Detected							

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557552	1557553	1557554	1557555	1557556	1557557	1557558	1557559
Order No.: POR014188			Client Sample Ref.:		1	1	1	1	1	1	1	1
			Client Sample ID.:		TP150.301	WS010.201	WS030.301	WS060.401	WS070.351	WS080.101	WS090.101	WS110.101
			Sample Location:		TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	0.20	0.30	0.40	0.35	0.20	0.10	0.10
			Bottom Depth (m):			0.30	0.40					
			Date Sampled:		24-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022
			Asbestos Lab:		DURHAM							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-							
Asbestos Identification	U	2192		N/A	No Asbestos Detected							
Moisture	N	2030	%	0.020		11	13	10	12	12	15	16
Soil Colour	N	2040		N/A		Brown				Brown	Brown	Brown
Other Material	N	2040		N/A		Stones				Stones and Roots	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A		Sand				Sand	Sand	Sand
pH	M	2010		4.0		8.4		8.3	8.2	8.0	7.7	7.2
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		< 0.40		< 0.40	< 0.40	< 0.40	0.68	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010				< 0.010	< 0.010			
Nitrate (Water Soluble)	N	2220	g/l	0.010				< 0.010	< 0.010			
Cyanide (Complex)	M	2300	mg/kg	0.50		< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Free)	M	2300	mg/kg	0.50		< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50		< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50				2.6	2.2			
Arsenic	M	2455	mg/kg	0.5		36		10	14	8.4	12	8.8
Beryllium	U	2455	mg/kg	0.5		0.5		< 0.5	0.5	< 0.5	< 0.5	< 0.5
Cadmium	M	2455	mg/kg	0.10		0.23		0.11	0.12	0.12	0.19	0.14
Chromium	M	2455	mg/kg	0.5		12		16	20	15	19	19
Copper	M	2455	mg/kg	0.50		12		6.5	8.2	5.9	10	8.0
Mercury	M	2455	mg/kg	0.05		< 0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50		17		13	16	12	16	10
Lead	M	2455	mg/kg	0.50		31		10	13	9.6	21	19
Selenium	M	2455	mg/kg	0.25		0.59		0.47	0.60	0.45	0.64	0.46
Vanadium	U	2455	mg/kg	0.5		28		31	38	27	30	39
Zinc	M	2455	mg/kg	0.50		50		27	37	31	49	37
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40		0.89		2.9	0.80	0.67	1.5	2.6
Total TPH >C6-C40	M	2670	mg/kg	10			< 10					
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0				< 1.0	< 1.0			

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557552	1557553	1557554	1557555	1557556	1557557	1557558	1557559
Order No.: POR014188			Client Sample Ref.:		1	1	1	1	1	1	1	1
			Client Sample ID.:		TP150.301	WS010.201	WS030.301	WS060.401	WS070.351	WS080.101	WS090.101	WS110.101
			Sample Location:		TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	0.20	0.30	0.40	0.35	0.20	0.10	0.10
			Bottom Depth (m):			0.30	0.40					
			Date Sampled:		24-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022
			Asbestos Lab:		DURHAM							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0	< 5.0			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0	< 1.0			
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0	< 5.0			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0				< 10	< 10			
Dichlorodifluoromethane	U	2760	µg/kg	1.0				< 1.0	< 1.0			
Chloromethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Vinyl Chloride	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Bromomethane	M	2760	µg/kg	20				< 20	< 20			
Chloroethane	U	2760	µg/kg	2.0				< 2.0	< 2.0			
Trichlorofluoromethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,1-Dichloroethene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,1-Dichloroethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Bromochloromethane	U	2760	µg/kg	5.0				< 5.0	< 5.0			
Trichloromethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,1,1-Trichloroethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Tetrachloromethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,1-Dichloropropene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
Benzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2-Dichloroethane	M	2760	µg/kg	2.0				< 2.0	< 2.0			
Trichloroethene	N	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2-Dichloropropane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Dibromomethane	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Bromodichloromethane	M	2760	µg/kg	5.0				< 5.0	< 5.0			
cis-1,3-Dichloropropene	N	2760	µg/kg	10				< 10	< 10			
Toluene	M	2760	µg/kg	1.0				< 1.0	< 1.0			

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557552	1557553	1557554	1557555	1557556	1557557	1557558	1557559
Order No.: POR014188			Client Sample Ref.:		1	1	1	1	1	1	1	1
			Client Sample ID.:		TP150.301	WS010.201	WS030.301	WS060.401	WS070.351	WS080.101	WS090.101	WS110.101
			Sample Location:		TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	0.20	0.30	0.40	0.35	0.20	0.10	0.10
			Bottom Depth (m):			0.30	0.40					
			Date Sampled:		24-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022
			Asbestos Lab:		DURHAM							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Trans-1,3-Dichloropropene	N	2760	µg/kg	10				< 10	< 10			
1,1,2-Trichloroethane	M	2760	µg/kg	10				< 10	< 10			
Tetrachloroethene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,3-Dichloropropane	U	2760	µg/kg	2.0				< 2.0	< 2.0			
Dibromochloromethane	U	2760	µg/kg	10				< 10	< 10			
1,2-Dibromoethane	M	2760	µg/kg	5.0				< 5.0	< 5.0			
Chlorobenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0				< 2.0	< 2.0			
Ethylbenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
m & p-Xylene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
o-Xylene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Styrene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Tribromomethane	U	2760	µg/kg	1.0				< 1.0	< 1.0			
Isopropylbenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Bromobenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50				< 50	< 50			
N-Propylbenzene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
2-Chlorotoluene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
4-Chlorotoluene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
Tert-Butylbenzene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Sec-Butylbenzene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
1,3-Dichlorobenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
4-Isopropyltoluene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
1,4-Dichlorobenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
N-Butylbenzene	U	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2-Dichlorobenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50				< 50	< 50			
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0				< 1.0	< 1.0			
Hexachlorobutadiene	N	2760	µg/kg	1.0				< 1.0	< 1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0				< 2.0	< 2.0			
Carbon Disulphide	N	2760	µg/kg	50				< 50	< 50			
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0				< 1.0	< 1.0			
N-Nitrosodimethylamine	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Phenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557552	1557553	1557554	1557555	1557556	1557557	1557558	1557559
Order No.: POR014188			Client Sample Ref.:		1	1	1	1	1	1	1	1
			Client Sample ID.:		TP150.301	WS010.201	WS030.301	WS060.401	WS070.351	WS080.101	WS090.101	WS110.101
			Sample Location:		TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	0.20	0.30	0.40	0.35	0.20	0.10	0.10
			Bottom Depth (m):			0.30	0.40					
			Date Sampled:		24-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022
			Asbestos Lab:		DURHAM							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
2-Chlorophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050				< 0.050	< 0.050			
1,3-Dichlorobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
1,4-Dichlorobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
1,2-Dichlorobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2-Methylphenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Hexachloroethane	N	2790	mg/kg	0.050				< 0.050	< 0.050			
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Methylphenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Nitrobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Isophorone	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2-Nitrophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2,4-Dimethylphenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2,4-Dichlorophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Naphthalene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Chloroaniline	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Hexachlorobutadiene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2-Methylnaphthalene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2-Chloronaphthalene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2-Nitroaniline	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Acenaphthylene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Dimethylphthalate	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2,6-Dinitrotoluene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Acenaphthene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
3-Nitroaniline	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Dibenzofuran	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Chlorophenylphenylether	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2,4-Dinitrotoluene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Fluorene	N	2790	mg/kg	0.050				< 0.050	< 0.050			

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557552	1557553	1557554	1557555	1557556	1557557	1557558	1557559
Order No.: POR014188			Client Sample Ref.:		1	1	1	1	1	1	1	1
			Client Sample ID.:		TP150.301	WS010.201	WS030.301	WS060.401	WS070.351	WS080.101	WS090.101	WS110.101
			Sample Location:		TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	0.20	0.30	0.40	0.35	0.20	0.10	0.10
			Bottom Depth (m):			0.30	0.40					
			Date Sampled:		24-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022
			Asbestos Lab:		DURHAM							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Diethyl Phthalate	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Nitroaniline	N	2790	mg/kg	0.050				< 0.050	< 0.050			
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Azobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Hexachlorobenzene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Pentachlorophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Phenanthrene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Anthracene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Carbazole	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Fluoranthene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Pyrene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Butylbenzyl Phthalate	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Benzo[a]anthracene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Chrysene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Benzo[b]fluoranthene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Benzo[k]fluoranthene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Benzo[a]pyrene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050				< 0.050	< 0.050			
4-Nitrophenol	N	2790	mg/kg	0.050				< 0.050	< 0.050			
Naphthalene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Pyrene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10

Results - Soil

Project: STU875 Lanwades Park, Kentford, Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482	22-46482
Quotation No.:			**Chemtest Sample ID.:**		1557552	1557553	1557554	1557555	1557556	1557557	1557558	1557559
Order No.: POR014188			Client Sample Ref.:		1	1	1	1	1	1	1	1
			Client Sample ID.:		TP150.301	WS010.201	WS030.301	WS060.401	WS070.351	WS080.101	WS090.101	WS110.101
			Sample Location:		TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	0.20	0.30	0.40	0.35	0.20	0.10	0.10
			Bottom Depth (m):			0.30	0.40					
			Date Sampled:		24-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	23-Nov-2022	23-Nov-2022	23-Nov-2022
			Asbestos Lab:		DURHAM							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Benzo[k]fluoranthene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10		< 0.10				< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0		< 2.0				< 2.0	< 2.0	< 2.0
PCB 81	N	2815	mg/kg	0.010								
PCB 77	U	2815	mg/kg	0.010								
PCB 105	N	2815	mg/kg	0.010								
PCB 114	N	2815	mg/kg	0.010								
PCB 118	N	2815	mg/kg	0.010								
PCB 123	N	2815	mg/kg	0.010								
PCB 126	N	2815	mg/kg	0.010								
PCB 156	N	2815	mg/kg	0.010								
PCB 157	N	2815	mg/kg	0.010								
PCB 167	N	2815	mg/kg	0.010								
PCB 169	N	2815	mg/kg	0.010								
PCB 189	N	2815	mg/kg	0.010								
Total PCBs (12 Congeners)	N	2815	mg/kg	0.12								
Total Phenols	M	2920	mg/kg	0.10		< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
VOC TIC	N	2760	µg/kg	N/A				None Detected	None Detected			

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
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2455	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.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
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
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.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	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-MS

Test Methods

SOP	Title	Parameters included	Method summary
2810	Polychlorinated Biphenyls (PCB) as Aroclors in Soils by GC-ECD	Polychlorinated Biphenyls expressed as an Aroclor (normally reported as *Aroclor 1242)	Extraction of a soil sample, as received, into hexane/acetone (50:50) followed by gas chromatography (GC) using mass spectrometric (MS) detection for identification of polychlorinated biphenyls and electron capture detection (ECD) for quanitation if present.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

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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

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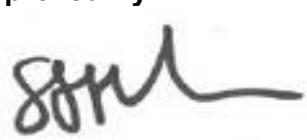
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-46484-1
Initial Date of Issue:	14-Dec-2022
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STU5875 Lanwades Park, Kentford, Newmarket

Quotation No.:		**Date Received:**	05-Dec-2022
Order No.:	POR014188	**Date Instructed:**	05-Dec-2022
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	13-Dec-2022
Date Approved:	14-Dec-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: STU5875 Lanwades Park, Kentford, Newmarket

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-46484								
Chemtest Sample ID:	1557565								
Sample Ref:	2								
Sample ID:	HP030.402								
Sample Location:	HP03								
Top Depth(m):	0.40								
Bottom Depth(m):	0.50								
Sampling Date:	21-Nov-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			0.37	3	5	6
Loss On Ignition	2610	M	%			1.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			< 0.0020	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0040	0.0030	0.0079	0.030	0.5	2	25
Barium	1455	U	0.010	< 0.005	0.020	0.0074	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0037	0.0020	0.0074	0.0028	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0042	0.0009	0.0084	0.012	0.5	10	30
Nickel	1455	U	0.0008	0.0006	0.0015	0.0057	0.4	10	40
Lead	1455	U	< 0.0005	0.0005	< 0.0005	0.0049	0.5	10	50
Antimony	1455	U	0.0062	0.0016	0.012	0.020	0.06	0.7	5
Selenium	1455	U	0.0016	0.0006	0.0031	0.0069	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	1.5	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.24	0.12	< 1.0	1.3	10	150	500
Sulphate	1220	U	24	3.9	48	54	1000	20000	50000
Total Dissolved Solids	1020	N	120	51	240	570	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.0	11	< 50	100	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	5.8

Leachate Test Information	
Leachant volume 1st extract/l	0.339
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.132

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity 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.
1455	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).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
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 (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
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.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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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 30 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.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
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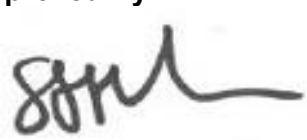
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-46501-1
Initial Date of Issue:	14-Dec-2022
Client	Soiltechnics Limited
Client Address:	Cedar Barn White Lodge Walgrave Northampton Northamptonshire NN6 9PY
Contact(s):	Admin
Project	STU5875 Lanwades Park, Kentford, Newmarket

Quotation No.:		**Date Received:**	05-Dec-2022
Order No.:	POR014186	**Date Instructed:**	05-Dec-2022
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	13-Dec-2022
Date Approved:	14-Dec-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: STU5875 Lanwades Park, Kentford, Newmarket

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-46501								
Chemtest Sample ID:	1557667								
Sample Ref:	1								
Sample ID:									
Sample Location:	CS01								
Top Depth(m):	0.00								
Bottom Depth(m):	0.10								
Sampling Date:	24-Nov-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			1.8	3	5	6
Loss On Ignition	2610	M	%			3.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.0030	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0013	0.0011	0.0026	0.011	0.5	2	25
Barium	1455	U	0.015	< 0.005	0.029	0.011	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0053	0.0021	0.011	0.0041	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0023	0.0006	0.0045	0.0074	0.5	10	30
Nickel	1455	U	0.0013	0.0006	0.0027	0.0063	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0009	< 0.0005	0.0018	0.0007	0.06	0.7	5
Selenium	1455	U	0.0011	0.0005	0.0021	0.0056	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	1.8	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.40	0.27	< 1.0	2.8	10	150	500
Sulphate	1220	U	< 1.0	< 1.0	< 10	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	180	76	360	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	11	7.4	< 50	77	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	15

Leachate Test Information	
Leachant volume 1st extract/l	0.319
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.135

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1455	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).
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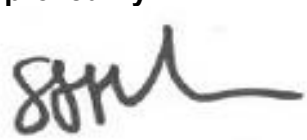
Final Report

