

**Land off Bullens Green Lane, Colney Heath,
Hertfordshire, AL4 0QQ**

GROUND INVESTIGATION



Canton Ltd

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ISSUE	DATE	Written by	Comment
1	24/03/2020	Stephen J Fisk BSc FGS	-
		Reviewed and approved by	
		Matt Paddock MSc FGS	
2	07/10/2020	Stephen J Fisk BSc FGS	Updated with gas monitoring results
For and on behalf of Paddock Geo Engineering Limited			

1.0 INTRODUCTION

Paddock Geo Engineering Limited (PGE) were instructed Woods Hardwick Planning on behalf of Canton Ltd; the Client, to undertake a Ground Investigation and Generic Site Contamination Assessment as Phase 2 of a Site Contamination Assessment in relation to the proposed residential development of a parcel of land referred to as Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ.

The report has been updated in October 2020 to incorporate the outstanding ground gas monitoring results.

1.1 Terms of Reference

- British Standards BS 10175:2011 Investigation of Potentially Contaminated Sites – Code of Practice.
- CLR11 Model Procedures for the Management of Land Contamination, 2010, DEFRA/Environment Agency.
- PPG23 (PPS23) Planning and pollution control (contaminated land aspects), 2002
- GPLC1 Guiding Principles for Land Contamination, 2010, Environment Agency
- Environmental Protection Act: 1990 – Contaminated Land Statutory Guidance, April 2012, DEFRA
- BS 5930:2015 Site Investigation Code of Practice
- BS EN 1997-2, Eurocode 7. Geotechnical design. Ground investigation and Testing
- BS EN ISO 22475 Series (1-3), Geotechnical investigation and testing. Sampling methods and groundwater measurements.
- NHBC Standards Chapter 4.2 2006, Building Near Trees
- TRL Laboratory Report 1132:1984 – The Structure of Bituminous Road, Appendix C Table C1
- BS 5930:1999+A2:2010 Site Investigation Code of Practice
- BS EN 1997-2, Eurocode 7. Geotechnical design. Ground investigation and testing
- BS EN ISO 22475 Series (1-3), Geotechnical investigation and testing. Sampling methods and groundwater measurements.
- NHBC Standards Chapter 4.2 2006, Building Near Trees
- BRE412 1996 Desiccation in Clay Soils
- BRE240 1993 Low Rise Buildings on Shrinkable Clay Soils: Part 1
- BRE241 1990 Low Rise Buildings on Shrinkable Clay Soils: Part 2

1.2 Objective

The objective of the Ground Investigation for the site comprised the following elements:

- An Intrusive Investigation
- A Geotechnical Appraisal including infiltration testing
- A Site Contamination Assessment and Generic Human Health Risk Assessment

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- A Ground Gas Risk Assessment

The scope of work was discussed and agreed with the Client prior to commencement. The investigation was carried out in order to provide data on the sub-soil characteristics of the site, the groundwater regime and also to recover samples for geotechnical laboratory testing and chemical analysis. This data was employed to derive a ground model for the site, foundation design criteria, infiltration data and a generic human health contamination risk assessment for the site.

2.0 THE SITE

2.1 Site Description

The subject site is located in a rural area on the outskirts of the village of Colney Heath, Hertfordshire.

The site comprises an irregularly shaped agricultural field used for arable crops.

The approximate centre of the site is located at grid reference 521200, 205910 and the site covers an area of approximately 5.22Ha.

Site Location Plans and an Aerial Photograph are presented in Appendix A.

2.2 Proposed Development

The proposed development scheme is indicated by the Client's Engineer to involve the residential development of up to 100 dwellings, including 45% affordable and 10% self-build, together with all ancillary works.

We understand that the development plans have not yet been finalised, as this is an outline planning application with all matters reserved except access, but an indicative layout plan has been provided by the client and is present within Appendix A.

3.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT SUMMARY

An associated Preliminary Contamination Risk Assessment (PRA) have been carried out for the site by PGE reference P20-164pra dated July 2019, with which reference should be made. Salient data from the PRA are summarised and extracted from the PRA and presented in the following Sections.

3.1 Geology, Hydrogeology and Hydrology

Information on the underlying geology at the site has been obtained from the British Geological Survey (BGS) Sheet 229 (scale: 1:50,000 dated 1923) for Hertford, the BGS Geological Map Viewer and Geological Mapping provided by Landmark within the Envirocheck Report.

The BGS mapping indicates that the site is underlain by superficial deposits of the Lowestoft Formation; diamicton deposits formed up to 2million years ago in the quaternary Period in a local environment dominated by ice age conditions.

Superficial deposits of the Kesgrave Catchment Subgroup (sand and gravel) are located along the eastern boundary of the site and dependent upon the accuracy of the mapping may extend onto site.

The Bedrock at the site is indicated to comprise the Lewes Nodular Chalk and Seaford Chalk Formation (Undifferentiated); sedimentary bedrock formed approximately 84 to 94 million years ago in the Cretaceous Period in a local environment previously dominated by warm chalk seas.

The geological mapping reviewed does not indicate any areas of Worked Ground within 1km of the subject site.

The groundwater vulnerability map for the site and surrounding areas indicate the superficial deposits are designated as a Secondary Undifferentiated aquifer. The underlying bedrock deposits are classified as a Principal Aquifer.

The site is located within a Groundwater Source Protection Zone (SPZ) Inner zone 1 with the associated abstraction borehole located c. 110m west of the site.

There are five groundwater abstractions indicated within 1000m of the site. All records relate to potable water supply at Roestock Pumping Station, c.110m west.

The BGS identify limited potential for groundwater flooding to occur on site.

3.2 Historic Land Use on the Site and Surrounding Area

The available historical maps span a period of 141 years, dating back to 1879.

The site was indicated to be an agricultural field from the earliest mapping to current. The site was formerly separated into three fields, with a drainage ditch running across the centre of the site infilled in the last twenty years.

In the earliest maps the field was largely surrounded by open land with a few houses at Bullen's Green to the north-east. In the 1930s the land directly to the north of the site was developed into housing and in the 1970s the land to the west was also developed. The water pumping station adjacent to the west of the site is first recorded in the 1937 map.

Throughout the historical maps, the village of Colney Heath has expanded significantly to the west and south of the site.

The historical mapping did not indicate any potential significantly contaminative land uses within 250m of the site.

3.3 Landfill Sites

The Envirocheck report identifies one historical landfill site within 500m of the site. The listing relates to a site 271m south-west at Colney Heath Farm that first inputted waste in May 1993; deposited waste included inert waste. The last input date is not supplied.

3.4 Potential Contaminant Sources Summary

The potential contamination sources identified as part of this Preliminary Contamination Risk Assessment are summarised in the table below. The potential contaminants are based on the data within CL8, Department of the Environment (DoE) Industry Profiles, the current and historic site uses.

Current Potential On-Site Contaminant Sources	Potential Contaminants
Ash piles from burning on far north-west of site	Heavy metals, PAHS, asbestos.
Agricultural fields – use of herbicides and pesticides	Agrichemicals
Historic Potential On-Site Sources	Potential Contaminants
Agricultural fields – use of herbicides and pesticides	Agrichemicals
Current Potential Off-Site Contaminant Sources	Potential Contaminants
Affinity Water depot adjacent to west of site.	Hydrocarbon fuels, lubricant oils, solvents, heavy metals
Various commercial/ industrial land uses within 250m of site e.g. coal merchants, 32m NE; scrap metal merchants, 89m NW; carpet cleaners, 168m N; motorcycle repair, 169 NW; lampshade manufacturer, 239m S; Garage, 244m NE.	Hydrocarbon fuels, lubricant oils, solvents, heavy metals
Landfill for inert waste, 271m south-west.	Ground gas.
Historical Potential Off-Site Contaminant Sources	Potential Contaminants
Agricultural fields – use of herbicides and pesticides	Agrichemicals

3.5 Conceptual Contaminant-Pathway-Receptor Model

The information gathered in this Preliminary Contamination Risk Assessment has been compiled to produce a Contaminant-Pathway-Receptor (C-P-R) model, which is summarised in the table below and overleaf. A Contamination Conceptual Site Model Cross Section is presented in Appendix F of the PRA report.

The risk posed to site construction workers has not been assessed as any risks are considered to be mitigated through good site practices such as dust suppression and the use of Personal Protective Equipment (PPE).