Report No.:	23-01923-1
Initial Date of Issue:	31-Jan-2023
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STU5875 Landwades Park, Kentford Newmarket

Quotation No.:		**Date Received:**	23-Jan-2023
Order No.:	POR014464	**Date Instructed:**	23-Jan-2023
No. of Samples:	2		
Turnaround (Wkdays):	5	**Results Due:**	27-Jan-2023
Date Approved:	31-Jan-2023		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Soil

Project: STU5875 Landwades Park, Kentford Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		23-01923	23-01923
Quotation No.:			**Chemtest Sample ID.:**		1577587	1577588
Order No.: POR014464			Client Sample Ref.:		2	3
			Client Sample ID.:		HP090.702	HP091.203
			Sample Location:		HP09	HP09
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.70	1.20
			Date Sampled:		13-Jan-2023	13-Jan-2023
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	10	12
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones, Roots and	Stones
Soil Texture	N	2040		N/A	Loam	Loam
pH	M	2010		4.0	8.0	7.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.42	0.72
Cyanide (Complex)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic	M	2455	mg/kg	0.5	< 0.5	13
Beryllium	U	2455	mg/kg	0.5	< 0.5	0.9
Cadmium	M	2455	mg/kg	0.10	< 0.10	0.24
Chromium	M	2455	mg/kg	0.5	< 0.5	24
Copper	M	2455	mg/kg	0.50	0.63	14
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50	0.55	19
Lead	M	2455	mg/kg	0.50	1.1	28
Selenium	M	2455	mg/kg	0.25	< 0.25	0.79
Vanadium	U	2455	mg/kg	0.5	1.0	41
Zinc	M	2455	mg/kg	0.50	4.2	57
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	1.3	100
Naphthalene	M	2800	mg/kg	0.10	0.12	0.18
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	0.16	0.18
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.65	0.24
Anthracene	M	2800	mg/kg	0.10	0.19	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	1.3	0.35
Pyrene	M	2800	mg/kg	0.10	1.1	0.29
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.54	0.14
Chrysene	M	2800	mg/kg	0.10	0.40	0.12

Results - Soil

Project: STU5875 Landwades Park, Kentford Newmarket

Client: Soiltechnics Limited			**Chemtest Job No.:**		23-01923	23-01923
Quotation No.:			**Chemtest Sample ID.:**		1577587	1577588
Order No.: POR014464			Client Sample Ref.:		2	3
			Client Sample ID.:		HP090.702	HP091.203
			Sample Location:		HP09	HP09
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.70	1.20
			Date Sampled:		13-Jan-2023	13-Jan-2023
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.71	0.29
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.25	0.12
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.52	0.18
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.33	0.19
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.38	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	6.7	2.3
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10

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
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2455	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.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	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-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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.com

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Appendix I Contamination Assessment Screening

GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	Completed	01.02.23	SH	KB
Chronic human health risk - Soils	Completed	01.02.23	SH	KB
Chronic human health risk - Groundwater vapour	*Not undertaken*			
Controlled waters risk - Surface water	*Not undertaken*			
Controlled waters risk - Drinking water	*Not undertaken*			
Controlled waters - Free phase indicator	*Not undertaken*			
Phytotoxicity	*Not undertaken*			
Ecotoxicity	*Not undertaken*			

Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Acute human health risk - Soils	AGAC	Acute Generic Assessment Criteria (SoBRA)	April 2019
	sat.	Contaminant poses a low acute risk unless the soil saturation limit is exceeded and a free oil phase is present.	April 2019
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	HP02	HP04	HP06	HP07	HP08	HP09	HP09	TP01	TP02	TP03
				Depth (m)	0.50 - 0.60	0.30 - 0.50	0.30 - 0.50	0.20	0.50	0.70	1.20	0.00 - 0.10	0.60	0.10
				Date	21/11/22	21/11/22	21/11/22	24/11/22	25/11/22	13/01/23	13/01/23	22/11/22	22/11/22	22/11/22
Inorganics - Metals														
Arsenic	C4SL	37	51		11	13		51	11	< 0.5	13			
Beryllium	S4UL	1.7	0.9		0.6	0.6		0.6	< 0.5	< 0.5	0.9			
Boron	S4UL	290	1.1		< 0.40	< 0.40		0.72	< 0.40	0.42	0.72			
Cadmium	C4SL	22	0.3		0.26	0.14		0.3	0.11	< 0.10	0.24			
Chromium (III)	S4UL	910	25		25	19		20	15	< 0.5	24			
Chromium (VI)	C4SL	21	<LoD		< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50			
Copper	S4UL	2400	25		8.8	9.3		15	7.1	0.63	14			
Cyanide - Free	ATK	34	<LoD		< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50			
Lead	C4SL	200	31		17	13		31	11	1.1	28			
Mercury	S4UL	40	0.07		< 0.05	< 0.05		< 0.05	< 0.05	< 0.05	< 0.05			
Nickel	S4UL	130	24		13	16		24	13	0.55	19			
Selenium	S4UL	250	0.79		0.55	0.57		0.75	0.41	< 0.25	0.79			
Vanadium	S4UL	410	45		45	41		41	31	1	41			
Zinc	S4UL	3700	66		45	37		66	26	4.2	57			
Inorganics - Asbestos														
Asbestos Type		N/A								-	-	-	-	-
Asbestos Screen		N/A								No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Inorganics - Soil Parameters														
Organic matter		N/A			0.97	0.5		1.4	< 0.40	1.3	100			
Organics - PAH & Phenol														
Acenaphthene	S4UL	210	0.18		< 0.10	< 0.10		< 0.10	< 0.050	0.16	0.18			
Acenaphthylene	S4UL	170	<LoD		< 0.10	< 0.10		< 0.10	< 0.050	< 0.10	< 0.10			
Anthracene	S4UL	2400	0.19		< 0.10	< 0.10		< 0.10	< 0.050	0.19	< 0.10			
Benzo(a)anthracene	S4UL	7.2	0.54		< 0.10	< 0.10		< 0.10	< 0.050	0.54	0.14			
Benzo(a)pyrene	C4SL	5	0.52		< 0.10	< 0.10		< 0.10	< 0.050	0.52	0.18			
Benzo(b)fluoranthene	S4UL	2.6	0.71		< 0.10	< 0.10		< 0.10	< 0.050	0.71	0.29			
Benzo(ghi)perylene	S4UL	320	0.38		< 0.10	< 0.10		< 0.10	< 0.050	0.38	< 0.10			
Benzo(k)fluoranthene	S4UL	77	0.25		< 0.10	< 0.10		< 0.10	< 0.050	0.25	0.12			
Chrysene	S4UL	15	0.4		< 0.10	< 0.10		< 0.10	< 0.050	0.4	0.12			
Dibenz(a,h)anthracene	S4UL	0.24	<LoD		< 0.10	< 0.10		< 0.10	< 0.050	< 0.10	< 0.10			
Fluoranthene	S4UL	280	1.3		0.3	< 0.10		0.22	< 0.050	1.3	0.35			
Fluorene	S4UL	170	<LoD		< 0.10	< 0.10		< 0.10	< 0.050	< 0.10	< 0.10			
Indeno(1,2,3-cd)pyrene	S4UL	27	0.33		< 0.10	< 0.10		< 0.10	< 0.050	0.33	0.19			
Naphthalene	S4UL	2.3	0.18		< 0.10	< 0.10		< 0.10	< 0.050	0.12	0.18			
Phenanthrene	S4UL	95	0.65		< 0.10	< 0.10		0.19	< 0.050	0.65	0.24			
Phenol	S4UL	120	<LoD		< 0.10	< 0.10		< 0.10	< 0.050	< 0.10	< 0.10			
Pyrene	S4UL	620	1.1		0.28	< 0.10		0.28	< 0.050	1.1	0.29			
Organics - TPH CWG and BTEX														
Benzene	C4SL	0.87	<LoD						< 0.001					
Toluene	S4UL	130	<LoD						< 0.001					
Ethylbenzene	S4UL	47	<LoD						< 0.001					
o-Xylene	S4UL	60	<LoD						< 0.001					
m & p-xylene	S4UL	56	<LoD						< 0.001					
Xylenes (sum of)	S4UL	56	<LoD						< LoD					
EC05 - EC06 Aliphatic	S4UL	42	<LoD						< 1.0					
EC>06 - EC08 Aliphatic	S4UL	100	<LoD						< 1.0					
EC>08 - EC10 Aliphatic	S4UL	27	<LoD						< 1.0					
EC>10 - EC12 Aliphatic	S4UL	130	<LoD						< 1.0					
EC>12 - EC16 Aliphatic	S4UL	1100	<LoD						< 1.0					
EC>16 - EC21 Aliphatic	S4UL	65000	<LoD						< 1.0					
EC>21 - EC35 Aliphatic	S4UL	65000	<LoD						< 1.0					
EC5 - EC7 (benzene)	S4UL	70	<LoD						< 1.0					
EC7 - >EC8 (toluene)	S4UL	13	<LoD						< 1.0					
EC>08 - EC10 Aromatic	S4UL	34	<LoD						< 1.0					
EC>10 - EC12 Aromatic	S4UL	74	<LoD						< 1.0					
EC>12 - EC16 Aromatic	S4UL	140	<LoD						< 1.0					
EC>16 - EC21 Aromatic	S4UL	260	<LoD						< 1.0					
EC>21 - EC35 Aromatic	S4UL	1100	<LoD						< 1.0					
EC>35 - EC44 Aromatic	S4UL	1100	<LoD						< 1.0					

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	TP04	TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
				Depth (m)	0.05	0.40	1.10 - 1.20	0.00 - 0.10	0.60	0.10	0.00 - 0.10	0.40	0.20	0.30
				Date	22/11/22	22/11/22	22/11/22	22/11/22	23/11/22	23/11/22	23/11/22	23/11/22	24/11/22	24/11/22
Inorganics - Metals														
Arsenic	C4SL	37	51			9.9	13							
Beryllium	S4UL	1.7	0.9			< 0.5	0.5							
Boron	S4UL	290	1.1			0.47	1.1							
Cadmium	C4SL	22	0.3			0.14	0.2							
Chromium (III)	S4UL	910	25			16	21							
Chromium (VI)	C4SL	21	<LoD			< 0.50	< 0.50							
Copper	S4UL	2400	25			13	25							
Cyanide - Free	ATK	34	<LoD			< 0.50	< 0.50							
Lead	C4SL	200	31			24	26							
Mercury	S4UL	40	0.07			< 0.05	0.07							
Nickel	S4UL	130	24			12	17							
Selenium	S4UL	250	0.79			0.53	0.58							
Vanadium	S4UL	410	45			34	45							
Zinc	S4UL	3700	66			39	48							
Inorganics - Asbestos														
Asbestos Type		N/A			-			-	-	-	-	-	-	-
Asbestos Screen		N/A			No Asbestos Detected			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Inorganics - Soil Parameters														
Organic matter		N/A				2.2	0.96							
Organics - PAH & Phenol														
Acenaphthene	S4UL	210	0.18			< 0.10	< 0.050							
Acenaphthylene	S4UL	170	<LoD			< 0.10	< 0.050							
Anthracene	S4UL	2400	0.19			< 0.10	< 0.050							
Benzo(a)anthracene	S4UL	7.2	0.54			< 0.10	0.15							
Benzo(a)pyrene	C4SL	5	0.52			< 0.10	0.18							
Benzo(b)fluoranthene	S4UL	2.6	0.71			< 0.10	0.2							
Benzo(ghi)perylene	S4UL	320	0.38			< 0.10	0.11							
Benzo(k)fluoranthene	S4UL	77	0.25			< 0.10	0.067							
Chrysene	S4UL	15	0.4			< 0.10	0.19							
Dibenz(a,h)anthracene	S4UL	0.24	<LoD			< 0.10	< 0.050							
Fluoranthene	S4UL	280	1.3			< 0.10	0.44							
Fluorene	S4UL	170	<LoD			< 0.10	< 0.050							
Indeno(1,2,3-cd)pyrene	S4UL	27	0.33			< 0.10	0.089							
Naphthalene	S4UL	2.3	0.18			< 0.10	< 0.050							
Phenanthrene	S4UL	95	0.65			< 0.10	0.18							
Phenol	S4UL	120	<LoD			< 0.10	< 0.050							
Pyrene	S4UL	620	1.1			< 0.10	0.39							
Organics - TPH CWG and BTEX														
Benzene	C4SL	0.87	<LoD				< 0.001							
Toluene	S4UL	130	<LoD				< 0.001							
Ethylbenzene	S4UL	47	<LoD				< 0.001							
o-Xylene	S4UL	60	<LoD				< 0.001							
m & p-xylene	S4UL	56	<LoD				< 0.001							
Xylenes (sum of)	S4UL	56	<LoD				< LoD							
EC05 - EC06 Aliphatic	S4UL	42	<LoD				< 1.0							
EC>06 - EC08 Aliphatic	S4UL	100	<LoD				< 1.0							
EC>08 - EC10 Aliphatic	S4UL	27	<LoD				< 1.0							
EC>10 - EC12 Aliphatic	S4UL	130	<LoD				< 1.0							
EC>12 - EC16 Aliphatic	S4UL	1100	<LoD				< 1.0							
EC>16 - EC21 Aliphatic	S4UL	65000	<LoD				< 1.0							
EC>21 - EC35 Aliphatic	S4UL	65000	<LoD				< 1.0							
EC5 - EC7 (benzene)	S4UL	70	<LoD				< 1.0							
EC7 - >EC8 (toluene)	S4UL	13	<LoD				< 1.0							
EC>08 - EC10 Aromatic	S4UL	34	<LoD				< 1.0							
EC>10 - EC12 Aromatic	S4UL	74	<LoD				< 1.0							
EC>12 - EC16 Aromatic	S4UL	140	<LoD				< 1.0							
EC>16 - EC21 Aromatic	S4UL	260	<LoD				< 1.0							
EC>21 - EC35 Aromatic	S4UL	1100	<LoD				< 1.0							
EC>35 - EC44 Aromatic	S4UL	1100	<LoD				< 1.0							

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
				Depth (m)	0.30	0.20 - 0.30	0.30 - 0.40	0.40	0.35	0.20	0.10	0.10
				Date	24/11/22	22/11/22	22/11/22	22/11/22	22/11/22	23/11/22	23/11/22	23/11/22
Inorganics - Metals												
Arsenic	C4SL	37	51			36		10	14	8.4	12	8.8
Beryllium	S4UL	1.7	0.9			0.5		< 0.5	0.5	< 0.5	< 0.5	< 0.5
Boron	S4UL	290	1.1			< 0.40		< 0.40	< 0.40	< 0.40	0.68	< 0.40
Cadmium	C4SL	22	0.3			0.23		0.11	0.12	0.12	0.19	0.14
Chromium (III)	S4UL	910	25			12		16	20	15	19	19
Chromium (VI)	C4SL	21	<LoD			< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Copper	S4UL	2400	25			12		6.5	8.2	5.9	10	8
Cyanide - Free	ATK	34	<LoD			< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead	C4SL	200	31			31		10	13	9.6	21	19
Mercury	S4UL	40	0.07			< 0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	S4UL	130	24			17		13	16	12	16	10
Selenium	S4UL	250	0.79			0.59		0.47	0.6	0.45	0.64	0.46
Vanadium	S4UL	410	45			28		31	38	27	30	39
Zinc	S4UL	3700	66			50		27	37	31	49	37
Inorganics - Asbestos												
Asbestos Type		N/A			-							
Asbestos Screen		N/A			No Asbestos Detected							
Inorganics - Soil Parameters												
Organic matter		N/A				0.89		2.9	0.8	0.67	1.5	2.6
Organics - PAH & Phenol												
Acenaphthene	S4UL	210	0.18			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Acenaphthylene	S4UL	170	<LoD			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Anthracene	S4UL	2400	0.19			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	S4UL	7.2	0.54			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	C4SL	5	0.52			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	S4UL	2.6	0.71			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	S4UL	320	0.38			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	S4UL	77	0.25			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Chrysene	S4UL	15	0.4			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	S4UL	0.24	<LoD			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Fluoranthene	S4UL	280	1.3			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Fluorene	S4UL	170	<LoD			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	S4UL	27	0.33			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Naphthalene	S4UL	2.3	0.18			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Phenanthrene	S4UL	95	0.65			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Phenol	S4UL	120	<LoD			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Pyrene	S4UL	620	1.1			< 0.10		< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Organics - TPH CWG and BTEX												
Benzene	C4SL	0.87	<LoD					< 0.001	< 0.001			
Toluene	S4UL	130	<LoD					< 0.001	< 0.001			
Ethylbenzene	S4UL	47	<LoD					< 0.001	< 0.001			
o-Xylene	S4UL	60	<LoD					< 0.001	< 0.001			
m & p-xylene	S4UL	56	<LoD					< 0.001	< 0.001			
Xylenes (sum of)	S4UL	56	<LoD					< LoD	< LoD			
EC05 - EC06 Aliphatic	S4UL	42	<LoD					< 1.0	< 1.0			
EC>06 - EC08 Aliphatic	S4UL	100	<LoD					< 1.0	< 1.0			
EC>08 - EC10 Aliphatic	S4UL	27	<LoD					< 1.0	< 1.0			
EC>10 - EC12 Aliphatic	S4UL	130	<LoD					< 1.0	< 1.0			
EC>12 - EC16 Aliphatic	S4UL	1100	<LoD					< 1.0	< 1.0			
EC>16 - EC21 Aliphatic	S4UL	65000	<LoD					< 1.0	< 1.0			
EC>21 - EC35 Aliphatic	S4UL	65000	<LoD					< 1.0	< 1.0			
EC5 - EC7 (benzene)	S4UL	70	<LoD					< 1.0	< 1.0			
EC7 - >EC8 (toluene)	S4UL	13	<LoD					< 1.0	< 1.0			
EC>08 - EC10 Aromatic	S4UL	34	<LoD					< 1.0	< 1.0			
EC>10 - EC12 Aromatic	S4UL	74	<LoD					< 1.0	< 1.0			
EC>12 - EC16 Aromatic	S4UL	140	<LoD					< 1.0	< 1.0			
EC>16 - EC21 Aromatic	S4UL	260	<LoD					< 1.0	< 1.0			
EC>21 - EC35 Aromatic	S4UL	1100	<LoD					< 1.0	< 1.0			
EC>35 - EC44 Aromatic	S4UL	1100	<LoD					< 1.0	< 1.0			

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value	Max value	Location	HP02	HP04	HP06	HP07	HP08	HP09	HP09	TP01	TP02	TP03
				Depth (m)	0.50 - 0.60	0.30 - 0.50	0.30 - 0.50	0.20	0.50	0.70	1.20	0.00 - 0.10	0.60	0.10
Organics - Volatile Organic Compounds (VOCs)														
1,1,1,2-Tetrachloroethane	S4UL	1.2	< LoD						< 0.002					
1,1,1-Trichloroethane	S4UL	8.8	< LoD						< 0.001					
1,1,2-Trichloroethane	CL:AIRE	0.6	< LoD						< 0.01					
1,1-Dichloroethane	CL:AIRE	2.4	< LoD						< 0.001					
1,1-Dichloroethene	CL:AIRE	0.23	< LoD						< 0.001					
1,1-Dichloropropene	*NGA*	*NGA*	< LoD						< 0.001					
1,2,3-Trichloropropane	*NGA*	*NGA*	< LoD						< 0.05					
1,2,4-Trimethylbenzene	CL:AIRE	0.35	< LoD						< 0.001					
1,2-Dibromo-3-chloropropane	*NGA*	*NGA*	< LoD						< 0.05					
1,2-Dibromoethane	*NGA*	*NGA*	< LoD						< 0.005					
1,2-Dichloroethane	S4UL	0.0071	< LoD						< 0.002					
1,2-Dichloropropane	CL:AIRE	0.024	< LoD						< 0.001					
1,3,5-Trimethylbenzene	*NGA*	*NGA*	< LoD						< 0.001					
1,3-Dichloropropane	*NGA*	*NGA*	< LoD						< 0.002					
2-Chlorotoluene	*NGA*	*NGA*	< LoD						< 0.001					
4-Chlorotoluene	*NGA*	*NGA*	< LoD						< 0.001					
Bromobenzene	CL:AIRE	0.87	< LoD						< 0.001					
Bromochloromethane	*NGA*	*NGA*	< LoD						< 0.005					
Bromodichloromethane	CL:AIRE	0.016	< LoD						< 0.005					
Bromoform	CL:AIRE	2.8	< LoD						< 0.001					
Bromomethane	*NGA*	*NGA*	< LoD						< 0.02					
Carbon Tetrachloride	S4UL	0.026	< LoD						< 0.001					
Chlorobenzene	S4UL	0.46	< LoD						< 0.001					
Chloroethane	CL:AIRE	8.3	< LoD						< 0.002					
Chloroform	S4UL	0.91	< LoD						< 0.001					
Chloromethane	CL:AIRE	0.0083	< LoD						< 0.001					
cis-1,2-Dichloroethene	CL:AIRE	0.11	< LoD						< 0.001					
cis-1,3-Dichloropropene	*NGA*	*NGA*	< LoD						< 0.01					
Dibromochloromethane	ATK	0.0878	< LoD						< 0.01					
Dibromomethane	*NGA*	*NGA*	< LoD						< 0.001					
Dichlorodifluoromethane	*NGA*	*NGA*	< LoD						< 0.001					
Isopropylbenzene	CL:AIRE	11	< LoD						< 0.001					
MTBE	CL:AIRE	49	< LoD						< 0.001					
n-Butylbenzene	*NGA*	*NGA*	< LoD						< 0.001					
n-Propylbenzene	CL:AIRE	34	< LoD						< 0.001					
p-Isopropyltoluene	*NGA*	*NGA*	< LoD						< 0.001					
sec-Butylbenzene	*NGA*	*NGA*	< LoD						< 0.001					
Styrene	CL:AIRE	8.1	< LoD						< 0.001					
tert-Butylbenzene	*NGA*	*NGA*	< LoD						< 0.001					
Tetrachloroethene	C4SL	0.31	< LoD						< 0.001					
trans-1,2-Dichloroethene	CL:AIRE	0.19	< LoD						< 0.001					
trans-1,3-Dichloropropene	*NGA*	*NGA*	< LoD						< 0.01					
Trichloroethene	C4SL	0.0093	< LoD						< 0.001					
Trichlorofluoromethane	*NGA*	*NGA*	< LoD						< 0.001					
Vinyl Chloride	C4SL	0.0064	< LoD						< 0.001					

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value	Max value	Location	TP04	TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
				Depth (m)	0.05	0.40	1.10 - 1.20	0.00 - 0.10	0.60	0.10	0.00 - 0.10	0.40	0.20	0.30
Organics - Volatile Organic Compounds (VOCs)														
1,1,1,2-Tetrachloroethane	S4UL	1.2	< LoD				< 0.002							
1,1,1-Trichloroethane	S4UL	8.8	< LoD				< 0.001							
1,1,2-Trichloroethane	CL:AIRE	0.6	< LoD				< 0.01							
1,1-Dichloroethane	CL:AIRE	2.4	< LoD				< 0.001							
1,1-Dichloroethene	CL:AIRE	0.23	< LoD				< 0.001							
1,1-Dichloropropene	*NGA*	*NGA*	< LoD				< 0.001							
1,2,3-Trichloropropane	*NGA*	*NGA*	< LoD				< 0.05							
1,2,4-Trimethylbenzene	CL:AIRE	0.35	< LoD				< 0.001							
1,2-Dibromo-3-chloropropane	*NGA*	*NGA*	< LoD				< 0.05							
1,2-Dibromoethane	*NGA*	*NGA*	< LoD				< 0.005							
1,2-Dichloroethane	S4UL	0.0071	< LoD				< 0.002							
1,2-Dichloropropane	CL:AIRE	0.024	< LoD				< 0.001							
1,3,5-Trimethylbenzene	*NGA*	*NGA*	< LoD				< 0.001							
1,3-Dichloropropane	*NGA*	*NGA*	< LoD				< 0.002							
2-Chlorotoluene	*NGA*	*NGA*	< LoD				< 0.001							
4-Chlorotoluene	*NGA*	*NGA*	< LoD				< 0.001							
Bromobenzene	CL:AIRE	0.87	< LoD				< 0.001							
Bromochloromethane	*NGA*	*NGA*	< LoD				< 0.005							
Bromodichloromethane	CL:AIRE	0.016	< LoD				< 0.005							
Bromoform	CL:AIRE	2.8	< LoD				< 0.001							
Bromomethane	*NGA*	*NGA*	< LoD				< 0.02							
Carbon Tetrachloride	S4UL	0.026	< LoD				< 0.001							
Chlorobenzene	S4UL	0.46	< LoD				< 0.001							
Chloroethane	CL:AIRE	8.3	< LoD				< 0.002							
Chloroform	S4UL	0.91	< LoD				< 0.001							
Chloromethane	CL:AIRE	0.0083	< LoD				< 0.001							
cis-1,2-Dichloroethene	CL:AIRE	0.11	< LoD				< 0.001							
cis-1,3-Dichloropropene	*NGA*	*NGA*	< LoD				< 0.01							
Dibromochloromethane	ATK	0.0878	< LoD				< 0.01							
Dibromomethane	*NGA*	*NGA*	< LoD				< 0.001							
Dichlorodifluoromethane	*NGA*	*NGA*	< LoD				< 0.001							
Isopropylbenzene	CL:AIRE	11	< LoD				< 0.001							
MTBE	CL:AIRE	49	< LoD				< 0.001							
n-Butylbenzene	*NGA*	*NGA*	< LoD				< 0.001							
n-Propylbenzene	CL:AIRE	34	< LoD				< 0.001							
p-Isopropyltoluene	*NGA*	*NGA*	< LoD				< 0.001							
sec-Butylbenzene	*NGA*	*NGA*	< LoD				< 0.001							
Styrene	CL:AIRE	8.1	< LoD				< 0.001							
tert-Butylbenzene	*NGA*	*NGA*	< LoD				< 0.001							
Tetrachloroethene	C4SL	0.31	< LoD				< 0.001							
trans-1,2-Dichloroethene	CL:AIRE	0.19	< LoD				< 0.001							
trans-1,3-Dichloropropene	*NGA*	*NGA*	< LoD				< 0.01							
Trichloroethene	C4SL	0.0093	< LoD				< 0.001							
Trichlorofluoromethane	*NGA*	*NGA*	< LoD				< 0.001							
Vinyl Chloride	C4SL	0.0064	< LoD				< 0.001							

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value	Max value	Location	TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
				Depth (m)	0.30	0.20 - 0.30	0.30 - 0.40	0.40	0.35	0.20	0.10	0.10
Organics - Volatile Organic Compounds (VOCs)												
1,1,1,2-Tetrachloroethane	S4UL	1.2	< LoD					< 0.002	< 0.002			
1,1,1-Trichloroethane	S4UL	8.8	< LoD					< 0.001	< 0.001			
1,1,2-Trichloroethane	CL:AIRE	0.6	< LoD					< 0.01	< 0.01			
1,1-Dichloroethane	CL:AIRE	2.4	< LoD					< 0.001	< 0.001			
1,1-Dichloroethene	CL:AIRE	0.23	< LoD					< 0.001	< 0.001			
1,1-Dichloropropene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
1,2,3-Trichloropropane	*NGA*	*NGA*	< LoD					< 0.05	< 0.05			
1,2,4-Trimethylbenzene	CL:AIRE	0.35	< LoD					< 0.001	< 0.001			
1,2-Dibromo-3-chloropropane	*NGA*	*NGA*	< LoD					< 0.05	< 0.05			
1,2-Dibromoethane	*NGA*	*NGA*	< LoD					< 0.005	< 0.005			
1,2-Dichloroethane	S4UL	0.0071	< LoD					< 0.002	< 0.002			
1,2-Dichloropropane	CL:AIRE	0.024	< LoD					< 0.001	< 0.001			
1,3,5-Trimethylbenzene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
1,3-Dichloropropane	*NGA*	*NGA*	< LoD					< 0.002	< 0.002			
2-Chlorotoluene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
4-Chlorotoluene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
Bromobenzene	CL:AIRE	0.87	< LoD					< 0.001	< 0.001			
Bromochloromethane	*NGA*	*NGA*	< LoD					< 0.005	< 0.005			
Bromodichloromethane	CL:AIRE	0.016	< LoD					< 0.005	< 0.005			
Bromoform	CL:AIRE	2.8	< LoD					< 0.001	< 0.001			
Bromomethane	*NGA*	*NGA*	< LoD					< 0.02	< 0.02			
Carbon Tetrachloride	S4UL	0.026	< LoD					< 0.001	< 0.001			
Chlorobenzene	S4UL	0.46	< LoD					< 0.001	< 0.001			
Chloroethane	CL:AIRE	8.3	< LoD					< 0.002	< 0.002			
Chloroform	S4UL	0.91	< LoD					< 0.001	< 0.001			
Chloromethane	CL:AIRE	0.0083	< LoD					< 0.001	< 0.001			
cis-1,2-Dichloroethene	CL:AIRE	0.11	< LoD					< 0.001	< 0.001			
cis-1,3-Dichloropropene	*NGA*	*NGA*	< LoD					< 0.01	< 0.01			
Dibromochloromethane	ATK	0.0878	< LoD					< 0.01	< 0.01			
Dibromomethane	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
Dichlorodifluoromethane	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
Isopropylbenzene	CL:AIRE	11	< LoD					< 0.001	< 0.001			
MTBE	CL:AIRE	49	< LoD					< 0.001	< 0.001			
n-Butylbenzene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
n-Propylbenzene	CL:AIRE	34	< LoD					< 0.001	< 0.001			
p-Isopropyltoluene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
sec-Butylbenzene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
Styrene	CL:AIRE	8.1	< LoD					< 0.001	< 0.001			
tert-Butylbenzene	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
Tetrachloroethene	C4SL	0.31	< LoD					< 0.001	< 0.001			
trans-1,2-Dichloroethene	CL:AIRE	0.19	< LoD					< 0.001	< 0.001			
trans-1,3-Dichloropropene	*NGA*	*NGA*	< LoD					< 0.01	< 0.01			
Trichloroethene	C4SL	0.0093	< LoD					< 0.001	< 0.001			
Trichlorofluoromethane	*NGA*	*NGA*	< LoD					< 0.001	< 0.001			
Vinyl Chloride	C4SL	0.0064	< LoD					< 0.001	< 0.001			