Potential Site Contaminant Sources	Potential Pathways	Potential Receptors	Pathway Complete	Risk Level Classification
Current Onsite: Ash piles from burning on far north-west of site	Dermal / direct contact	Current site users (Agricultural field)	No	
	Direct ingestion		No	
	Direct inhalation		No	
	Inhalation of Radon		No	

Potential Site Contaminant Sources	Potential Pathways	Potential Receptors	Pathway Complete	Risk Level Classification
Agricultural fields – use of herbicides and pesticides Offsite: Affinity Water depot adjacent to west of site. Various commercial/ industrial land uses within 250m of site e.g. coal merchants, 32m NE; scrap metal merchants, 89m NW; carpet cleaners, 168m N; motorcycle repair, 169 NW; lampshade manufacturer, 239m S; Garage, 244m NE. Landfill for inert waste, 271m south-west. Historic Agricultural fields – use of herbicides and pesticides	Inhalation of wind-blown dust		No	
	Vapour migration		No	
	Ground gas migration		No	
	Dermal / direct contact	Future site users (residential use with plant uptake)	Yes	Low
	Direct ingestion		Yes	Low
	Direct inhalation		Yes	Low
	Inhalation of Radon gas		No	
	Inhalation of wind-blown dust onto the site		Yes	Low
	Vapour Migration onto the site		Yes	Low
	Ground gas migration		Yes	Low
	Direct contact	Services (following redevelopment)	Yes	Low
	Migration of contaminants: non-aqueous phase		Yes	Low
	Migration of contaminants: aqueous phase		Yes	Low
	Migration of contaminants off-site: non-aqueous phase	Adjacent Properties	No	
	Migration of contaminants off site: aqueous phase		No	
	Vapour migration		No	
	Inhalation of wind-blown dust	Ecological Impacts	No	
	Migration of contaminants: non-aqueous phase		No	
	Migration of contaminants: aqueous phase		No	
	Migration of contaminants from site: non-aqueous phase	Controlled groundwater	Yes	Low
	Migration of contaminants from site: aqueous phase		Yes	Low

Potential Site Contaminant Sources	Potential Pathways	Potential Receptors	Pathway Complete	Risk Level Classification
	Migration of Contaminants: non-aqueous phase	Surface Waters	Yes	Low
	Migration of contaminants: aqueous phase		Yes	Low

3.6 Preliminary Contamination Risk Assessment Conclusions

The preliminary contamination risk assessment has identified complete Contaminant-Pathway-Receptor (CPR) linkages with a maximum **Low** risk level from the potential contamination sources and risk drivers identified on the site and surrounding area.

The most significant of these potential source drivers, representing the greatest potential to impact the proposed site user (equivalent to residential with plant uptake) is the ash pile at the north-western margin of the site with the potential for heavy metals, hydrocarbons and asbestos to be generated and migrate through any near surface permeable soils to impact the proposed highly sensitive end site users.

Further to this, the site may have been subject to agrichemical use, which should degrade quickly in the soils but has the potential to leave residue which has the potential to impact the proposed end site users in open areas of the proposed development. However, it should be reiterated that the risk posed by these potential contaminative features is considered Negligible to Low.

The permeability of the shallow Lowestoft Formation glacial diamicton superficial geology underlying geology is likely to be lower bound and as such the potential migration pathway for any near surface contamination sources migrating off or onto the site or to migrate down to impact the underlying controlled Chalk aquifer is considered to be low.

The ground gas risk at the site has been classified as lower bound due to the identified single potential ground gas source, namely an inert landfill located over 250m from the site which closed in 1991.

The risk posed from the potential sources to the proposed highly sensitive residential end site users is deemed to be Low with respect to direct contact pathways (direct contact, ingestion and inhalation of dusts) and indirect pathways (inhalation of vapours), due to the proposal including highly sensitive residential land use with open areas where the proposed occupiers could come in to contact with impacted soils.

Given the discussion above, to prevent 'Significant Possibility of Significant Harm' from potential contamination sources to the proposed future residential site users it is recommended that a simple intrusive soil investigation be undertaken on the site to assess for heavy metals, organics, hydrocarbons, agrichemicals and asbestos within the near surface soils in the higher risk area of the site including the area where waste has been burnt on the north-west of the site, and the areas adjacent to the depot to the west of the site. The investigation should include volatile contaminant monitoring and agrichemical assessment initially through olfactory and PID testing of samples followed up by laboratory testing if significant levels suspected within the samples.

Potential Geotechnical Risk Summary

The Lewes Nodular Chalk and Seaford Chalk Formation (Undifferentiated) bedrock that is indicated beneath the site is generally a good foundation medium. However, the superficial Lowestoft Formation that is indicated to be present on the site can have an associated volume change potential due to its clay content.

Therefore, it is recommended that a geotechnical appraisal of the site be carried out to derive foundation design criteria.

4.0 INTRUSIVE INVESTIGATION FIELDWORKS

An intrusive investigation was designed with reference to the data from the associated Preliminary Contamination Risk Assessment and Geotechnical Desk Study to establish the ground conditions beneath the site in relation to the development of a Ground Model for the proposed development. The works were also employed to gather geotechnical data to derive geotechnical design parameters, gather infiltration data and to assess the contamination status of the near surface soils and potential for volatile contamination beneath the site.

The main fieldworks were carried out between 17th and 19th June 2020 and comprised the forming of 20no. Trial Pits and 6no. percussion sampler borehole to assess the ground conditions, recover samples and infiltration testing.

The Trial Pits and Boreholes were formed to assess the geological succession beneath the site, near surface contamination and to gather geotechnical, groundwater and infiltration data to derive geotechnical design parameters and to add data to the Ground Model for the site.

The trial pits SA1, SA2, SA3, SA4, SA5, SA6 and SA7 were formed to allow infiltration testing to the BRE365 methodology.

Hand vane soil strength testing was carried out on the fine-grained soils encountered. The relative density of any granular soils encountered was estimated based on-site logging within trial pits. Standard penetration testing (SPT) was undertaken at regular intervals within the boreholes.

The locations of the exploratory points were chosen to give general site coverage and to focus on features identified during the Phase 1 PRA. The table below details the location rationale.

Exploratory Position Rationale

Exploratory Location (Depth)	Location Details
TP1 (2.40m)	General site coverage.
TP2 (2.20m)	General site coverage.
TP3 (2.50m)	General site coverage.
TP4 (2.20m)	General site coverage.
TP5 (2.30m)	General site coverage.
TP6 (2.00m)	General site coverage.
TP7 (2.40m)	General site coverage and adjacent to garage units and ash to north of site.
TP8 (2.30m)	General site coverage.

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TP9 (1.80m)	General site coverage and adjacent to Affinity Water site.
TP10 (2.30m)	In vicinity of garage units to north of site.
TP11 (2.20m)	General site coverage.
TP12 (2.30m)	General site coverage.
TP13 (1.30m)	Across former drainage ditch.
SA1 (1.90m)	General site coverage and provide infiltration data.
SA2 (1.50m)	General site coverage and provide infiltration data.
SA3 (1.50m)	General site coverage and provide infiltration data.
SA4 (2.00m)	General site coverage and provide infiltration data.
SA5 (1.50m)	General site coverage and provide infiltration data.
SA6 (2.00m)	General site coverage and provide infiltration data.
SA7 (1.50m)	General site coverage and provide infiltration data.
WS1 (5.00m)	General site coverage.
WS2 (5.00m)	General site coverage and area of former fly tipping.
WS3 (5.00m)	General site coverage.
WS4 (4.00m)	General site coverage.
WS5 (5.00m)	General site coverage.
WS6 (5.00m)	In vicinity of garage units and ash pile to north of site.

The depth of the trial pits and boreholes, sample details, strata descriptions and comments on the groundwater conditions are detailed on the Logs which are presented in Appendix B along with an Exploratory Point Location Plan.

The trial pits were backfilled with arisings once logged and tested.

All of the boreholes were installed with temporary groundwater monitoring wells to full depth. Full details of the installation pipework are shown on the logs. The top of the well pipe was left proud of the ground for ease of identification during return visits to site.

A PID was used to screen samples for VOCs during the siteworks.

A series of photographs taken during the fieldworks are presented in Appendix B.

4.1 Encountered Strata

The exploratory point arisings were logged by a Geotechnical Engineer generally in accordance with BS5930:2015. The geology beneath the site was consistent with Topsoil over Lowestoft Formation deposits which were encountered across the site to the full depth of the investigation. The strata encountered is detailed below.

A log of the exploratory holes and Exploratory Point Location Plan showing the positions investigated are presented in Appendix B.

TOPSOIL/MADE GROUND

Topsoil was present to across the site and typically comprised surface crop or scrub vegetation near the perimeter of the site, over brown, dark brown variably sandy gravelly silty CLAY and clayey SILT with frequent rootlets and a significant loamy content, especially across the central area of site. Around the perimeter the topsoil was grey silty gravelly SAND with a less significant loam content.

Topsoil was encountered across the site from 0.2m to 0.7m depth, but typically 0.3m to 0.5m.

Deeper Made Ground was observed within one location, trial pit TP13, to a depth of 0.90m and comprised brown to dark brown slightly sandy slightly gravelly silty CLAY with roots and rootlets with the gravel composed of clayware, plastic and flint. The trial pit was undertaken within the run of a former drainage trench which has been infilled. A plastic suspected land drain pipe was observed at 0.90m depth.

LOWESTOFT FORMATION

Beneath the Made Ground across the site to the full depth of the assessment at a maximum of 5.00m bgl Lowestoft Formation deposits were encountered that comprise firm brown, orange brown and grey mottled variably sandy variably gravelly CLAY. The deposits were highly heterogeneous with varying quantities of sand and gravel and frequent pockets, lenses and bands of sand and gravel within the clay matrix. The gravel comprised chalk, flint, sandstone, mudstone, and occasional coal.

From a depth of around 3m to 4m the deposits typically became firm to stiff, grey and the chalk within the gravel fraction became predominant which is typical of the Lowestoft Formation.

Notably generally softer deposits were encountered within trial pit TP7 with in-situ shear vanes of 20kPa to 26kPa, however, where sand and gravel is present in significant quantities it can interfere with shear vane testing.

Localised roots and rootlets were observed up to a maximum depth of 2.20m within borehole WS2 which was undertaken adjacent to the perimeter vegetation screen on the eastern boundary of the site. Typically roots and rootlets were encountered to a maximum of 0.5m depth across the site.

The Lowestoft Formation soils indicated soil shear strengths through hand vane testing of between 20kPa and 117kPa at shallow depth (1m-2m), however, discounting the questionable result from trial pit TP7 the range is more typically 42kPa and 117kPa. Giving these values the soils are considered to be of a medium to high strength.