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value	Max value	Location	HP02	HP04	HP06	HP07	HP08	HP09	HP09	TP01	TP02	TP03
				Depth (m)	0.50 - 0.60	0.30 - 0.50	0.30 - 0.50	0.20	0.50	0.70	1.20	0.00 - 0.10	0.60	0.10
Organics - Semi-Volatile Organic Compounds (SVOCs)														
Chlorophenols (sum of)	S4UL	0.87	< LoD						< LoD					
Cresols (sum of)	CL:AIRE	80	< LoD						< LoD					
o-Cresol	*NGA*	*NGA*	< LoD						< 0.050					
1,2,4-Trichlorobenzene	S4UL	2.6	< LoD						< 0.050					
1,2-Dichlorobenzene	S4UL	23	< LoD						< 0.001					
1,3-Dichlorobenzene	S4UL	0.4	< LoD						< 0.001					
1,4-Dichlorobenzene	S4UL	61	< LoD						< 0.001					
2,4,5-Trichlorophenol	*NGA*	*NGA*	< LoD						< 0.050					
2,4,6-Trichlorophenol	*NGA*	*NGA*	< LoD						< 0.050					
2,4-Dichlorophenol	*NGA*	*NGA*	< LoD						< 0.050					
2,4-Dimethylphenol	CL:AIRE	19	< LoD						< 0.050					
2,4-Dinitrotoluene	CL:AIRE	1.5	< LoD						< 0.050					
2,6-Dinitrotoluene	CL:AIRE	0.78	< LoD						< 0.050					
2-Chloronaphthalene	CL:AIRE	3.7	< LoD						< 0.050					
2-Chlorophenol	*NGA*	*NGA*	< LoD						< 0.050					
2-Methyl-4,6-Dinitrophenol	*NGA*	*NGA*	< LoD						< 0.050					
2-Methylnaphthalene	*NGA*	*NGA*	< LoD						< 0.050					
2-Nitroaniline	*NGA*	*NGA*	< LoD						< 0.050					
2-Nitrophenol	*NGA*	*NGA*	< LoD						< 0.050					
3-Nitroaniline	*NGA*	*NGA*	< LoD						< 0.050					
4-Bromophenyl phenyl ether	*NGA*	*NGA*	< LoD						< 0.050					
4-Chloro-3-methylphenol	*NGA*	*NGA*	< LoD						< 0.050					
4-Chloroaniline	*NGA*	*NGA*	< LoD						< 0.050					
4-Chlorophenyl phenyl ether	*NGA*	*NGA*	< LoD						< 0.050					
4-Nitroaniline	*NGA*	*NGA*	< LoD						< 0.050					
4-Nitrophenol	*NGA*	*NGA*	< LoD						< 0.050					
Azobenzene	*NGA*	*NGA*	< LoD						< 0.050					
Benzyl butyl phthalate	CL:AIRE	1400	< LoD						< 0.050					
bis(2-chloroethoxy)methane	*NGA*	*NGA*	< LoD						< 0.050					
bis(2-chloroethyl)ether	*NGA*	*NGA*	< LoD						< 0.050					
bis(2-ethylhexyl)phthalate	CL:AIRE	280	0.35						< 0.050					
Carbazole	*NGA*	*NGA*	< LoD						< 0.050					
Dibenzofuran	*NGA*	*NGA*	< LoD						< 0.050					
Dibutyl phthalate	CL:AIRE	13	< LoD						< 0.050					
Diethyl phthalate	CL:AIRE	120	< LoD						< 0.050					
Dimethyl phthalate	*NGA*	*NGA*	< LoD						< 0.050					
Di-n-octyl phthalate	CL:AIRE	2300	< LoD						< 0.050					
Hexachlorobenzene	S4UL	1.8	< LoD						< 0.050					
Hexachlorobutadiene	S4UL	0.29	< LoD						< 0.050					
Hexachlorocyclopentadiene	*NGA*	*NGA*	< LoD						< 0.050					
Hexachloroethane	CL:AIRE	0.2	< LoD						< 0.050					
Isophorone	*NGA*	*NGA*	< LoD						< 0.050					
Nitrobenzene	*NGA*	*NGA*	< LoD						< 0.050					
p-Cresol	*NGA*	*NGA*	< LoD						< 0.050					

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value	Max value	Location	TP04	TP04	TP04	TP05	TP08	TP09	TP10	TP11	TP13	TP14
				Depth (m)	0.05	0.40	1.10 - 1.20	0.00 - 0.10	0.60	0.10	0.00 - 0.10	0.40	0.20	0.30
Organics - Semi-Volatile Organic Compounds (SVOCs)														
Chlorophenols (sum of)	S4UL	0.87	< LoD				< LoD							
Cresols (sum of)	CL:AIRE	80	< LoD				< LoD							
o-Cresol	*NGA*	*NGA*	< LoD				< 0.050							
1,2,4-Trichlorobenzene	S4UL	2.6	< LoD				< 0.001							
1,2-Dichlorobenzene	S4UL	23	< LoD				< 0.001							
1,3-Dichlorobenzene	S4UL	0.4	< LoD				< 0.001							
1,4-Dichlorobenzene	S4UL	61	< LoD				< 0.001							
2,4,5-Trichlorophenol	*NGA*	*NGA*	< LoD				< 0.050							
2,4,6-Trichlorophenol	*NGA*	*NGA*	< LoD				< 0.050							
2,4-Dichlorophenol	*NGA*	*NGA*	< LoD				< 0.050							
2,4-Dimethylphenol	CL:AIRE	19	< LoD				< 0.050							
2,4-Dinitrotoluene	CL:AIRE	1.5	< LoD				< 0.050							
2,6-Dinitrotoluene	CL:AIRE	0.78	< LoD				< 0.050							
2-Chloronaphthalene	CL:AIRE	3.7	< LoD				< 0.050							
2-Chlorophenol	*NGA*	*NGA*	< LoD				< 0.050							
2-Methyl-4,6-Dinitrophenol	*NGA*	*NGA*	< LoD				< 0.050							
2-Methylnaphthalene	*NGA*	*NGA*	< LoD				< 0.050							
2-Nitroaniline	*NGA*	*NGA*	< LoD				< 0.050							
2-Nitrophenol	*NGA*	*NGA*	< LoD				< 0.050							
3-Nitroaniline	*NGA*	*NGA*	< LoD				< 0.050							
4-Bromophenyl phenyl ether	*NGA*	*NGA*	< LoD				< 0.050							
4-Chloro-3-methylphenol	*NGA*	*NGA*	< LoD				< 0.050							
4-Chloroaniline	*NGA*	*NGA*	< LoD				< 0.050							
4-Chlorophenyl phenyl ether	*NGA*	*NGA*	< LoD				< 0.050							
4-Nitroaniline	*NGA*	*NGA*	< LoD				< 0.050							
4-Nitrophenol	*NGA*	*NGA*	< LoD				< 0.050							
Azobenzene	*NGA*	*NGA*	< LoD				< 0.050							
Benzyl butyl phthalate	CL:AIRE	1400	< LoD				< 0.050							
bis(2-chloroethoxy)methane	*NGA*	*NGA*	< LoD				< 0.050							
bis(2-chloroethyl)ether	*NGA*	*NGA*	< LoD				< 0.050							
bis(2-ethylhexyl)phthalate	CL:AIRE	280	0.35				0.35							
Carbazole	*NGA*	*NGA*	< LoD				< 0.050							
Dibenzofuran	*NGA*	*NGA*	< LoD				< 0.050							
Dibutyl phthalate	CL:AIRE	13	< LoD				< 0.050							
Diethyl phthalate	CL:AIRE	120	< LoD				< 0.050							
Dimethyl phthalate	*NGA*	*NGA*	< LoD				< 0.050							
Di-n-octyl phthalate	CL:AIRE	2300	< LoD				< 0.050							
Hexachlorobenzene	S4UL	1.8	< LoD				< 0.050							
Hexachlorobutadiene	S4UL	0.29	< LoD				< 0.050							
Hexachlorocyclopentadiene	*NGA*	*NGA*	< LoD				< 0.050							
Hexachloroethane	CL:AIRE	0.2	< LoD				< 0.050							
Isophorone	*NGA*	*NGA*	< LoD				< 0.050							
Nitrobenzene	*NGA*	*NGA*	< LoD				< 0.050							
p-Cresol	*NGA*	*NGA*	< LoD				< 0.050							

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value	Max value	Location	TP15	WS01	WS03	WS06	WS07	WS08	WS09	WS11
				Depth (m)	0.30	0.20 - 0.30	0.30 - 0.40	0.40	0.35	0.20	0.10	0.10
Organics - Semi-Volatile Organic Compounds (SVOCs)												
Chlorophenols (sum of)	S4UL	0.87	< LoD					< LoD	< LoD			
Cresols (sum of)	CL:AIRE	80	< LoD					< LoD	< LoD			
o-Cresol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
1,2,4-Trichlorobenzene	S4UL	2.6	< LoD					< 0.001	< 0.001			
1,2-Dichlorobenzene	S4UL	23	< LoD					< 0.050	< 0.001			
1,3-Dichlorobenzene	S4UL	0.4	< LoD					< 0.001	< 0.001			
1,4-Dichlorobenzene	S4UL	61	< LoD					< 0.001	< 0.050			
2,4,5-Trichlorophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2,4,6-Trichlorophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2,4-Dichlorophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2,4-Dimethylphenol	CL:AIRE	19	< LoD					< 0.050	< 0.050			
2,4-Dinitrotoluene	CL:AIRE	1.5	< LoD					< 0.050	< 0.050			
2,6-Dinitrotoluene	CL:AIRE	0.78	< LoD					< 0.050	< 0.050			
2-Chloronaphthalene	CL:AIRE	3.7	< LoD					< 0.050	< 0.050			
2-Chlorophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2-Methyl-4,6-Dinitrophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2-Methylnaphthalene	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2-Nitroaniline	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
2-Nitrophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
3-Nitroaniline	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
4-Bromophenyl phenyl ether	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
4-Chloro-3-methylphenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
4-Chloroaniline	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
4-Chlorophenyl phenyl ether	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
4-Nitroaniline	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
4-Nitrophenol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Azobenzene	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Benzyl butyl phthalate	CL:AIRE	1400	< LoD					< 0.050	< 0.050			
bis(2-chloroethoxy)methane	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
bis(2-chloroethyl)ether	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
bis(2-ethylhexyl)phthalate	CL:AIRE	280	0.35					< 0.050	< 0.050			
Carbazole	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Dibenzofuran	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Dibutyl phthalate	CL:AIRE	13	< LoD					< 0.050	< 0.050			
Diethyl phthalate	CL:AIRE	120	< LoD					< 0.050	< 0.050			
Dimethyl phthalate	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Di-n-octyl phthalate	CL:AIRE	2300	< LoD					< 0.050	< 0.050			
Hexachlorobenzene	S4UL	1.8	< LoD					< 0.050	< 0.050			
Hexachlorobutadiene	S4UL	0.29	< LoD					< 0.050	< 0.050			
Hexachlorocyclopentadiene	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Hexachloroethane	CL:AIRE	0.2	< LoD					< 0.050	< 0.050			
Isophorone	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
Nitrobenzene	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			
p-Cresol	*NGA*	*NGA*	< LoD					< 0.050	< 0.050			

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Acute human health risk (soils)

Scenario	Off-site public exposure
Critical receptor	Young female child (1 to 2 years old)
Oral exposure	N/A
Demal exposure	N/A
Inhalation exposure	30 mins exposure to a child off-site, from dusts and vapours generated during excavation

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	HP02	HP04	HP07	HP08	HP09	HP09	TP04	TP04	WS01	WS06	WS07
					Depth (m)	0.50 - 0.60	0.30 - 0.50	0.20	0.50	0.70	1.20	0.40	1.10 - 1.20	0.20 - 0.30	0.40	0.35
					Date	21/11/22	21/11/22	24/11/22	25/11/22	13/01/23	13/01/23	22/11/22	22/11/22	22/11/22	22/11/22	22/11/22
Inorganics																
Arsenic	AGAC	Inhalation	7,000,000	51		11	13	51	11	< 0.5	13	9.9	13	36	10	14
Cadmium	AGAC	Inhalation	1,800,000	0.3		0.26	0.14	0.3	0.11	< 0.10	0.24	0.14	0.2	0.23	0.11	0.12
Cyanide - Free	AGAC	Inhalation	380	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organics																
Benzene	AGAC	Inhalation	120	<LoD					< 0.001				< 0.001		< 0.001	< 0.001
Phenol	AGAC	**sat.**	**sat.**	<LoD		< 0.10	< 0.10	< 0.10	< 0.050	< 0.10	< 0.10	< 0.10	< 0.050	< 0.10	< 0.050	< 0.050
Trichloroethene	AGAC	Inhalation	8,000	<LoD					< 0.001				< 0.001		< 0.001	< 0.001
Vinyl Chloride	AGAC	Inhalation	98	<LoD					< 0.001				< 0.001		< 0.001	< 0.001

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Acute human health risk (soils)

Scenario	Off-site public exposure
Critical receptor	Young female child (1 to 2 years old)
Oral exposure	N/A
Demal exposure	N/A
Inhalation exposure	30 mins exposure to a child off-site, from dusts and vapours generated during excavation

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	WS08	WS09	WS11
					Depth (m)	0.20	0.10	0.10
					Date	23/11/22	23/11/22	23/11/22
Inorganics								
Arsenic	AGAC	Inhalation	7,000,000	51		8.4	12	8.8
Cadmium	AGAC	Inhalation	1,800,000	0.3		0.12	0.19	0.14
Cyanide - Free	AGAC	Inhalation	380	<LoD		*< 0.50*	*< 0.50*	*< 0.50*
Organics								
Benzene	AGAC	Inhalation	120	<LoD				
Phenol	AGAC	**sat.**	**sat.**	<LoD		*< 0.10*	*< 0.10*	*< 0.10*
Trichloroethene	AGAC	Inhalation	8,000	<LoD				
Vinyl Chloride	AGAC	Inhalation	98	<LoD				

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Acute human health risk (soils)

Scenario	Occupational exposure (construction worker)
Critical receptor	Adult female worker
Oral exposure	Ingestion of soil and dusts over a single working day
Demal exposure	Soil being left on the skin for several hours, assumed no PPE worn
Inhalation exposure	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	HP02	HP04	HP07	HP08	HP09	HP09	TP04	TP04	WS01	WS06	WS07
					Depth (m)	0.50 - 0.60	0.30 - 0.50	0.20	0.50	0.70	1.20	0.40	1.10 - 1.20	0.20 - 0.30	0.40	0.35
					Date	21/11/22	21/11/22	24/11/22	25/11/22	13/01/23	13/01/23	22/11/22	22/11/22	22/11/22	22/11/22	22/11/22
Inorganics																
Arsenic	AGAC	Oral	7,000	51		11	13	51	11	*< 0.5*	13	9.9	13	36	10	14
Cadmium	AGAC	Oral	12,000	0.3		0.26	0.14	0.3	0.11	*< 0.10*	0.24	0.14	0.2	0.23	0.11	0.12
Cyanide - Free	AGAC	Oral & Inhalation	1,400	<LoD		*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*
Organics																
Benzene	AGAC	Inhalation	240	<LoD					*< 0.001*				*< 0.001*		*< 0.001*	*< 0.001*
Phenol	AGAC	**sat.**	**sat.**	<LoD		*< 0.10*	*< 0.10*	*< 0.10*	*< 0.050*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.050*	*< 0.10*	*< 0.050*	*< 0.050*
Trichloroethene	AGAC	Inhalation	16,000	<LoD					*< 0.001*				*< 0.001*		*< 0.001*	*< 0.001*
Vinyl Chloride	AGAC	Inhalation	220	<LoD					*< 0.001*				*< 0.001*		*< 0.001*	*< 0.001*

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Acute human health risk (soils)

Scenario	Occupational exposure (construction worker)
Critical receptor	Adult female worker
Oral exposure	Ingestion of soil and dusts over a single working day
Demal exposure	Soil being left on the skin for several hours, assumed no PPE worn
Inhalation exposure	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	WS08	WS09	WS11
					Depth (m)	0.20	0.10	0.10
					Date	23/11/22	23/11/22	23/11/22
Inorganics								
Arsenic	AGAC	Oral	7,000	51		8.4	12	8.8
Cadmium	AGAC	Oral	12,000	0.3		0.12	0.19	0.14
Cyanide - Free	AGAC	Oral & Inhalation	1,400	<LoD		*< 0.50*	*< 0.50*	*< 0.50*
Organics								
Benzene	AGAC	Inhalation	240	<LoD				
Phenol	AGAC	**sat.**	**sat.**	<LoD		*< 0.10*	*< 0.10*	*< 0.10*
Trichloroethene	AGAC	Inhalation	16,000	<LoD				
Vinyl Chloride	AGAC	Inhalation	220	<LoD				

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Appendix J Waste Characterisation Analysis

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Waste Classification Assessment Summary

Waste population	Made Ground
Hazard assessment	Non-hazardous waste
List of waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03

Hazard property	Assessment
HP1 - Explosive	Not hazardous by HP1
HP2 - Oxidising	Not hazardous by HP2
HP3 - Flammable	Not hazardous by HP3
HP4 - Irritant	Not hazardous by HP4
HP5 - STOT & aspiration toxicity	Not hazardous by HP5
HP6 - Acute toxicity	Not hazardous by HP6
HP7 - Carcinogenic	Not hazardous by HP7
HP8 - Corrosive	Not hazardous by HP8
HP9 - Infectious	Not hazardous by HP9
HP10 - Toxic for reproduction	Not hazardous by HP10
HP11 - Mutagenic	Not hazardous by HP11
HP12 - Release of an acute toxic gas	Not hazardous by HP12
HP13 - Sensitising	Not hazardous by HP13
HP14 - Ecotoxic	Not hazardous by HP14

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Waste classification

Overall assessment	
Waste population	Made Ground
Hazard assessment	Non-hazardous waste
List of Waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03
Is the statistical approach non-parametric method B utilised?	No
Moisture content correction factor	No correction made

Asbestos assessment		
Query	Value	Assessment
Are bulk ACMs visually identifiable?	No	Non-hazardous
Have free fibres been detected?	No	Non-hazardous
What is the free fibre concentration (%)?	N/A	Non-hazardous

Flammability assessment	
Comment	Assessment
The waste is not considered flammable as it is a solid waste without a free draining liquid phase, and the TPH concentration and composition is not considered to present a likely flammable hazard.	Non-hazardous

Hydrocarbon assessment	
Query	Assessment
Is the origin of the oil contamination known?	Unknown oil
B(a)P : TPH ratio (%)	Not required
B(a)P marker assessment	Not required

pH assessment		
Query	Value	Assessment
Are all substances present in the waste known?	No	See pH assessment below
pH - Min	7.20	Non-hazardous
pH - Max	10.50	Non-hazardous

Oxidising assessment	
Comment	Assessment
Cr (VI) is the only compound with an oxidising hazard statement (H271). On review, the concentration is considered too low to present a viable oxidising hazard in a waste soil	Non-hazardous

Ecotoxic assessment			
Equation	Sum	Criteria	Assessment
WM3. Eq. 2	0.00%	25%	Non-hazardous
WM3 Eq. 3	0.00%	25%	Non-hazardous
WM3 Eq. 4	0.00%	25%	Non-hazardous

Compound hazard assessments

						Hazard Property Description	Irritant			Specific Target Organ Toxicity / Aspiration Toxicity				Acute Toxicity								Carcinogenic		Corrosive	Toxic for reproduction		Mutagenic		Sensitising		Ecotoxic				Substance specific concentration limits					
						Hazard Property	HP4			HP5				HP6								HP7		HP8	HP10		HP11		HP13		HP14				STOT				Carc.	Repr.
						Hazard Statement	H314	H315 and/or H319	H318	H304	H335	H372	H373	H300	H301	H302	H310	H311	H312	H330	H330	H331	H332	H350	H351	H314	H360	H361	H340	H341	H317	H334	H400	H410	H411	H413	H335 (CrO3)	H372 (CdS)	H373 (CdS)	H373 (PbSO4)	H350 (BaP) (Da,hA)	H361 (PbSO4)
Contaminant	Max. concentration (mg/kg)	Realistic worst case compound	Mass conversion factor	MC applied?	Hazard Class / Compound concentration (%)		Skin Corr.1A	Skin Irrit.2 Eye Irrit.2	Eye Dam.1	Asp.Tox.1	STOT SE.3	STOT RE.1	STOT RE.2	Acute Tox.2 (Oral)	Acute Tox.3 (Oral)	Acute Tox.4 (Oral)	Acute Tox.1 (Dermal)	Acute Tox.3 (Dermal)	Acute Tox.4 (Dermal)	Acute Tox.1 (Inhal.)	Acute Tox.2 (Inhal)	Acute Tox.3 (Inhal)	Acute Tox.4 (Inhal)	Carc.1A Carc.1B	Carc.2	Skin Corr.1A Skin Corr.1B	Repr.1A Repr.1B	Repr.2	Muta.1A Muta.1B	Muta 2.	Skin Sens.1	Resp. Sens. 1	Aquatic Acute.1	Aquatic Chronic.1	Aquatic Chronic.2	Aquatic Chronic.4	STOT SE.3	STOT RE.1	STOT RE.2	STOT RE.2	Carc.1B	Repr.2
Cyanide - Total	0.8	Salts of hydrogen cyanide, using sodium cyanide	1.88	N/A	0.000									0.000			0.000			0.000	0.000											0.000	0.000								
Arsenic	51.0	Nickel diarsenide	1.78	N	0.009							0.009												0.009						0.009			0.009	0.009								
Arsenic (secondary)	51.0	Arsenic trioxide	1.32	N	0.007		0.007							0.007												0.007																
Beryllium	0.9	Beryllium oxide	2.78	N	0.000			0.000			0.000	0.000			0.000						0.000	0.000			0.000						0.000											
Cadmium	0.3	Cadmium sulfide	1.29	N	0.000							See specific assessment	See specific assessment			0.000									0.000				0.000		0.000					0.000								
Cadmium (secondary)	0.3	Cadmium oxide	1.14	N	0.000															0.000	0.000												0.000	0.000				0.000	0.000			
Chromium (III)	25.0	Chromium (III) oxide	1.46	N	0.004			0.004								0.004										0.004					0.004	0.004				0.004					
Chromium (VI)	0.5	Chromium (VI) trioxide	1.92	N/A	0.000		0.000				See specific assessment	0.000			0.000			0.000		0.000	0.000			0.000		0.000		0.000		0.000		0.000	0.000	0.000			0.000					
Copper	25.0	Copper (I) oxide	1.25	N	0.003																												0.003	0.003								
Copper (secondary)	25.0	Copper(II) oxide	1.13	N	0.003				0.003							0.003							0.003																			
Lead	31.0	Lead compounds, using lead sulphate	1.46	N	0.005								See specific assessment			0.005							0.005		0.005		0.005		0.005				0.005	0.005						0.005		0.005
Mercury	0.1	Mercury dichloride	1.35	N	0.000		0.000					0.000		0.000												0.000		0.000		0.000			0.000	0.000								
Nickel	24.0	Nickel carbonate	2.02	N	0.005			0.005				0.005				0.005							0.005	0.005			0.005		0.005	0.005	0.005		0.005	0.005								
Selenium	0.8	Selenium compounds, using selenium dioxide	1.41	N	0.000								0.000		0.000								0.000										0.000	0.000								
Zinc	66.0	Zinc sulphide	1.49	N	0.010			0.010																						0.010	0.010		0.010								
Vanadium	45.0	Vanadium pentoxide	1.79	N	0.008						0.008	0.008				0.008							0.008				0.008		0.008					0.008							
Naphthalene	0.2	Naphthalene	1	N/A	0.000										0.000									0.000								0.000	0.000								
Acenaphthylene	0.1	Acenaphthylene	1	N/A	0.000			0.000			0.000				0.000	0.000				0.000	0.000												0.000	0.000								
Acenaphthene	0.2	Acenaphthene	1	N/A	0.000			0.000																									0.000	0.000								
Fluorene	0.1	Fluorene	1	N/A	0.000			0.000			0.000																						0.000	0.000								
Phenanthrene	0.7	Phenanthrene	1	N/A	0.000										0.000																		0.000	0.000								
Anthracene	0.2	Anthracene	1	N/A	0.000			0.000			0.000																			0.000			0.000	0.000								
Fluoranthene	1.3	Fluoranthene	1	N/A	0.000			0.000							0.000																		0.000	0.000								
Pyrene	1.1	Pyrene	1	N/A	0.000			0.000			0.000																						0.000	0.000								
Benzo(a)anthracene	0.5	Benzo(a)anthracene	1	N/A	0.000																			0.000									0.000	0.000								
Chrysene	0.4	Chrysene	1	N/A	0.000																			0.000					0.000				0.000	0.000								
Benzo(b)fluoranthene	0.7	Benzo(b)fluoranthene	1	N/A	0.000																			0.000									0.000	0.000								
Benzo(k)fluoranthene	0.3	Benzo(k)fluoranthene	1	N/A	0.000																			0.000									0.000	0.000								
Benzo(a)pyrene	0.5	Benzo(a)pyrene	1	N/A	0.000																			See specific assessment			0.000		0.000		0.000		0.000	0.000						0.000		
Indeno(1,2,3-cd)pyrene	0.3	Indeno(1,2,3-cd)pyrene	1	N/A	0.000																				0.000																	
Dibenz(a,h)anthracene	0.1	Dibenz(a,h)anthracene	1	N/A	0.000																			See specific assessment									0.000	0.000						0.000		
Benzo(ghi)perylene	0.4	Benzo(ghi)perylene	1	N/A	0.000																												0.000	0.000								
Total TPH	10.0	Unknown oil	1	N/A	0.001					0.001			0.001											See specific assessment			0.001	See specific assessment					0.001									
Benzene	0.0	Benzene	1	N/A	0.000			0.000		0.000		0.000												0.000				0.000														
Toluene	0.0	Toluene	1	N/A	0.000			0.000		0.000			0.000														0.000																
Ethylbenzene	0.0	Ethylbenzene	1	N/A	0.000					0.000			0.000									0.000																				
Xylenes	0.00	Xylenes	1	N/A	0.000			0.000											0.000			0.000																				
Note:																																									
					Cut-off value (%)		1%	1%	1%	N/A	N/A	N/A	N/A	0.1%	0.1%	1%	0.1%	0.1%	1%	0.1%	0.1%	0.1%	1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1%	0.1%	1%	1%	N/A	N/A	N/A	N/A	N/A	N/A
					Total (or greatest)		**0.00%**	**0.00%**	**0.00%**	**0.00%**	**(0.01%)**	**(0.01%)**	**(0%)**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**(0.01%)**	**(0%)**	**0.01%**	**(0%)**	**(0.01%)**	**(0%)**	**(0.01%)**	**(0.01%)**	**(0.01%)**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**(0%)**	**(0%)**	**(0%)**	**(0%)**	**(0%)**	**(0%)**
					Hazard threshold		1%	20%	10%	10%	20%	1%	10%	0.25%	5%	25%	0.25%	15%	55%	0.1%	0.5%	3.5%	22.5%	0.1%	1%	5%	0.3%	3%	0.1%	1%	10%	10%	WM3 eq.2	WM3 eq.3 & eq.4		WM3 eq.4	1.0%	10.0%	0.1%	0.5%	0.01%	2.5%
					Hazardous		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

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Waste acceptance

Parameter	Inert waste landfill	Stable non-reactive hazardous waste in a non-hazardous landfill cell (SNRHW)	Hazardous waste landfill	Location	CS01	HP03
				Depth (m)	0.00 - 0.10	0.40 - 0.50
				Date	24/11/22	21/11/22
Parameters determined on the waste						
Total organic carbon	3	5	6		1.8	0.37
Loss on ignition			10		3.3	1.6
BTEX	6				< 0.010	< 0.010
PCBs (7 congeners)	1				< 0.10	< 0.10
Mineral oil	500				< 10	< 10
PAH (17 congeners)	100				< 2.0	< 2.0
pH		6			8	8.8
Acid neutralisation capacity (pH 6)		To be evaluated	To be evaluated		0.003	< 0.0020
Limit values (mg kg^{-1}) for compliance test using BN 12457-3 at L/S 10 l						
Arsenic	0.5	2	25		0.011	0.03
Barium	20	100	300		0.011	0.0074
Cadmium	0.04	1	5		< 0.00011	< 0.00011
Chromium (III)	0.5	10	70		< 0.0005	< 0.0005
Copper	2	50	100		0.0041	0.0028
Mercury	0.01	0.2	2		< 0.00005	< 0.00005
Molybdenum	0.5	10	30		0.0074	0.012
Nickel	0.4	10	40		0.0063	0.0057
Lead	0.5	10	50		< 0.0005	0.0049
Antimony	0.06	0.7	5		0.0007	0.02
Selenium	0.1	0.5	7		0.0056	0.0069
Zinc	4	50	200		< 0.003	< 0.003
Chloride	800	15,000	25,000		< 10	< 10
Fluoride	10	150	500		2.8	1.3
Sulphate	1,000	20,000	50,000		< 10	54
Total dissolved solids	4,000	60,000	100,000		840	570
Phenol	1				< 0.50	< 0.50
Dissolved organic carbon	500	800	1000		77	100
Classifications						
Waste classification					**Non-hazardous**	**Non-hazardous**
Landfill type					Inert	Inert

Key Notes:
1) The values for total dissolved solids (TDS) can be used alternatively to the values for sulphate and chloride.