Atterberg Limit testing indicated these soils to be of Low to Medium volume change potential (VCP).

The geology encountered agrees with the reviewed available published records.

The table below details any visually identified contamination encountered on the site.

Visual evidence of contamination

Exploratory Location (Depth)	Evidence of contamination
TP1 (2.40m)	Non observed.
TP2 (2.20m)	Non observed.
TP3 (2.50m)	Non observed.
TP4 (2.20m)	Non observed.
TP5 (2.30m)	Non observed.
TP6 (2.00m)	Non observed.
TP7 (2.40m)	Non observed.

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TP8 (2.30m)	Non observed.
TP9 (1.80m)	Non observed.
TP10 (2.30m)	Non observed.
TP11 (2.20m)	Non observed.
TP12 (2.30m)	Non observed.
TP13 (1.30m)	Fragments of plastic and clayware pipe observed up to a depth of 0.90m.
SA1 (1.90m)	Non observed.
SA2 (1.50m)	Non observed.
SA3 (1.50m)	Non observed.
SA4 (2.00m)	Non observed.
SA5 (1.50m)	Non observed.
SA6 (2.00m)	Non observed.
SA7 (1.50m)	Non observed.
WS1 (5.00m)	Non observed.
WS2 (5.00m)	Non observed.
WS3 (5.00m)	Non observed.
WS4 (4.00m)	Non observed.
WS5 (5.00m)	Non observed.
WS6 (5.00m)	Non observed.

4.2 Groundwater Conditions

Groundwater was encountered within two of the shallow trial pits and within four of the six boreholes undertaken, typically as seepages within sand band and pockets of gravel. Subsequent groundwater monitoring of the standpipes within the boreholes has been undertaken on three occasions to date and the results are summarised in the table below.

Position	Groundwater observations							
	Initial Struck Depth	Observations	Monitoring undertaken in 2020 (m)					
			25/06	06/07	14/07	05/08	03/09	01/10
TP3	2.20	Groundwater encountered at 2.20m depth, filling trial pit to 2.40m upon completion of excavation.	N/A					
TP13	0.90	Water inflows from historic land drain pipe.	N/A					
WS1	4.00	Groundwater encountered within	1.45	2.45	1.40	1.65	1.25	2.60

		sand band at 4.0m depth.						
WS2	-	No groundwater encountered.	DRY	DRY	DRY	DRY	DRY	DRY
WS3	4.00	Groundwater encountered within sand band at 4.0m depth.	3.35	3.44	3.32	3.52	1.75	3.78
WS4	2.20-2.60	Groundwater seepages within sand band 2.20-2.60m depth.	2.31	2.30	2.27	2.38	2.38	DRY
WS5	1.50-2.30	Groundwater seepages within sand band 1.50-2.30m depth.	4.30	4.22	4.31	4.27	2.02	3.47
WS6	-	No groundwater encountered.	3.65	DRY	DRY	DRY	-	-

4.3 Ground Gas Conditions

The risk posed by the risk from ground gases was considered to be low, however, ground gas monitoring standpipes were installed, and monitoring was carried out on a precautionary basis to confirm the assumption. No significant depths of Made Ground or highly organic deposits were observed during the fieldwork that would constitute a previously unidentified source of ground gases.

4.4 Sampling Strategy

Disturbed samples of the strata encountered were recovered at regular intervals within all of the exploratory points to the full depth of the investigation for geotechnical laboratory testing.

Samples were also recovered in suitable containers for chemical analysis from the top metre of soils from the general site area. Shallow samples were also olfactorily screened for agrichemicals and screened using headspace analysis and a PID for VOCs.

5.0 CONTAMINATION ASSESSMENT

5.1 Chemical Analysis

A total of 19no. soil samples were sent to an external laboratory to obtain total soil concentrations for a range of priority contaminants.

The suite of analysis was decided based on consultation of the Contamination Exposure Assessment (CLEA) supporting documents and consideration for the former site and surrounding area land uses.

The suite of testing included:

- Asbestos screen for near surface Made Ground samples
- Metals and Inorganic compounds
- Polyaromatic Hydrocarbons (PAH) USPEA Priority 16 Compounds
- Total Petroleum Hydrocarbons (TPH) EC10-EC40 screen

Results of the chemical analysis are presented in Appendix C.

All arisings and samples were screened where deemed necessary using a PID for Volatile Organic compounds (VOCs).

5.2 Human Health Assessment Criteria

The assessment has been carried out in accordance with the Contaminated Land Exposure Assessment (CLEA) methodology as detailed within CLR11 2004. The assessment criteria employed are based on the proposed final land use of the site. For this site, a worst-case proposed land use of 'Residential with Home Grown Produce' will be employed for all areas of the site.

In March 2014 DEFRA published new guidance detailing the Category 4 Screening Levels (C4SL) system for the classification of contaminated land. The C4SL system was published to assist with revised statutory guidance published in 2012 for Part 2a of the Environmental Protection Act.

It introduces a new four category system for the classification of land under Part 2a where a Significant Possibility of Significant Harm to human health has been concluded. The categories correspond to Category 1 – land where the level of risk is clearly unacceptable, to Category 4 – where the level of risk posed is acceptably low. In short, land that passes the category 4 test “should not be capable of being determined as contaminated land under Part 2a”.

Currently no statutory chemical guidance levels for land and controlled waters contamination exist in the UK. Therefore, the reported soil total contaminants concentrations will be compared to In-House Generic Assessment Criteria (GAC) used as C4SLs.

These In-House GACs are presented in Appendix C and are generally based on the LQM/CIEH S4UL values.

The S4UL values employed are based on a Soil Organic Material (SOM) concentration of 2.5% for the initial screening.

A S4UL has not been published for lead. The GAC value employed has been derived using the DEFRA C4SL¹ toxicological data and exposure parameters and the CLEA Software V1.071:2015.

The C4SL value employed for the lead GAC, for a residential with plant uptake land use scenario, is based on a blood lead level of 3.5ug/dl for the lower level of toxicological concern employing the Integrated Exposure Uptake Biokinetic model (IEBUK) estimated blood lead concentrations in children and employs the exposure parameters within the DEFRA C4SL report.

A minimal risk approach was employed to derive the S4UL values, whereas the C4SL model uses a lower level for risk model, which is deemed generally less conservative than the minimal risk approach. However, the use of a lower level for risk model screening criteria is considered strongly precautionary and is generally considered appropriate for use within the planning regime.

¹ DEFRA SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Final Project Report (Revision 2) 2014

However, with consideration of the C4SL and S4UL values there still remains some gaps in the available chemical and/or toxicological data for non-priority contaminants and therefore a limited number of previously used CLEA SGVs and ICRL guideline values have been retained and include those for pH, sulphide, sulphur and water-soluble boron.

Should an exceedance be noted when site priority contaminant concentrations are compared to the employed GACs, a site specific assessment criteria can be derived using CLEA software or similar human health risk assessment software. This can also include consideration of bio-availability of the contaminants if required.

Further to the above, samples of near surface Topsoil and Made Ground are generally screened for asbestos presence. Generic assessment criteria do not exist currently for asbestos presence in soil within the UK. Therefore, where asbestos is identified in soil it is recommended that further risk assessment be carried out by suitably qualified and registered persons.

5.3 Groundwater Assessment Criteria

A detailed controlled water risk assessment was outside the scope of this report.

6.0 GENERIC HUMAN HEALTH SITE CONTAMINATION RISK ASSESSMENT

Statistical analysis of the data set is carried out employing the statistical method detailed in CL:AIRE Document 'Guidance on Comparing Soil Contamination Data with a Critical Concentration', if exceedances are noted on individual comparison of the contaminant concentrations to the employed assessment criteria, which allows a derivation of a true mean concentration (μ).

The statistical analysis also assesses if the data is normally distributed and considers high levels to determine if they are part of the underlying data set due to 'site wide contamination' or due to contamination 'outliers'.

The statistical analysis derives a 95th percentile upper confidence limit of μ for each determinands for comparison to the suitable employed guidance level (GAC) or 'Critical Concentration (Cc)'.

The reported soil sample total contaminant concentrations data set was placed into a single averaging area comprising the near surface soils across the site. Further to the statistical analysis the chemical results were compared individually to the relevant GACs.

6.1 Total Soil Concentrations – Shallow Soils <1.0m Depth

The priority contaminant concentrations from the 19no. samples of shallow soils analysed, and a summary of the results are presented in Appendix C and are detailed in the following section.

Heavy Metals

The comparison of the reported heavy metal concentrations within the shallow soil samples analysed indicated 95th percentile upper confidence limit of μ concentrations which were below the relevant Residential with Home Grown Produce GACs employed for all determined. Further to this individual comparison of the concentrations data set indicated only two slightly elevated concentration, one of arsenic and one of beryllium.

The exceedances are summarised below.

Heavy Metal Exceedances

Determinand	Assessment Criteria (mgkg ⁻¹)	Borehole and Depth (m bgl) (strata)	Maximum Reported Concentration (mgkg ⁻¹)	95th Percentile Upper Confidence Limit (mgkg ⁻¹) (without exceedances removed)
Arsenic	37	TP10 at 0.90m	50	N/A
Beryllium	1.7	TP10 at 0.90m	2.5	N/A

As the 95% UCL for both arsenic and beryllium were below the relevant threshold, these slightly elevated concentrations are considered as an indication of significant contamination.

The samples were screened using phytotoxicity guidance levels also and no exceedances were recorded.