2) Soils with TOC values over the limit value may still be accepted provided the DOC value falls are below it's respective limit value.

3) In a hazardous waste, either the TOC or LOI must be used.

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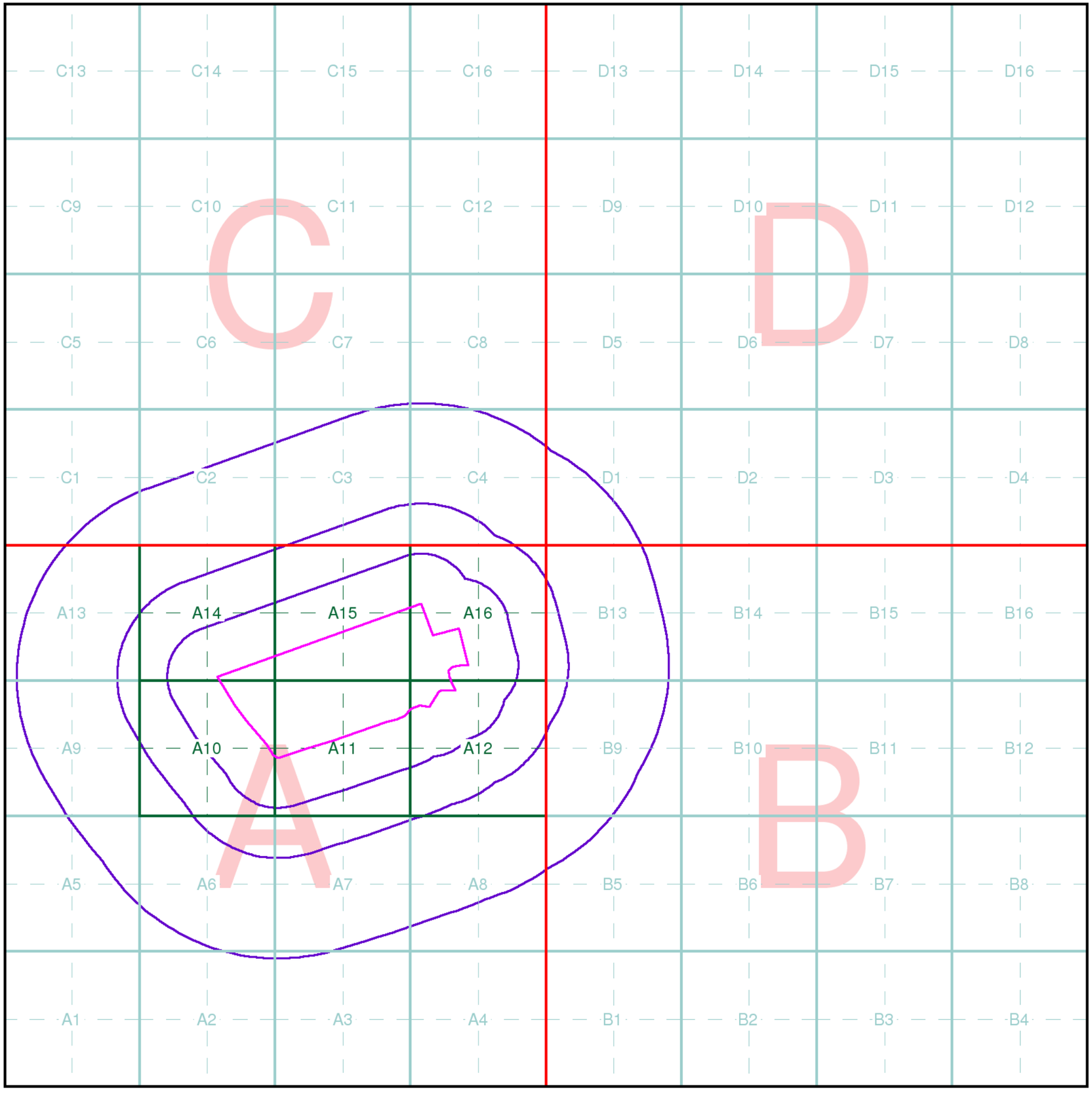
Appendix K Envirocheck Report



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Index Map

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

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

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

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

A selection of organisations who provide data within this report:

Map data

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Ms S Ltd, Soiltechnics, Cedar Barn, White Lodge,
Walgrave, Northampton, NN6 9PY

Order Details

Order Number:	304894834_1_1
Customer Ref:	STU5875
National Grid Reference:	569390, 266120
Site Area (Ha):	51.85
Search Buffer (m):	1000

Site Details

Lanwades Hall, Newmarket, CB8 7UA

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

Landmark INFORMATION GROUP

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

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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
304894834_1_1

Customer Reference:
STU5875

National Grid Reference:
569140, 265870

Slice:
A

Site Area (Ha):
51.85

Search Buffer (m):
1000

Site Details:

Lanwades Hall
Newmarket
CB8 7UA

Client Details:

Ms S Ltd
Soiltechnics
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

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Contents

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

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	3	1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 3			Yes	
Pollution Incidents to Controlled Waters	pg 4			1	
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances	pg 4	10	1		
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 6	4		1	(*18)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 11	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 13	4	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 13	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 13	Yes	n/a	n/a	n/a
Source Protection Zones	pg 13	3			
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 14			1	1

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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					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 15	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 15	1	2	1	2
Potentially Infilled Land (Water)					
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 16	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 16	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 17	1	2	2	2
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	pg 18	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 18	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 19	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 19	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 19	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 19	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 21	2	21	6	
Fuel Station Entries					
Points of Interest - Commercial Services	pg 23			2	
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 23	1	3	1	
Points of Interest - Public Infrastructure					
Points of Interest - Recreational and Environmental					
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					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas	pg 25				1
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 25	2			
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: Limited Potential for Groundwater Flooding to Occur	A11NW (SE)	0	1	569135 265875
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NW (E)	3	1	570000 266000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A16SW (NE)	82	1	570000 266450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NW (E)	103	1	570000 265900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A16NW (NE)	115	1	569950 266500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NW (E)	138	1	569900 265875
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NW (E)	148	1	569800 265850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NE (E)	148	1	569700 265800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (E)	173	1	570050 265900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (E)	177	1	569900 265850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11SE (E)	181	1	569650 265750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (E)	185	1	570100 265950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (E)	190	1	570000 265875
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (E)	193	1	569800 265800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (E)	194	1	569700 265750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (SE)	204	1	569650 265650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (E)	209	1	569950 265850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12NW (E)	211	1	570000 265850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11SE (E)	211	1	569600 265700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (E)	228	1	569650 265700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (E)	231	1	570150 265950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11SE (SE)	242	1	569450 265550

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	A11SE (SE)	247	1	569700 265550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (E)	254	1	570200 266000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (E)	259	1	570250 266000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (SE)	259	1	569600 265650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (SE)	336	1	569550 265550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A16NW (NE)	337	1	570000 266750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (E)	385	1	570350 266000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NE (N)	437	1	569000 266700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(E)	488	1	570500 266000
1	**Discharge Consents** Operator: The Animal Health Trust Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Small Animal Centre, Kennett Authority: Environment Agency, Anglian Region Catchment Area: River Kennett (Chippenham) Reference: Pr1nf429 Permit Version: 1 Effective Date: 20th August 1963 Issued Date: 20th August 1963 Revocation Date: 19th February 1992 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unknown Trib **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A16NE (NE)	189	2	570100 266500
2	**Discharge Consents** Operator: Mr Gem Bandaranaike Property Type: Domestic Property (Single) Location: Pentlands, Moulton Road, Newmarket, Suffolk, Cb8 8qt Authority: Environment Agency, Anglian Region Catchment Area: River Kennett (Chippenham) Reference: Npswqd003017 Permit Version: 1 Effective Date: 1st September 2008 Issued Date: 1st September 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Groundwaters Via Soakaway **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A16SE (NE)	227	2	570199 266327

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Alastair Watson Property Type: Not Supplied Location: Lanwades Stud Moulton, Newmarket, Suffolk, Cb8 8qs Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Prclf03144 Permit Version: 1 Effective Date: 12th July 1990 Issued Date: 12th July 1990 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Land **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A12SW (E)	348	2	569920 265670
4	**Discharge Consents** Operator: Baker Alec & Emma Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: New Dwelling Adj Kennet End Cottage Bury Road, Kennet, Cambs, Cb8 7pp Authority: Environment Agency, Anglian Region Catchment Area: River Kennett (Chippenham) Reference: Prclf17336 Permit Version: 1 Effective Date: 27th August 2004 Issued Date: 27th August 2004 Revocation Date: 27th August 2016 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Not Supplied **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A16NE (NE)	471	2	570260 266740
5	**Discharge Consents** Operator: Rossdale & Partners Property Type: Not Supplied Location: The Equine Hospital Becklyn, Bury Road, Kennet End, Cambs Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Prclf02949 Permit Version: 1 Effective Date: 7th June 1990 Issued Date: 7th June 1990 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A16NE (NE)	486	2	570320 266700
6	**Discharge Consents** Operator: E F Saltmarsh & Sons Property Type: Arable Farming Location: Trinity Hall Farm Chippenham Road, Moulton, Suffolk, Cb8 8sn Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Gwclf30273 Permit Version: 1 Effective Date: 31st March 1999 Issued Date: 1st February 2001 Revocation Date: 8th April 2004 Discharge Type: Trade Discharge - Agricultural And Surface Discharge Environment: Onto Land Receiving Water: Groundwater **Status: Deemed Groundwater Regulations Authorisation** Positional Accuracy: Located by supplier to within 10m	A7SW (S)	672	2	569250 265100
	Nearest Surface Water Feature	A12NE (E)	295	-	570132 265846

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Other Location: Ely District Authority: Environment Agency, Anglian Region Pollutant: Crude Sewage Note: Groundwater Incident Date: 11th January 1996 Incident Reference: 3334 Catchment Area: Not Given Receiving Water: Groundwater Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A16NE (NE)	471	2	570300 266700
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: CB6089 Dated: 17th August 2007 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Application has been authorised and any conditions apply to the operator** Positional Accuracy: Automatically positioned to the address	A15SE (NE)	0	2	569521 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: Bt4273 Dated: 20th December 2002 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: Bt4575 Dated: 20th December 2002 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Application has been authorised and any conditions apply to the operator** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AZ8455 Dated: 4th November 1997 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AZ8447 Dated: 4th November 1997 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AH9243 Dated: 25th August 1993 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AF5042 Dated: 30th July 1992 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AC9661 Dated: 31st March 1991 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Ml Lovegrove Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AC9645 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation either revoked or cancelled** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
8	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Authority: Environment Agency, Anglian Region Permit Reference: AM0465 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A15SE (NE)	0	2	569520 266169
9	**Registered Radioactive Substances** Name: Animal Health Trust Location: Lanwades Park, Newmarket, Cb8 7uu Authority: Environment Agency, Anglian Region Permit Reference: WB3639DF Dated: Not Supplied Process Type: Not Supplied Description: Not Supplied **Status: Application has been determined by the EA** Positional Accuracy: Located by supplier to within 100m	A15SW (N)	53	2	569300 266400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Water Abstractions** Operator: Spillers Ltd Licence Number: 6/33/38/*G/0029 Permit Version: 100 Location: Borehole S Of Moulton End Authority: Environment Agency, Anglian Region Abstraction: Other Industrial/Commercial/Public Services: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 8; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st October 1975 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16SW (NE)	0	2	569900 266200
10	**Water Abstractions** Operator: Spillers Ltd Licence Number: 6/33/38/*G/0029 Permit Version: 100 Location: Borehole S Of Moulton End Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 8; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st October 1975 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16SW (NE)	0	2	569900 266200
10	**Water Abstractions** Operator: Animal Health Trust Licence Number: 6/33/38/*G/0017 Permit Version: 100 Location: Well At Lanwades Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 8; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16SW (NE)	0	2	569900 266200
10	**Water Abstractions** Operator: Animal Health Trust Licence Number: 6/33/38/*G/0017 Permit Version: 100 Location: Well At Lanwades Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 8; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16SW (NE)	0	2	569900 266200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Water Abstractions** Operator: G Collin And Sons Ltd Licence Number: 6/33/38/*g/022 Permit Version: Not Supplied Location: Well At Kennett End, KENNETT Authority: Environment Agency, Anglian Region Abstraction: Industrial Processing (Miscellaneous) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 460 Details: C Chalk 8; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16NE (NE)	349	2	570100 266700
	Water Abstractions Operator: Godolphin Management Co Ltd Licence Number: 6/33/38/*S/0069 Permit Version: 4 Location: River Kennett At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Storage Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 November Authorised End: 30 April Permit Start Date: 21st May 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SW (SE)	1138	2	569788 264784
	Water Abstractions Operator: Godolphin Management Company Ltd Licence Number: 6/33/38/*S/0069 Permit Version: 3 Location: River Kennett At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Storage Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 November Authorised End: 30 April Permit Start Date: 21st June 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SW (SE)	1138	2	569788 264784
	Water Abstractions Operator: Godolphin Management Company Ltd Licence Number: 6/33/38/*S/0069 Permit Version: 2 Location: River Kennett At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Storage Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 November Authorised End: 31 March Permit Start Date: 7th February 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (SE)	1316	2	569800 264600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Anglian Water Services Ltd Licence Number: 6/33/38/*G/0028 Permit Version: 100 Location: Three Bores At Moulton Authority: Environment Agency, Anglian 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: C Chalk 8; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st September 1992 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (SE)	1382	2	570000 264600
	Water Abstractions Operator: Anglian Water Services Ltd Licence Number: 6/33/38/*g/006 Permit Version: Not Supplied Location: Two Bores At, MOULTON Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 432 Yearly Rate (m3): 1364000 Details: C Chalk 8; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (SE)	1386	2	570001 264596
	Water Abstractions Operator: Anglian Water Services Ltd Licence Number: 6/33/38/*G/0028 Permit Version: 103 Location: Three Bores At Moulton Authority: Environment Agency, Anglian 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: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 6th November 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (SE)	1443	2	569900 264500
	Water Abstractions Operator: Anglian Water Services Limited Licence Number: 6/33/38/*G/0028 Permit Version: 102 Location: Three Bores At Moulton Authority: Environment Agency, Anglian 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: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 2nd September 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (SE)	1443	2	569900 264500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Anglian Water Services Limited Licence Number: 6/33/38/*G/0028 Permit Version: 101 Location: Three Bores At Moulton Authority: Environment Agency, Anglian 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: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 10th July 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (SE)	1443	2	569900 264500
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/28/*G/0049/R02 Permit Version: 1 Location: Abstraction Point 6 (Chippenham) Authority: Environment Agency, Anglian Region Abstraction: Other Environmental Improvements: Transfer between sources Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st April 2018 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NW)	1580	2	567310 266800
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/28/*G/0049/R01 Permit Version: 1 Location: Abstraction Point 6 (Chippenham) Authority: Environment Agency, Anglian Region Abstraction: Environmental: Transfer between sources Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 18th June 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NW)	1580	2	567310 266800
	Water Abstractions Operator: Anglian Water Services Ltd Licence Number: 6/33/38/*g/047 Permit Version: Not Supplied Location: Borehole At, CHIPPENHAM Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 100 Yearly Rate (m3): 3000000 Details: C Chalk 8; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NW)	1583	2	567305 266795

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Anglian Water Services Ltd Licence Number: 6/33/38/*g/004 Permit Version: Not Supplied Location: Bore At, CHIPPENHAM Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 1136 Yearly Rate (m3): 3273000 Details: C Chalk 8; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NW)	1587	2	567300 266795
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/28/*G/0049 Permit Version: 101 Location: Bore No 6 Chippenham Authority: Environment Agency, Anglian Region Abstraction: Environmental: Transfer between sources Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th May 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NW)	1589	2	567300 266800
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/28/*G/0049 Permit Version: 100 Location: Bore No 6 Chippenham Authority: Environment Agency, Anglian Region Abstraction: Environmental: Transfer between sources Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 8; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 1991 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NW)	1589	2	567300 266800
	Water Abstractions Operator: Godolphin Management Co Limited Licence Number: 6/33/38/*G/0070/R02 Permit Version: 2 Location: Borehole At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 5th December 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1SE (SW)	1608	2	568205 264372

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Godolphin Management Company Ltd Licence Number: 6/33/38/*G/0070/R02 Permit Version: 1 Location: Borehole At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 1st April 2018 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1SE (SW)	1608	2	568205 264372
	Water Abstractions Operator: Godolphin Management Company Ltd Licence Number: 6/33/38/*G/0070/R01 Permit Version: 1 Location: Borehole At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 1st April 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1SE (SW)	1608	2	568205 264372
	Water Abstractions Operator: Godolphin Management Company Ltd Licence Number: 6/33/38/*G/0070 Permit Version: 2 Location: Borehole At Moulton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 22nd May 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1SE (SW)	1608	2	568205 264372
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A11NW (E)	0	3	569322 265820

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A11SW (SE)	0	3	569249 265715
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A11NE (E)	0	3	569651 266000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A10NE (NW)	0	3	569000 266000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A11NW (N)	0	3	569135 266000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A10NE (W)	0	3	569000 265875
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A11NW (SE)	0	3	569135 265875
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A10NE (NW)	0	3	569000 266000
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A10NE (W)	0	3	569000 265875
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A11NW (SE)	0	3	569135 265875
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A11NW (N)	0	3	569135 266000
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A11NW (SE)	0	3	569135 265875
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A11NW (E)	0	3	569322 265820
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - B	A11SW (SE)	0	3	569249 265715
12	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A12NW (E)	0	2	569970 265986
13	**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.	A12NW (E)	0	2	569976 266047
14	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A11NW (SE)	0	2	569135 265875
	Extreme Flooding from Rivers or Sea without Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2192.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Kennett Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (SE)	298	4	569918 265543
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1079.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Kennett Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A16NE (NE)	514	4	570380 266668

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Suffolk County Council - Has supplied landfill data		0	5	569135 265875
	Local Authority Landfill Coverage Name: Forest Heath District Council - Has supplied landfill data		0	6	569135 265875
	Local Authority Landfill Coverage Name: East Cambridgeshire District Council - Has supplied landfill data		17	8	568996 266255
	Local Authority Landfill Coverage Name: Cambridgeshire County Council - Has not been able to supply Landfill data		17	7	568996 266255
17	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1990	A11NE (E)	0	-	569684 266047
18	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1990	A11SW (S)	225	-	569185 265549
19	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1990	A10NW (W)	250	-	568522 266041
20	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1983	A12NE (E)	253	-	570229 266044
21	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1990	A9SE (W)	786	-	568161 265599
22	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1990	A9NW (W)	995	-	567772 265954

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	A11NW (SE)	0	1	569135 265875
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11NW (E)	0	1	569322 265820
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A11NW (SE)	0	1	569135 265875
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11SE (SE)	3	1	569703 265542
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A10SE (SW)	176	1	568937 265602
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A12NE (E)	202	1	570110 265903
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A12SW (SE)	396	1	569970 265508

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SW (SE)	505	1	570037 265456
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9SE (W)	547	1	568325 265763
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (S)	992	1	569438 264824
23	**BGS Recorded Mineral Sites** Site Name: Round Plantation Pit Location: Kentford, Bury St Edmunds, Suffolk Source: British Geological Survey, National Geoscience Information Service Reference: 211637 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A11NE (E)	0	1	569683 266033
24	**BGS Recorded Mineral Sites** Site Name: Trinity Hall Farm Chalk Pit Location: Moulton, Newmarket, Suffolk Source: British Geological Survey, National Geoscience Information Service Reference: 145348 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A11SW (S)	226	1	569186 265548
25	**BGS Recorded Mineral Sites** Site Name: Long Belt Chalk Pit Location: Moulton, Newmarket, Suffolk Source: British Geological Survey, National Geoscience Information Service Reference: 145347 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A10NW (W)	244	1	568527 266044

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	**BGS Recorded Mineral Sites** Site Name: Sandpit Plantation Chalk Pit Location: Kentford, Newmarket, Suffolk Source: British Geological Survey, National Geoscience Information Service Reference: 145350 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A12NE (E)	251	1	570170 265998
27	**BGS Recorded Mineral Sites** Site Name: Sandpit Plantation Gravel Pit Location: Kentford, Newmarket, Suffolk Source: British Geological Survey, National Geoscience Information Service Reference: 145351 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Head Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A12NE (E)	270	1	570247 266102
28	**BGS Recorded Mineral Sites** Site Name: Wellbottom Farm Gravel Pit Location: Moulton, Newmarket, Suffolk Source: British Geological Survey, National Geoscience Information Service Reference: 145346 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: River Terrace Deposits, 2 Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A9SE (W)	817	1	568151 265556
29	**BGS Recorded Mineral Sites** Site Name: Square Plantation Pit Location: Moulton, Bury St Edmunds, Cambridgeshire Source: British Geological Survey, National Geoscience Information Service Reference: 211632 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A9NW (W)	996	1	567770 265961
	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 Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NW (E)	0	1	569322 265820
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14SE (NW)	198	1	568743 266358
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	202	1	570000 265801
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NW (E)	0	1	569322 265820
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14SE (NW)	198	1	568743 266358
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	202	1	570000 265801
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NW (E)	0	1	569322 265820
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (SW)	176	1	568937 265602
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14SE (NW)	198	1	568743 266358
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	202	1	570000 265801
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NW (SE)	0	1	569135 265875
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11SW (SE)	0	1	569249 265715
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	3	1	570000 265875
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14SE (NW)	198	1	568743 266358

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SW (E)	202	1	570000 265714
	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	A11NW (SE)	0	1	569135 265875
	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	A11NW (SE)	0	1	569135 265875

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Contemporary Trade Directory Entries** Name: Elite Stationery Location: Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A16SW (NE)	0	-	569763 266430
31	**Contemporary Trade Directory Entries** Name: J M Rose Farriers Location: Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU Classification: Farriers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A16SW (NE)	0	-	569729 266270
32	**Contemporary Trade Directory Entries** Name: Eastern Business Systems Ltd Location: Chippenham Hill, Moulton, NEWMARKET, Suffolk, CB8 7PL Classification: Photocopiers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A11SW (SE)	65	-	569292 265749
32	**Contemporary Trade Directory Entries** Name: B S A S Telecoms Ltd Location: Systems House, Moulton, Newmarket, Suffolk, CB8 7PL Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (SE)	65	-	569293 265750
33	**Contemporary Trade Directory Entries** Name: Enhance Air & Electrical Ltd Location: Unit 1, 7, Lanwades Business Park, Moulton, CB8 7PN Classification: Air Conditioning & Refrigeration Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	168	-	570092 266474
33	**Contemporary Trade Directory Entries** Name: Astral Location: Unit 6e, Lanwades Business Park, Kennett, Newmarket, CB8 7PN Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	175	-	570087 266493
33	**Contemporary Trade Directory Entries** Name: Wicked Uncle Location: Unit 6g, Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Toys, Games & Sporting Goods - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A16NE (NE)	175	-	570087 266493
33	**Contemporary Trade Directory Entries** Name: Astral Blinds Location: Unit 6e,Lanwades Business Pk, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A16NE (NE)	175	-	570087 266493
33	**Contemporary Trade Directory Entries** Name: C & T Harnesses Location: Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Cable & Wire Equipment Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	203	-	570123 266491
33	**Contemporary Trade Directory Entries** Name: Anglia Oil Tanks Location: Unit 3, Lanwades Business Park, Kennett, Newmarket, CB8 7PN Classification: Tanks, Vats & Cisterns **Status: Active** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	219	-	570153 266465
33	**Contemporary Trade Directory Entries** Name: Sionics Location: Unit6B,Lanwades Business Pk, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Electronic Equipment - Manufacturers & Assemblers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A16NE (NE)	219	-	570130 266510
34	**Contemporary Trade Directory Entries** Name: Valentina Jewellery Location: 3A,Lanwades Business Pk, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Jewellery Manufacturers & Repairers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A16NE (NE)	172	-	570066 266512

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**Contemporary Trade Directory Entries** Name: Production Print & Design Location: Unit, 4a-4b, Lanwades Business Park, Kennett, Newmarket, CB8 7PN Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	188	-	570076 266525
34	**Contemporary Trade Directory Entries** Name: 1st For Print Ltd Location: Unit 4a-4b, Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	188	-	570076 266525
34	**Contemporary Trade Directory Entries** Name: Corporate Tiger Ltd Location: Unit 4, Lanwades Business Park, Kennett, Newmarket, CB8 7PN Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	188	-	570076 266525
34	**Contemporary Trade Directory Entries** Name: Luxury Vending Location: Unit CW,Lanwades Business Pk, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Vending Machine Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A16NE (NE)	197	-	570072 266540
35	**Contemporary Trade Directory Entries** Name: Astral Awnings & Blinds Location: 1, Kennett Park Close, Kentford, Newmarket, Suffolk, CB8 8QU Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16SE (NE)	225	-	570171 266430
35	**Contemporary Trade Directory Entries** Name: Astral Awnings, Blinds & Canopies Location: 1, Kennett Park Close, Kentford, Newmarket, Suffolk, CB8 8QU Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16SE (NE)	225	-	570171 266430
35	**Contemporary Trade Directory Entries** Name: Astral Location: 1, Kennett Park Close, Kentford, Newmarket, Suffolk, CB8 8QU Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16SE (NE)	225	-	570171 266430
35	**Contemporary Trade Directory Entries** Name: Astral Awnings & Blinds Location: 1, Kennett Park Close, Kentford, NEWMARKET, Suffolk, CB8 8QU Classification: Blinds, Awnings & Canopies **Status: Active** Positional Accuracy: Automatically positioned to the address	A16SE (NE)	225	-	570171 266430
35	**Contemporary Trade Directory Entries** Name: Astral Location: 1, Kennett Park Close, Kentford, Newmarket, Suffolk, CB8 8QU Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16SE (NE)	225	-	570171 266430
36	**Contemporary Trade Directory Entries** Name: Lab 21 Health Care Ltd Location: 1, The Court, Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Laboratories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	244	-	570132 266547
36	**Contemporary Trade Directory Entries** Name: Fluestax Location: 1 THE COURT, LANWADES BUSINESS PARK, KENNETT, NEWMARKET, CB8 7PN Classification: Exhaust System Manufacturers & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	245	-	570131 266549

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Contemporary Trade Directory Entries** Name: Tagg-N P D Ltd Location: Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PW Classification: Food Colouring, Flavouring & Additive Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	251	-	570121 266569
36	**Contemporary Trade Directory Entries** Name: Oil Tank Change Ltd Location: 4b, Rosemary House, Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Tanks, Vats & Cisterns **Status: Active** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	251	-	570121 266569
36	**Contemporary Trade Directory Entries** Name: Anglian Precision Ltd Location: Unit 4, Lanwades Business Park, Kennett, Newmarket, Suffolk, CB8 7PN Classification: Precision Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	288	-	570150 266591
37	**Contemporary Trade Directory Entries** Name: Thurlow Nunn Standen Ltd Location: Moulton Road, Kennett, NEWMARKET, Suffolk, CB8 8QT Classification: Agricultural Machinery - Sales & Service **Status: Active** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	331	-	570207 266593
38	**Contemporary Trade Directory Entries** Name: Integral Blinds Direct Location: 14, Moulton Avenue, Kentford, Newmarket, CB8 8QX Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	384	-	570252 266622
39	**Contemporary Trade Directory Entries** Name: Gardner Location: 13, Edgeborough Close, Kentford, Newmarket, Suffolk, CB8 8QY Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A16NE (NE)	428	-	570371 266468
40	**Points of Interest - Commercial Services** Name: Gardner Location: 13 Edgeborough Close, Kentford, Newmarket, CB8 8QY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A16NE (NE)	428	9	570371 266468
40	**Points of Interest - Commercial Services** Name: Gardner Jack Ltd Location: 13 Edgeborough Close, Kentford, Newmarket, CB8 8QY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A16NE (NE)	428	9	570371 266468
41	**Points of Interest - Manufacturing and Production** Name: Tank Location: CB8 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A16SW (NE)	0	9	569838 266247
42	**Points of Interest - Manufacturing and Production** Name: Works Location: CB8 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A16SW (NE)	75	9	570035 266356
43	**Points of Interest - Manufacturing and Production** Name: Business Park Location: CB8 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A16NW (NE)	195	9	570042 266557
43	**Points of Interest - Manufacturing and Production** Name: Business Park Location: CB8 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A16NW (NE)	209	9	570027 266579