Hydrocarbons

The comparison of the reported hydrocarbon concentrations within the shallow soil samples analysed indicated 95th percentile upper confidence limit of μ concentrations which were below the relevant Residential with Home Grown Produce GACs employed for all determined. Further to this individual comparison of the concentrations data set indicated no elevated hydrocarbon compounds.

Other Priority Contaminants

The comparison of the reported total other priority contaminant concentrations within the shallow soil samples analysed indicated 95th percentile upper confidence limit of μ concentrations which were below the relevant Residential with Home Grown Produce GACs employed for all determined.

Individual comparison of the other priority contaminant concentrations data set to the relevant GAC did not indicated any exceedances.

Analysis for the presence of asbestos. No asbestos was detected within the sample subject to testing.

Olfactory and PID screening of the shallow samples did not indicate any significant odorous agrichemical concentrations or VOCs.

6.2 Controlled Groundwater Risk Assessment

A detailed controlled groundwater risk assessment was outside the scope of this report.

6.3 Ground Gas Risk Assessment

The PRA report concluded that there was a Low risk of contamination of the site from ground gases. Monitoring standpipes were installed during the fieldworks for the purpose of monitoring ground gas and groundwater level.

6.3.1 Sources

The PRA report indicate that a single historical landfill is located 271m southwest of site.

During the investigation minimal Made Ground material were identified on site and comprised essentially reworked sandy / gravelly topsoil over the natural sandy/gravelly CLAY. The Made Ground deposits did not exhibit any significant signs of contamination liable to produce vapours or significant organic matter likely to generate ground gases and to present a significant risk to the end users.

On the above basis there is the possibility that ground gases may be generated and have the potential to migrate and accumulate within any enclosed spaces on site.

Therefore, based upon the above discussion, a Low Environmental Risk classification for the generation of carbon dioxide and methane gases on site has been concluded for the site in accordance with CIRIA C665 and BS8576:2013.

6.3.2 Pathways

The predominating pathway concluded in the CGM is for the migration of ground gases from the off-site potential gas generation sources and migration to impact any proposed structures through the potentially permeable near surface strata.

Minor groundwater seepages were noted within sand and gravel bands within some of the boreholes, however, typically no groundwater was noted within the near surface deposits to a depth of 2.0m. On this above basis some retardation of ground gas flow beneath the site is likely to occur due to groundwater.

6.3.3 Receptors

The main receptors of concern are the future site users of the proposed residential development on the site through inhalation of asphyxiant gases (CO_2) and explosion from flammable gases (CH_4) within any new structures.

6.3.4 Ground Gas Monitoring

Monitoring wells were installed within all 6no. of the boreholes on the site during associated ground investigation works on 17th June 2020.

A total of 6no. monitoring visits have been undertaken between June and October 2020. The pipe installed within WS6 was noted to have been vandalised on the 5th visit and so no readings were taken on the final two visits.

The borehole monitoring was each installed to between 3.90m and 5.20m bgl with 35mm internal diameter HDPE well pipe at the base and 1.0m of plain well pipe at the surface.

The borehole installations were backfilled with 3-6mm gravel and a pelleted bentonite seal was created for the top 1.0m of pipe. The wells were left proud for ease of identification during return monitoring visits. A Borehole Location Plan showing the monitoring well locations are presented in Appendix B.

The wells were positioned around the perimeter of the site to avoid damage from machinery as the site is still actively farmed and as the risk factors identified were off-site. The monitoring was carried out by PGE using a Geotech GA5000 Gas Analyser.

The results of the initial monitoring are summarised in the table below, with the highest gas level within each well highlighted. The monitoring data is presented in Appendix E.

Ground Gas Monitoring Summary

Borehole	Date	GW Level (mbgl)	Atmospheric Pressure (Mb)	Maximum Methane (% v/v)	Maximum Carbon Dioxide (% v/v)	Lowest Oxygen (% v/v)	Max sustained Flow (l/hr)	VOC
WS1	25/06/2020 to 01/10/2020	1.25-2.60	993-1018	0.0-0.1	0.30-2.2	19.2-20.8	0.0	0.0
WS2		DRY		0.0-0.0	0.5-3.8	16.5-20.9		
WS3		1.75-3.78		0.0-0.0	0.2-2.2	18.4-21.0		
WS4		2.27-2.38		0.0-0.0	0.7-2.9	18.1-20.3		
WS5		2.02-DRY		0.0-0.0	0.4-3.9	15.3-20.6		
WS6		3.65-DRY		0.0-0.0	0.20-1.0	19.2-20.6		
Notes								
* - Where no flow detected assumed as 0.1 l/h								

The ground gas monitoring on the site indicated generally low levels of flammable gas (methane) concentrations with a maximum of 0.1% v/v. Carbon dioxide concentrations were recorded at a maximum level of 3.9% v/v on 03/09/2020 in WS5.

A PID was also employed as a basic screening tool to identify potential hydrocarbon / vapour within the boreholes. No measurable concentrations of VOCs were identified during the monitoring visits.

Sustained gas flows were not recorded within the monitoring standpipes; a flow of 0.1l/hr has been assumed for modelling purposes during calculation of the GSV.

6.3.5 Ground Gas Risk Assessment

The results of all the monitoring were assessed in accordance with CIRIA C665 2007 – Assessing the risks posed by hazardous gases to building.

For the subject development of proposed residential development, a CIRIA C665 2007 Situation B for 'Low rise building with minimum ventilated under floor void (min 150mm)', was employed for the risk assessment of the identified gas concentrations.

A maximum methane concentration of 0.1% v/v and carbon dioxide concentration of 3.9 v/v were identified during the monitoring with a maximum sustained gas flow rate of 0.1 l/hr detected.

This gives a maximum Gas Screening value of 0.0001l/hr for methane and 0.0039l/hr carbon dioxide.

The calculated gas screening values allow a Characteristic Situation 1 (Very Low Risk) employing the Modified Wilson and Card classification detailed in CIRIA C665 2007 or a 'Green' classification as per the NHBC Traffic Light System outlined in NHBC Report No 10627-R01(04).

6.3.6 Ground Gas Risk Assessment Conclusions

A Conceptual Gas Model has been produced for the site which indicates a low ground gas risk to the proposed residential end site users.

Ground gas monitoring comprising 6no. visits has been carried out on the site between June and October 2020 with two of the visits undertaken with atmospheric pressures of at or below 1000mb.

The gas monitoring results to date gave a worst-case gas screening value of 0.0022l/hr for CO₂ and of 0.0001l/hr for CH₄. This allows a Characteristic Situation (CS) 1 employing the Modified Wilson and Card classification detailed in CIRIA C665 2007 or 'Green' classification based upon NHBC Traffic Light System as per NHBC Report No 10627-R01(04). For sites classifying as CS1 / Green no special gas protection measures are required.

6.4 Soil Waste Assessment

The HazWaste online classification system was employed to assess the waste classification employing the total determinand concentrations within samples of the near surface soils, in relation to groundworks arising disposal. This indicated all soils tested to have a Non-Hazardous classification with EWC code **17 05 04**.

Waste Acceptance Criteria (WAC) testing was also carried out to determine if the soils tested could be disposed of into an inert facility. This indicates that the samples of soils had leachable determinand levels below the related guidance levels for disposal into an inert facility. Based upon the testing carried out the waste soils generated on site may still be suitable for disposal at an inert facility.

In addition, no asbestos was detected within the sample selected for screening.

The results of the soil waste classification testing are presented in Appendix C.

On the above basis, it is considered that the soils tested would classify as non-hazardous waste and may be suitable for disposal into an inert facility.

All waste classification should be confirmed with the waste receiving facility prior to disposal. The waste receiving facility, especially if not an inert landfill, may also require the total soil priority contaminant concentrations which are also presented in Appendix C.

6.5 Potable Water Supply Pipe

Guidance on the type of potable water supply pipe to be employed on residential development sites is given by UKWIR, who have published guidance for the type of potable water supply pipework to be employed for new structures on reused land.

Samples were recovered from shallow depth on the site. These samples were analysed for a suite of contaminants which are considered to be in accordance with the UKWIR requirements. The analysis results indicated generally very low levels of hydrocarbon (TPH(C10-C40) and PAH) concentrations at pipe burial depth (c. 0.70m bgl) however, some of these were considered to be above the UKWIR Guidance concentrations.

Therefore, conventional PE pipe may be suitable for the potable water supply pipework on the site. However, barrier style pipe should be considered for the areas of the site where above detection level hydrocarbon concentrations were identified, typically within area of deeper Made Ground in TP13.

The classification will be decided by the local water company and their advice should be sought prior to the laying of any potable water supply pipework. The local water company may require furthermore detailed sampling, testing and assessment prior to pipe selection.

6.6 Site Contamination Assessment Discussion

Generally low levels of priority contaminants were noted in the shallow soils from across the site with no statistical exceedances compared to the most stringent residential with plant uptake human health risk threshold values. In addition, no asbestos was detected within the sample subject to screening.

Given the above, the shallow soils on site are considered to not pose an unacceptable risk to the proposed highly sensitive end site users. Therefore, no risk reduction or remediation works are considered necessary and the site is considered suitable for the proposed end use.

Ground gas monitoring indicated a classification as CS1 / Green with no ground gas protection measures necessary.

Based upon the significant size of the site and that the objectives of this report are an initial screening to inform an outline application for planning on the site, it is possible that further focused and detailed works may be required at later stages of the development to provide a focused survey.