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
44	**Points of Interest - Manufacturing and Production** Name: Tank Location: CB8 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A16NE (NE)	328	9	570262 266484

Sensitive Land Use

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
45	**Environmentally Sensitive Areas** Name: Breckland (decommissioned) Multiple Areas: N Total Area (m2): 945352881.45 Source: Natural England	(NE)	809	10	570063 267261
46	**Nitrate Vulnerable Zones** Name: Ely Ouse And Cut-Off Channel Nvz Description: Surface Water Source: Environment Agency, Head Office	A11NW (SE)	0	3	569135 265875
47	**Nitrate Vulnerable Zones** Name: Anglian Chalk Description: Groundwater Source: Environment Agency, Head Office	A11NW (SE)	0	3	569135 265875

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
West Suffolk Council	March 2014	Annual Rolling Update
East Cambridgeshire District Council - Environmental Health Department	October 2017	Annual Rolling Update
Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Anglian Region	October 2022	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Anglian Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Anglian Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - Anglian Region	July 2022	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department	August 2015	Variable
West Suffolk Council	August 2015	Variable
East Cambridgeshire District Council - Environmental Health Department	October 2014	Variable
Local Authority Pollution Prevention and Controls		
Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department	August 2015	Annual Rolling Update
West Suffolk Council	August 2015	Annual Rolling Update
East Cambridgeshire District Council - Environmental Health Department	October 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department	August 2015	Variable
East Cambridgeshire District Council - Environmental Health Department	October 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	September 2022	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Anglian Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Anglian Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Anglian Region	June 2016	As notified
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - Anglian Region - Central Area	July 2022	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	October 2022	Quarterly
Water Industry Act Referrals		
Environment Agency - Anglian Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified

Data Currency

Agency & Hydrological	Version	Update Cycle
Groundwater Vulnerability - Soluble Rock Risk Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2022	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2022	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	August 2022	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	August 2022	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	October 2022	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	November 2022	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Central Area	October 2022	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Central Area	July 2022	Quarterly
Local Authority Landfill Coverage		
Cambridgeshire County Council	February 2003	Not Applicable
East Cambridgeshire District Council - Environmental Health Department	February 2003	Not Applicable
Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department	February 2003	Not Applicable
Suffolk County Council	February 2003	Not Applicable
West Suffolk Council	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Cambridgeshire County Council	October 2018	
East Cambridgeshire District Council - Environmental Health Department	October 2018	
Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department	October 2018	
Suffolk County Council	October 2018	
West Suffolk Council	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Anglian Region - Central Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Central Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Central Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2022	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update
Cambridgeshire County Council	February 2016	Variable
East Cambridgeshire District Council - Planning Department	February 2016	Variable
Forest Heath District Council (now part of West Suffolk Council)	February 2016	Variable
West Suffolk Council	June 2016	Variable
Planning Hazardous Substance Consents		
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update
Cambridgeshire County Council	February 2016	Variable
East Cambridgeshire District Council - Planning Department	February 2016	Variable
Forest Heath District Council (now part of West Suffolk Council)	February 2016	Variable
West Suffolk Council	February 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	November 2022	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	
Cheshire Brine Subsidence Compensation Board (CBSCB)	November 2020	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	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	April 2020	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	September 2022	Annually
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	September 2022	Annually

Data Currency

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2022	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2022	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	December 2022	Quarterly
Points of Interest - Education and Health PointX	December 2022	Quarterly
Points of Interest - Manufacturing and Production PointX	December 2022	Quarterly
Points of Interest - Public Infrastructure PointX	December 2022	Quarterly
Points of Interest - Recreational and Environmental PointX	December 2022	Quarterly
Underground Electrical Cables National Grid	May 2021	Bi-Annually

Data Currency

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt		
East Cambridgeshire District Council - Planning Department	July 2022	Quarterly
Forest Heath District Council (now part of West Suffolk Council)	July 2022	Quarterly
West Suffolk Council	July 2022	Quarterly
Areas of Unadopted Green Belt		
East Cambridgeshire District Council - Planning Department	July 2022	Quarterly
Forest Heath District Council (now part of West Suffolk Council)	July 2022	Quarterly
West Suffolk Council	July 2022	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	August 2022	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	February 2021	Bi-Annually
Marine Nature Reserves		
Natural England	July 2019	Bi-Annually
National Nature Reserves		
Natural England	January 2021	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	June 2017	Bi-Annually
Ramsar Sites		
Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest		
Natural England	February 2021	Bi-Annually
Special Areas of Conservation		
Natural England	July 2020	Bi-Annually
Special Protection Areas		
Natural England	February 2021	Bi-Annually

Data Suppliers

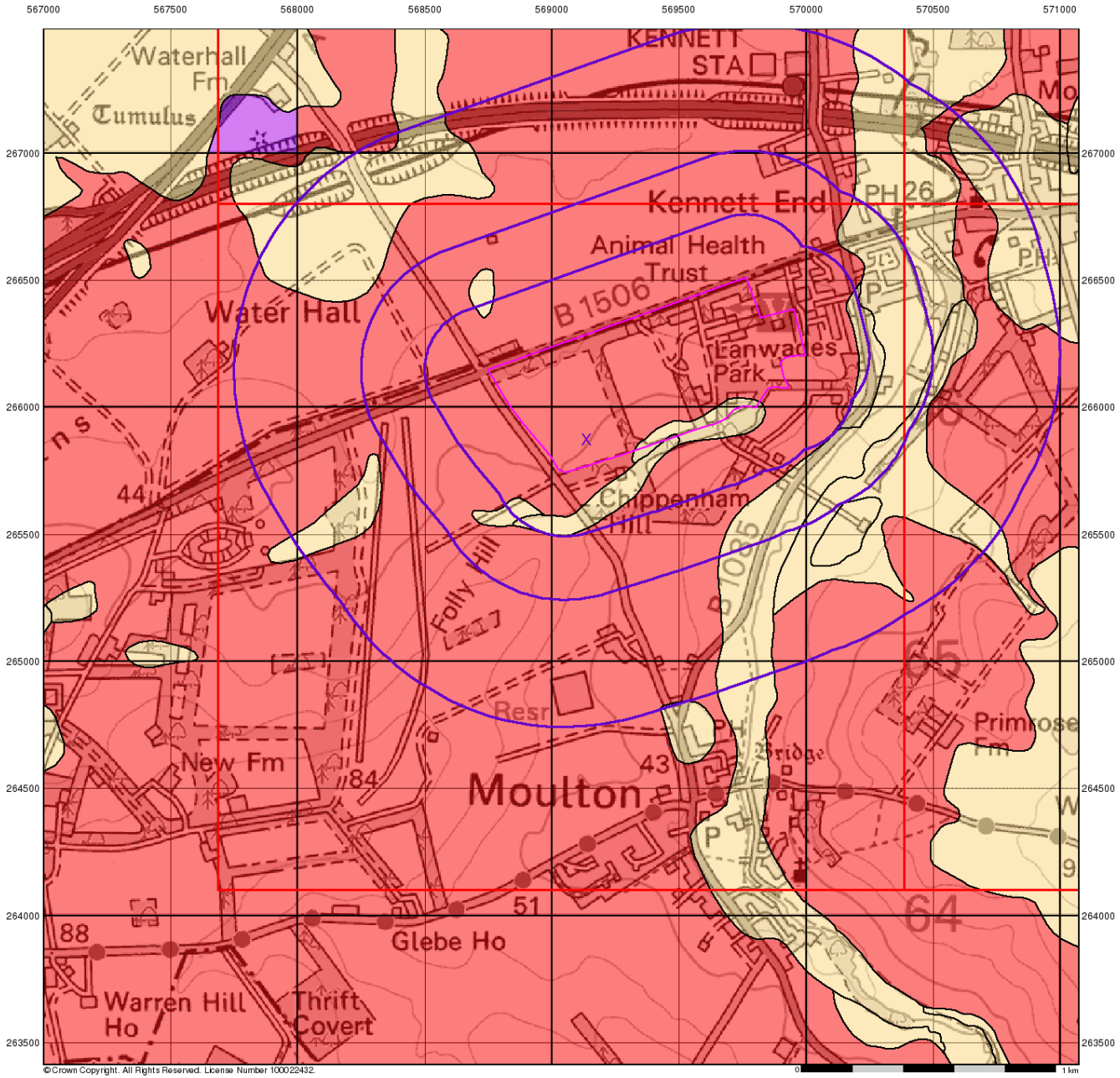
A selection of organisations who provide data within this report

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	
Stantec UK Ltd	

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	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
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	**Suffolk County Council** St Edmund House, County Hall, Ipswich, Suffolk, IP4 1LZ	Telephone: 01473 583000 Fax: 01473 230240 Website: www.suffolkcc.gov.uk
6	**Forest Heath District Council (now part of West Suffolk Council) - Environmental Health Department** District Offices, College Heath Road, Mildenhall, Bury St Edmunds, Suffolk, IP28 7EY	Telephone: 01638 719000 Fax: 01638 716493 Website: www.forest-heath.gov.uk
7	**Cambridgeshire County Council** Shire Hall, Castle Hill, Cambridge, Cambridgeshire, CB3 OAP	Telephone: 01223 717111 Fax: 01223 717201 Website: www.camcnty.gov.uk
8	**East Cambridgeshire District Council - Environmental Health Department** The Grange, Nutholt Lane, Ely, Cambridgeshire, CB7 4PL	Telephone: 01353 665555 extn 284 Website: www.eastcambs.gov.uk
9	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
10	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



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Groundwater Vulnerability

General

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

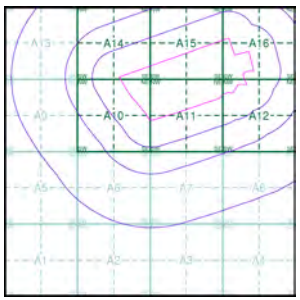
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

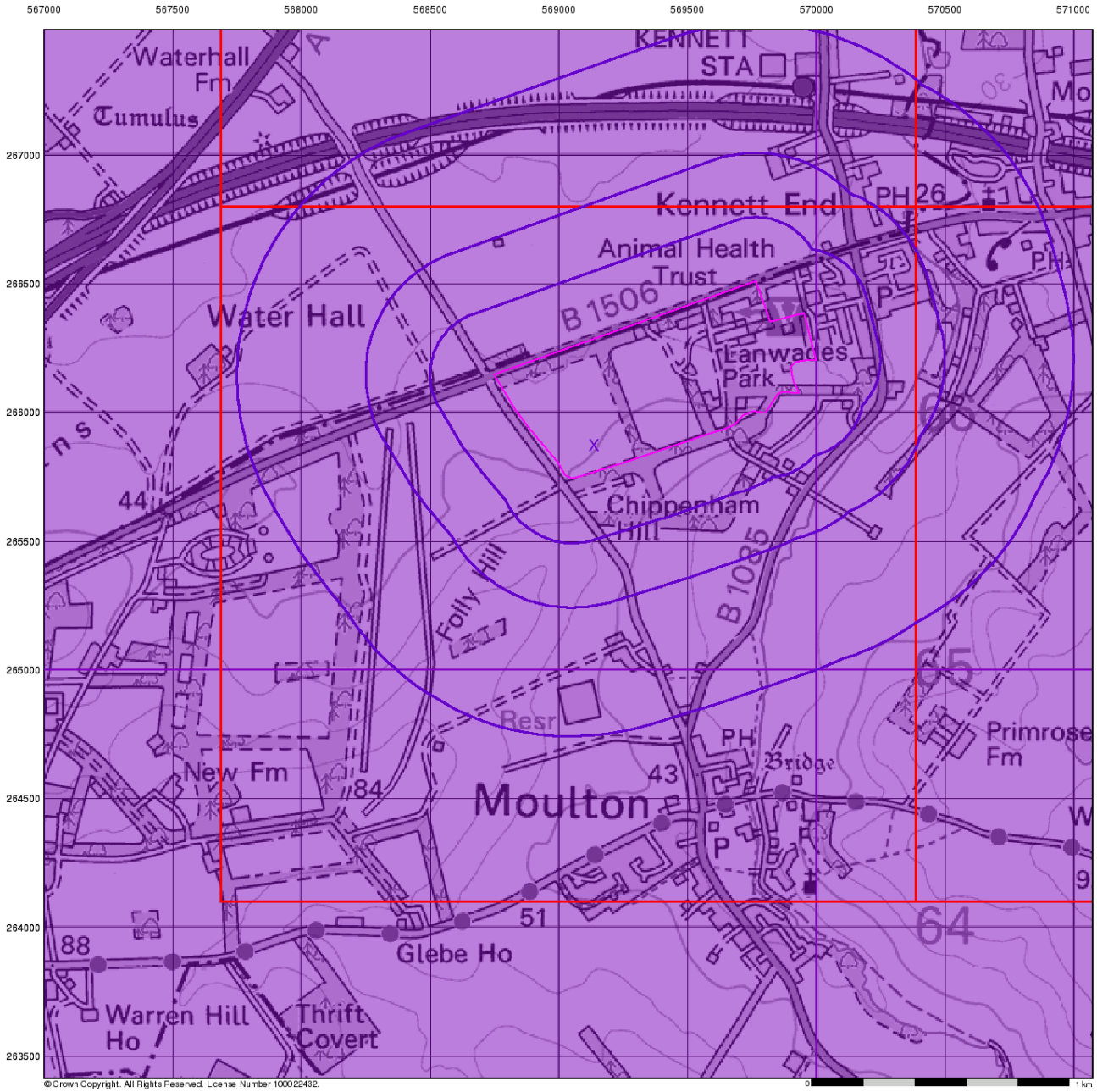
Order Number:	304894834_1_1
Customer Ref:	STU5875
National Grid Reference:	569140, 265870
Slice:	A
Site Area (Ha):	51.85
Search Buffer (m):	1000

Site Details

Lanwades Hall, Newmarket, CB8 7UA

Landmark INFORMATION GROUP

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



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Bedrock Aquifer Designation

General

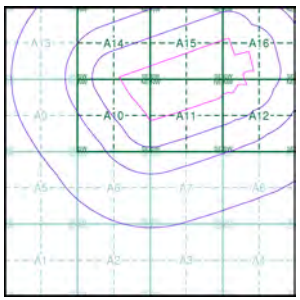
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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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