Notwithstanding the above assessment, if any unexpected or previously unidentified contamination is discovered during the site development works, a suitably qualified and experienced person should be contacted so any further assessment required can be carried out.

6.7 Updated Conceptual Site Model

An assessment of the risk posed by the identified contaminant concentrations has been carried out employing the Source-Pathway-Receptor (S-P-R) methodology detailed within the CLEA methodology.

Updated SPR Flowchart

Potential On-Site Contaminant Sources	Potential Pathways	Potential Receptors	Pathway Complete
No evidence of significant contamination recorded during the investigation.	Dermal/Direct Contact	Current site users (Open field)	N
	Direct Ingestion		N
	Direct Inhalation		N
	Inhalation of Radon Gas		N
	Inhalation of Wind Blown Dust		N
	Vapour Migration		N
	Gas Migration		N
	Dermal/Direct Contact	Future site users (residential use with plant uptake)	N
	Direct Ingestion		N
	Direct Inhalation		N
	Inhalation of Radon Gas		N
	Inhalation of Wind Blown Dust		N
	Vapour Migration		N
	Ground Gas Migration		N
	Direct Contact	Service	N
	Migration of Contaminants – Non-Aqueous Phased		N
	Migration of Contaminants – Aqueous Phased		N
	Migration of Contaminants – Non-Aqueous Phased	Adjacent Properties	N
	Migration of Contaminants – Aqueous Phased		N
	Vapour Migration		N
	Inhalation of Wind Blown Dust	Ecological Impacts	N
	Migration of Contaminants – Non-Aqueous Phased		N
	Migration of Contaminants – Aqueous Phased		N
	Migration of Contaminants from site – Non-Aqueous Phased	Controlled groundwater	N
	Migration of Contaminants from site – Aqueous Phased		N
	Migration of Contaminants – Non-Aqueous Phased	Surface Waters	N
	Migration of Contaminants – Aqueous Phased		N

The risk to construction workers has not been assessed as generally any risks posed to site construction workers from identified contamination can be mitigated through good site practices and robust sitework risk assessment. However, works carried out on sites where asbestos fibres have been identified must be carried out by a suitable contractor and a site specific Health and Safety Plan for site construction workers must be produced in line with CAR 2012².

² Control of Asbestos Regulations 2012

7.0 FOUNDATION DESIGN CRITERIA

7.1 Geotechnical Laboratory Testing

Representative samples were sent to an external laboratory following visual assessment and logging of the trial pit and borehole arisings. The testing programme was designed to classify the properties of the encountered soils and to determine the chemistry of the soil in relation to the design of buried concrete.

7.1.1 Atterberg Limits

The results of 7no. Atterberg Limit determinations carried out on samples of fine-grained soils encountered are presented in Appendix D. The results have also been plotted on a Casegrande Plasticity Chart, also presented in Appendix D.

The soils tested have been assessed for their volume change potential (VCP) in accordance with NHBC Standards Chapter 4.2 and are detailed in the table below.

Atterberg Limit Testing

Exploratory Point and Strata	Depth (m)	Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% Passing 0.425mm	Casegrande Classification	NHBC Modified Plasticity Index	NHBC Volume Change Potential
SA1	1.30	20	56	24	32	88	CH	28	MEDIUM
SA3	1.40	14	44	44	26	54	CI	14	LOW
SA5	0.90	16	38	38	20	66	CI	13	LOW
TP5	2.20	23	37	37	19	98	CI	19	LOW
TP8	1.20	17	46	46	26	87	CI	23	MEDIUM
TP9	1.30	14	42	42	23	86	CI	20	MEDIUM
WS1	3.20	21	60	60	38	100	CH	38	MEDIUM
WS2	1.80	17	53	53	31	93	CH	29	MEDIUM
WS3	1.20	15	42	42	24	76	CI	18	LOW
WS3	2.20	25	50	50	26	91	CH	24	MEDIUM
WS4	0.90	19	52	24	28	88	CH	25	MEDIUM
WS6	1.60	20	42	20	22	91	CI	22	MEDIUM

The samples of fine grained Lowestoft Formation soils have Modified Plasticity Indices of between 13% and 38% and therefore can be classified as **Low to Medium** Volume Change Potential employing the NHBC classification scheme.

7.1.2 Natural Moisture Content

Testing was performed to determine the natural moisture content (NMC) of the sample subjected to Atterberg Limit testing. These results are presented in the Laboratory Test Result Summaries in Appendix D.

7.1.3 Particle Size Distribution

Particle Size Distribution (PSD) testing was carried out on two samples of the Lowestoft Formation soils where significant coarse grained pockets / bands were encountered. The samples indicated that where sand and gravel bands are present, they contained a fines content of 8.5% to 25% and are thus confirmed to be coarse grained and non-shrinkable. The soils as a whole, however, has been confirmed as low to medium shrinkage from Atterberg Limit testing.

7.1.4 pH and SO_x

The level of pH, sulphate and other determinands within the BRE SD1 Suite have been determined for selected samples from above and at the proposed likely shallow foundation invert level to assess the appropriate Design Sulphate Class for buried concrete in accordance with BRE Special Digest 1 Table 2. The results of the analysis are presented in Appendix C.

The table below summarises the reported pH values, Total Sulphate and 2:1 Water Soluble Sulphate concentrations.

Design Sulphate Class for Site

Exploratory Location	Depth	pH	Water Soluble Sulphate (2:1 Water Extract) (mg/l)	Total Sulphate (%)	Appropriate Design Sulphate Class
SA1	0.80	7.5	15	0.028	DS-1
SA4	1.00	8.1	13	0.018	DS-1
TP1	1.60	7.7	18	0.018	DS-1
TP3	1.10	7.7	16	0.019	DS-1
TP4	0.80	7.5	15	0.033	DS-1
TP5	0.40	7.2	25	0.054	DS-1
TP6	0.80	6.6	14	0.038	DS-1
TP10	0.30	7.7	7	0.049	DS-1
WS1	1.60	7.6	21	0.027	DS-1
WS2	1.20	5.5	43	0.049	DS-1
WS2	2.80	5.0	160	0.075	DS-1
WS3	1.80	5.5	29	0.048	DS-1
WS4	1.20	7.5	15	0.022	DS-1
WS5	2.60	7.2	15	0.017	DS-1

The assessment assumes that all of the Total Sulphate (%) is in a suitable form that following ground disturbance could oxidise.

Groundwater was not encountered except as minor seepages within trial pit TP8. Subsequent groundwater monitoring within the boreholes recorded groundwater levels of between 1.25m and 4.31m below ground level.

The Design Sulphate Class was consistent across the site laterally and with respect to depth with a worst case **DS-1** classification. There is a worst case Aggressive Chemical Environment for Concrete (ACEC) site classification is **AC-1s**.

7.2 In-Situ Testing

A Hand Vane was employed on fine grained soils within the trial pits to assess the shear strength of the fine-grained soils encountered.

The testing indicated soil strengths on the site to be generally consistent across the majority of the site.

The Lowestoft Formation soils indicated soil shear strengths through hand vane testing of between 20kPa and 117kPa at shallow depth (1m-2m), however, discounting the questionable result from trial pit TP7 the range is more typically 42kPa and 117kPa. Giving these values the soils are considered to be of a medium to high strength.

SPT N values within the Lowestoft Formation deposits ranged between 9 and 29. These correlate to a soil shear strength of between 45kPa and 145kPa employing the correlation by Stroud and Butler, 1975 for soils with a PI<40%.

8.0 ENGINEERING EVALUATION

8.1 Introduction

The proposed development scheme is indicated by the Client's Engineer to involve a comprehensive development of the site to deliver residential dwellings, associated access, and supporting amenity space, landscaping, green infrastructure, and sustainable drainage systems.

We understand that the development plans have not yet been finalised, but an indicative layout plan has been provided by the client and is present within Appendix A.

8.2 Foundation Design Considerations

Topsoil was present across the site and encountered to depth of between 0.2m and 0.70m depth, typically 0.30-0.50m. Localised deeper Made Ground was identified in trial pit TP13 within the run of a former drainage ditch on the east of the site that has now been infilled.

The Made Ground within trial pit TP13 comprised brown to dark brown slightly sandy slightly gravelly silty CLAY with roots and rootlets with the gravel composed of clayware, plastic and flint.

The underlying natural Lowestoft Formation deposits were encountered that comprise firm brown, orange brown and grey mottled variably sandy variably gravelly CLAY. The deposits were highly

heterogeneous with varying quantities of sand and gravel and frequent pockets, lenses and bands of sand and gravel within the clay matrix. The gravel comprised chalk, flint, sandstone, mudstone, and occasional coal.

From a depth of around 3m to 4m the deposits typically became firm to stiff, grey and the chalk within the gravel fraction became predominant which is typical of Lowestoft Formation.

Localised roots and rootlets were observed up to a maximum depth of 2.20m within borehole WS2 which was undertaken adjacent to the perimeter vegetation screen on the eastern boundary of the site. Typically roots and rootlets were encountered to a maximum of 0.5m depth across the site.

Groundwater was encountered within two of the shallow trial pits and within four of the six boreholes undertaken at depth of 0.90m to 4.0m, typically as seepages within sand band and pockets of gravel. Subsequent groundwater monitoring of the standpipes indicates groundwater levels of between 1.25m and 4.31m, suggesting the water is perched within more permeable lenses and horizons and not indicative of the groundwater level in the site area.

The strength of the fine grained Lowestoft Formation soils on the site has been assessed using a Hand Vane in the field as generally medium to high strength below 1.00m depth.

The results of the soil strength testing are summarised and presented with the logs in Appendix B.

The Lowestoft Formation deposits are indicated to be of Low to Medium VCP, therefore a Medium VCP will be employed for design as a worst case scenario.

8.3 New Structure Foundation Design Criteria

Conventional foundations, such as strip and isolated pads, placed into Made Ground, variable soils, desiccated soils, or soils containing significant organic matter are generally subjected to increased risk of settlement, especially differential settlement. Therefore, it is not recommended that foundation be placed into the Topsoil or Made Ground soils identified on the site to a maximum depth of 0.90m bgl in TP13 on the east of the site. .

8.3.1 Building Near Trees Assessment

Semi-mature and mature trees of mixed species were noted around the boundaries of the site, the majority of which are likely to remain following the proposed development. As foundations are to be located on the Medium VCP Lowestoft Formation soils, consideration should be given to deepening foundation where within the influent of these trees, other major vegetation or new planting proposed within the scheme on site, to account for the effects of these medium VCP soils present.

Details of the trees present have not been forwarded by the Client. As such the services of an arborist is recommended to determine the existing tree species further and anticipated mature tree heights.

A detailed assessment should be carried out using the data within this report once a final development plan including proposed planting and a tree survey plan have been produced by the scheme foundation design Engineer. This will allow a detailed reassessment of the required minimum foundation depths once a final detailed development layout has been decided and a proposed planting and final plan of trees to be retained has been produced.

Report on behalf of: Canton Ltd

P20-164gi_v2 – Land off Bullens Green Lane, Colney Heath, AL4 0QQ

Where foundations are greater than 1.5m depth or within the zone of influence of a tree, heave protection should be employed such as 'clay board'. However, it is likely to be difficult to place heave protection within the sides of relatively deep open excavations and inspection may require locally deeper excavations, prior to pouring of any concrete.

8.3.2 Excavations

Excavations should be readily achieved within the near surface soils using conventional plant.

The soils encountered within the trial pits are considered to remain stable in the short to medium term.

At no time should any excavations be entered by personnel without correct shoring and only after an assessment of whether the task can be completed without entry to the excavation has been completed.

8.4 Foundation Options Discussion

Given the ground model for the site it is considered that conventional strip foundation will be suitable for the proposed low-rise residential development of the site.

A detailed building near trees assessment will be required to determine the minimum foundation depths for any proposed dwelling to be founded on the fine grained Lowestoft Formation deposits that are in the vicinity/within the zone of influence of existing trees to be retained or proposed planting, assuming a Medium VCP for fine grained soils beneath the site.

For conventional foundation outside the influence of any trees and bearing onto the Medium VCP Lowestoft Formation soils a minimum foundation depth of 1.25m bgl should be employed to be protective of selective new planting.

Groundwater was encountered within two of the shallow trial pits and within four of the six boreholes undertaken at depth of 0.90m to 4.0m, typically as seepages within sand band and pockets of gravel. Subsequent groundwater monitoring of the standpipes indicates groundwater levels of between 1.25m and 4.31m.

The above foundation options and design approaches are subject to detailed Structural Engineer design and regulator agreement.

8.5 Bearing Capacity

Should a conventional spread foundation option be considered, then at a minimum depth of 1.25m bgl onto the Lowestoft Formation soils, an allowable bearing capacity would be of the order of **100kPa**.

These estimates further include a factor of safety of 3 against general shear failure and should keep settlements within tolerable limits.

Any excavations for the footings should be inspected by a suitably qualified person to assess the variability of the soils and groundwater conditions. If, following inspection, the soil conditions differ from those identified within this geotechnical appraisal the recommendations may require reassessment. Any roots, organic matter, and in particular any 'soft/loose' or otherwise unsuitable material encountered at the founding depth should be removed prior to pouring of any concrete.

8.6 Piled Foundations

Should assessed minimum foundation depths be too deep for conventional foundations or the bearing capacities derived above not be sufficient for the proposed development then consideration of alternative foundation solutions such as piles may provide the required improvement in bearing capacities.

Piled foundations are likely to provide a satisfactory foundation option for the proposed development with piles extending into the deeper Lowestoft Formation or Chalk soils at a greater depth than investigated during this ground investigation.

Where trees are removed, depending upon pile types and design, piles should be sleeved within the zone of potential desiccation to prevent uplift forces whilst the ground recovers soil water deficits to stable moisture contents.

A cable percussion borehole with attendant sampling, testing and supplementary ground investigation report will be required to provide a further range of geotechnical parameters and to assist structural engineer and piling contractor with the piled foundation design. The advice of a specialist piling contractor should be sought who can provide an assessment of the suitability of their piles.

8.7 Sub-Surface Concrete

The worst case for the site is Design Sulphate Class DS-1. The worst case Aggressive Chemical Environment for Concrete (ACEC) site classification is AC-1s.

8.8 Surface Water Soakaways and Soil Permeability

Infiltration testing was carried out on the site within the Trial Pits SA1, SA2, SA3, SA4, SA5, SA6 and SA7.

Significant infiltration was not noted within any of these trial pits.

On the above basis, it is considered that conventional soakaways would not be effective on the site within the shallow Lowestoft Formation soils and another method of surface water disposal should be sought along the hierarchy of disposal methods.

8.9 Access Roadways and Parking Areas

In situ CBR determinations were outside the scope of the investigation.

The TRL Laboratory Report 1132 – The Structure of Bituminous Road, Appendix C Table C1 allows an estimate of CBR value based on soil equilibrium suction index. Where a pavement foundation will

bear onto the encountered fine grained Lowestoft Formation soils a CBR value of 2.5-4.0% can be employed.

Therefore, given the above results a conservative design CBR value of 2.5% is considered appropriate across the site for initial design and it is recommended that further in-situ CBR testing be performed employing CBR plunger or plate loading once the road layout for the proposed development has been confirmed.

9.0 CERTIFICATION

This report is produced for the sole use of the Client, and no responsibility of any kind, whether for negligence or otherwise, can be accepted for any Third Party who may rely upon it.

The conclusions and recommendations given in this report are based on our understanding of the future plans for the site and based on a scope of works agreed by the Client and afforded by the agreed budget. No responsibility is accepted for conditions not encountered, which are between exploratory points or outside of the agreed scope of work.

If the future plans for the site are changed, such as the site is developed for a more or less sensitive use, then a different interpretation might be appropriate.

The report has been prepared generally following the guidelines and principles established in the British Standards, BS5930:1999+A2:2010, BS 10175:2011, entitled 'Investigation of Potentially Contaminated Sites – Code of Practice' and the DEFRA/EA Contaminated Land Reports CLR7 and CLR8.

It necessarily relies on the co-operation of other organisations and the free availability of information and total access. No responsibility can, therefore, be accepted for conditions arising from information that was not available to the investigating team as a result of information being withheld or access being denied.

This report may suggest an opinion on a suspected configuration of strata or conditions between exploratory points and below the maximum depth of investigation. However, this is for guidance only and no liability can be accepted for its accuracy. Comments on the groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. It should be noted, however, that groundwater levels might vary due to seasonal or other effects.

It should be noted that this report is based solely on the samples collected in the borehole locations investigated. During the works and following general site clearance, should the sub-soil conditions in other areas of the site appear to be inconsistent with those found in the areas sampled then this geotechnical appraisal and site contamination assessment may need to be reviewed.

This report is prepared and written in the context of the proposals stated in the introduction to this report and it should not be used in a differing context. Furthermore, new information, improved practices and changes in legislation may require an alteration to the report in whole or in part after its submission. Therefore, with any changes in circumstances, or after one year from the date of the report, the report should be referred back to Paddock Geo Engineering Limited for re-assessment (and, if necessary, for an estimate for the cost of such).

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REFERENCES

Investigation of Potentially Contaminated Sites – Code of Practice, British Standards Institution BS 10175:2001.

Code of Practice for Site Investigations, British Standards Institution BS5930: 1999

Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, R&D Technical Report P5-066/TR, 2000, Environment Agency.

National House-Building Council, NHBC Standards Chapter 4.2 'Building near Trees', 2003

CLR8 Potential Contaminants for the assessment of Land, 2002, DEFRA/Environment Agency.

Health and Safety Executive, Protection of workers and the general public during the development of contaminated land, HMSO, London 1991.

BRE Special Digest 1 'Concrete in Aggressive Ground', 2001.

Contaminated Land Exposure (CLEA) Model version 1.03 developed by the Environment Agency, Department for Environment, Food and Rural Affairs and the Scottish Environment Protection Agency. 2008

CLR7 Assessment of Risks to Human Health from Land Contamination, 2002, DEFRA/Environment Agency.

CLR8 Potential Contaminants for the assessment of Land, 2002, DEFRA/Environment Agency.

CLR11 Model Procedures for the Management of Land Contamination, 2004, DEFRA/Environment Agency.

Rudland, D., Lancefield, R.M., Mayal, P.N. (2001) Contaminated Land Risk Assessment: A Guide to Good Practice. CIRIA C552. UK.

Method for Deriving Site-Specific Human Health Criteria for Contaminants in Soil, SNIFFER, 2003.

Technical evaluation of the Intervention Values for Soil/Sediment and Groundwater, RIVM Report 711701 023, National Institute of Public Health and the Environment, 2001.

Tonks D M and Whyte I L 'Dynamic soundings in site investigation: some observations and correlations', Proceedings of ICE Geotechnology Conference, Paper 10, 1988.

The Water Supply (Water Quality) Regulations. HMSO. 2000

Code of Practice for Investigation and Mitigation of Possible Petroleum –Based Land Contamination, 1993, Institute of Petroleum, London.

Contaminated Land Management – Ready Reference, J Nathanail, P Bardos and P Nathanail, Land Quality Press, 2002.

BRE Digest 412 'Desiccation in Clay Soils', 1996

Report on behalf of: Canton Ltd

P20-164gi_v2 – Land off Bullens Green Lane, Colney Heath, AL4 0QQ

DTI/CIRIA Publication 'Engineering in Chalk'

<http://www.silsoerresearch.org.uk/> Silsoe Research Organisation. Viewed July 2007.

Hydrogeological Risk Assessment for Land Contamination Remedial Targets Worksheet, release 3.1 – October 2006

Assessing risks posed by hazardous ground gases to buildings – CIRIA C665, 2007 – Wilson, Oliver, Mallet, Hutchings and Card

Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings - British Standards Institution BS 8485:2015

NHBC & RSK Group publication 'Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present' (March 2007).

Mobilising Natures Army: Monitored Natural Attenuation – dealing with pollution using natural processes, Environment Agency. 2004

Remediation Targets Methodology: Hydrogeological Risk Assessment for Land Contamination, Environment Agency. 2006

BRE Report BR211 - Radon: Protective measures for new dwellings, November 2007

GPLC1 - Guiding Principles for Land Contamination Environment Agency, 2010

Environment Agency Landfill Environmental Permit EPR/FP3399VV

Perimeter soil gas emissions criteria and associated management. Industry Guidance v1.01. BIFFA et al. January 2011

Environment Agency, Briefing Note – Monitoring Frequencies and Non-Compliance Recording

LFTGN03. Guidance on the Management of Landfill Gas. Environment Agency. 2003

Environment Agency, Final R&D Technical Report P1-471 Techniques for the Interpretation of Landfill Monitoring Data – Guidance Notes

APPENDIX A – MAPS AND PLANS

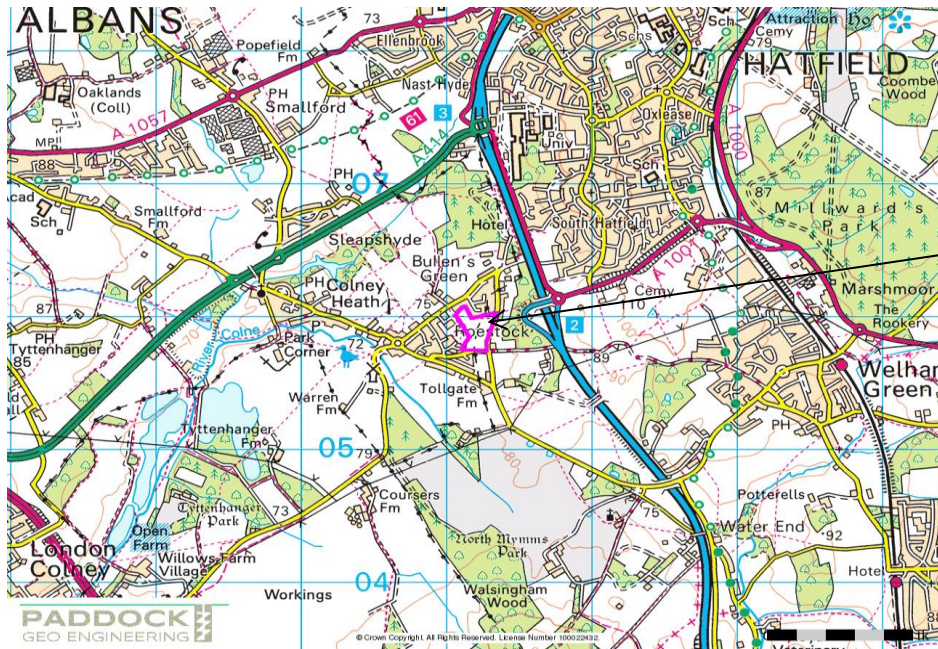
Site Location Plan

Site Plan

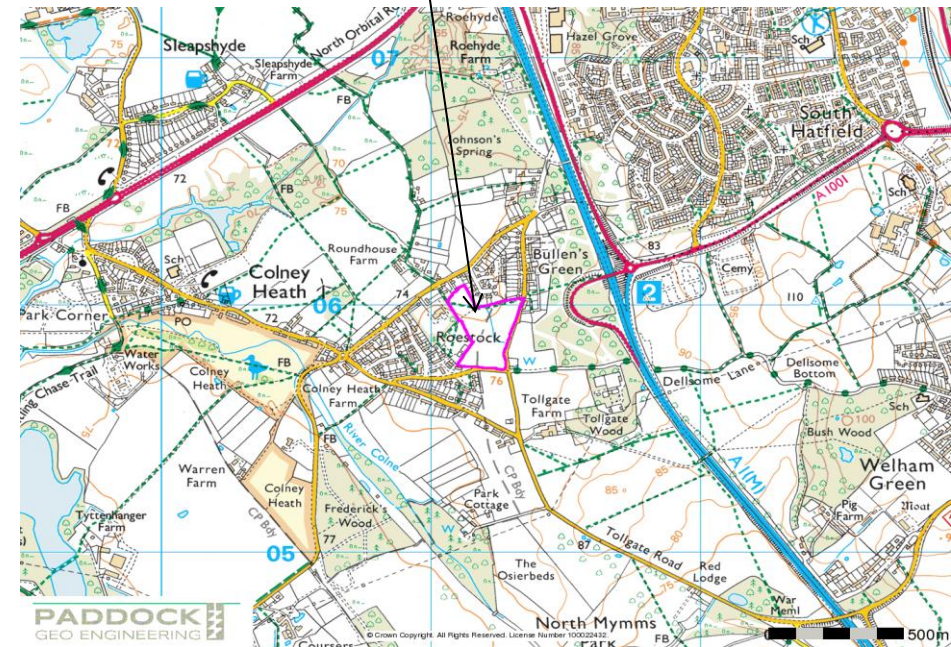
Aerial Photograph

Proposed Development Plans

SITE LOCATION PLANS



Site Location

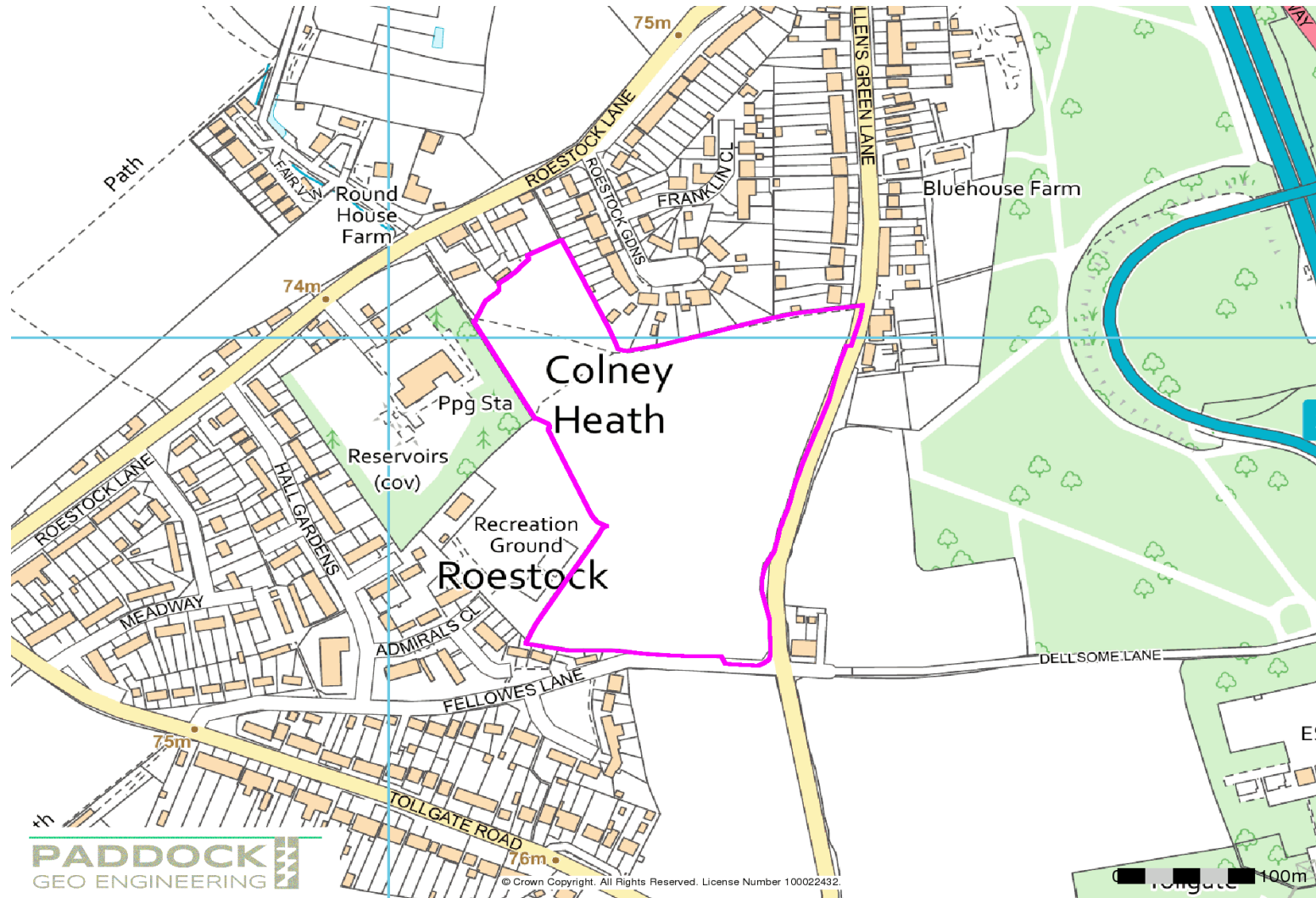


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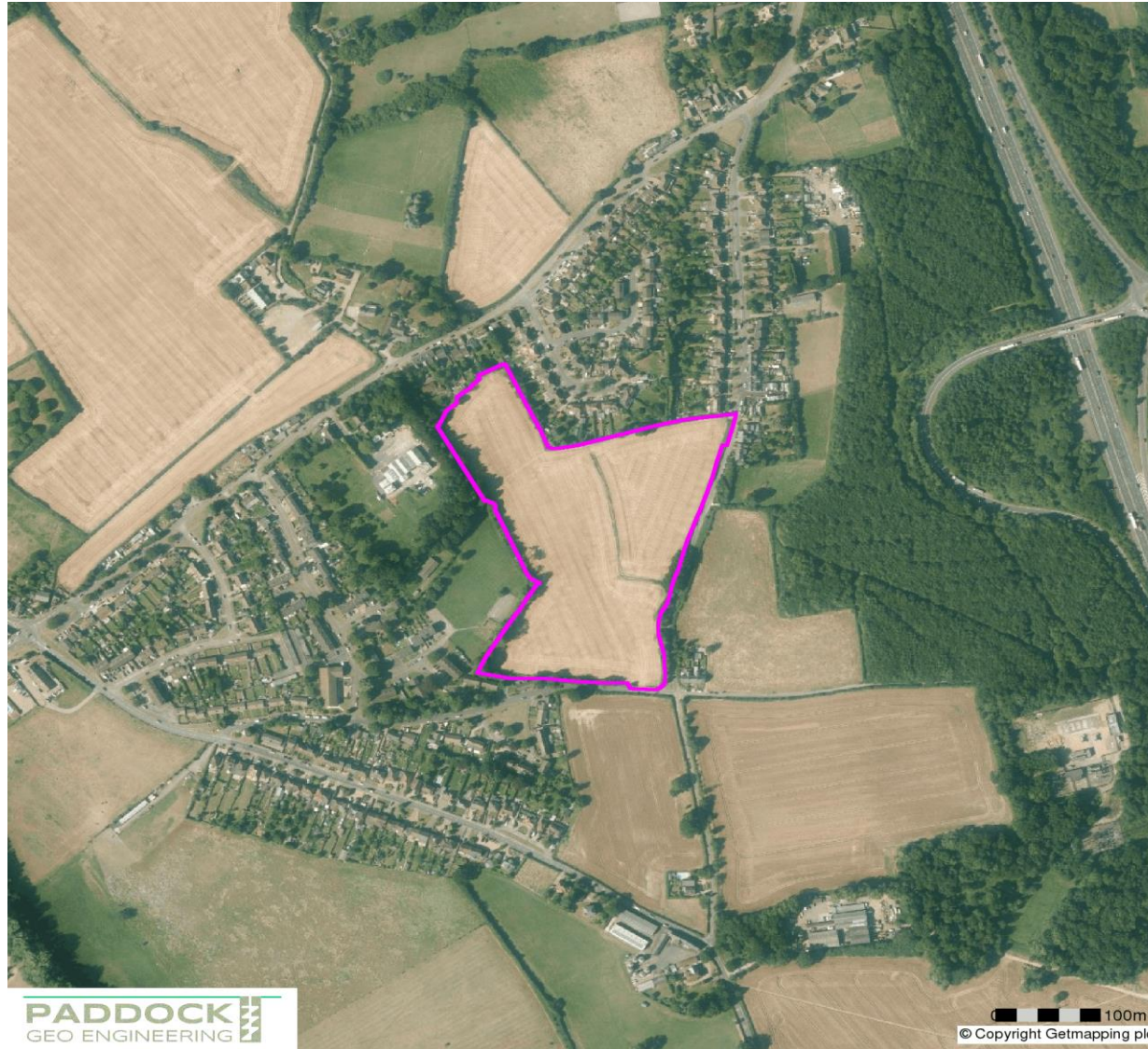
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PROJECT TITLE:

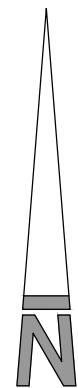
Canton Ltd
P19-164pra
Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ

SITE PLAN



AERIAL PHOTOGRAPH





- NOTES**
- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding. © This drawing is copyright.
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- Key:**
- Existing Trees & RPAs
 - Existing Listed Building
 - Denotes Existing PRoW
 - Denotes Existing 'walked route'
 - Denotes Existing Drainage
 - Denotes Existing HV Cable
 - Proposed Landscape Buffer
 - Proposed Trees
 - Proposed Green Space
 - Denotes Proposed Site Access
 - Potential Play Space
 - Proposed Location of New Pump Station
 - Denotes Proposed Attenuation
 - Denotes Key/Focal Buildings
 - Denotes New Footpath Route

REV	DESCRIPTION	DRN	CHD	DATE
PRELIMINARY	INFORMATION			TENDER
CONSTRUCTION	AS BUILT			
SCALE	1:1000 @ A2	DATE	July 2020	
DRAWN	AJS	CHK	TF	
DRAWING NO.	17981/1005	REV	B	
TITLE	Land North of Fellows Lane Colney Heath			
DETAILS	Proposed Illustrative Layout			

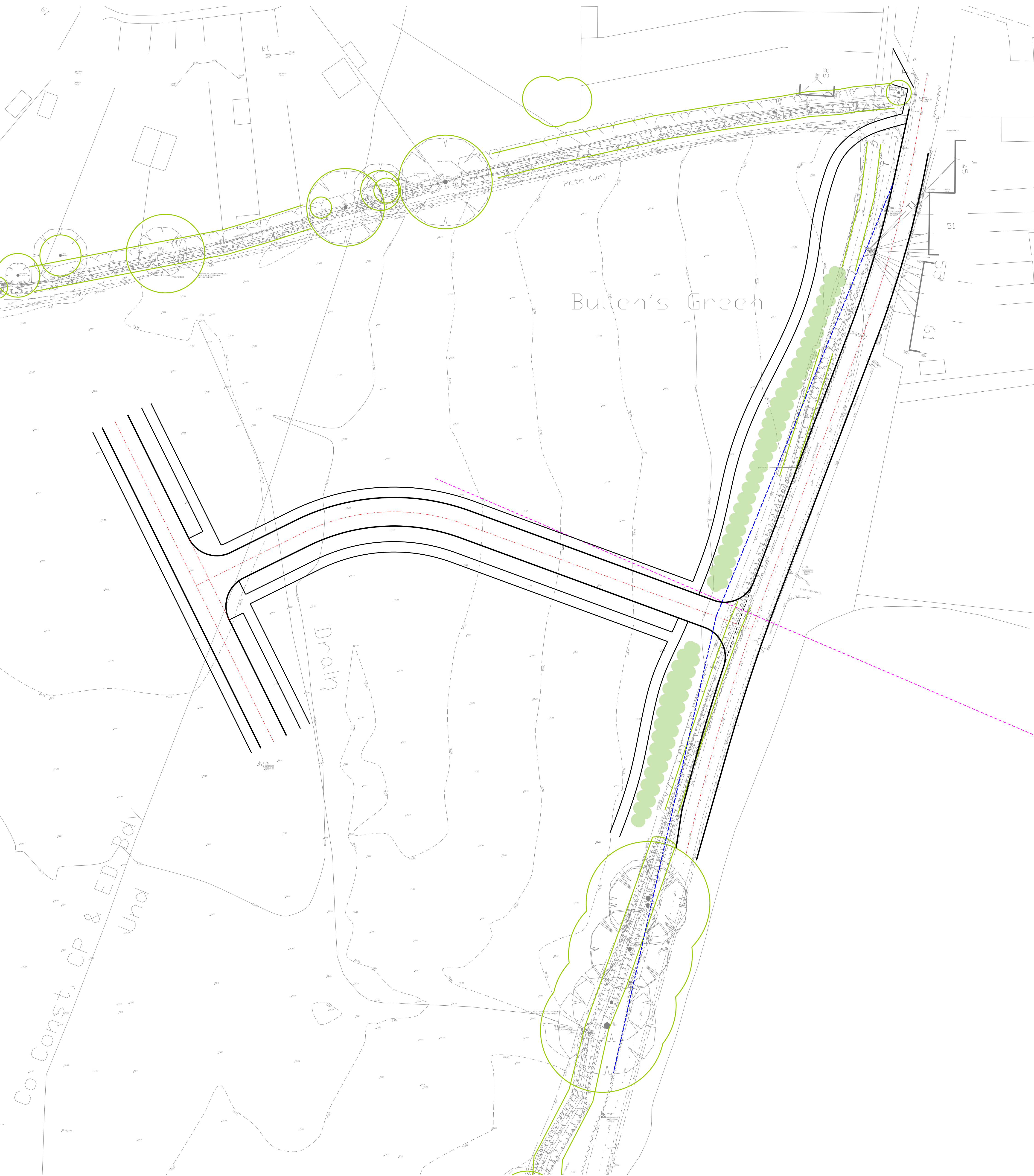
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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING



APPENDIX B – SITE DETAILS

Exploratory Point Location Plan

Borehole Logs

Trial Pit Logs

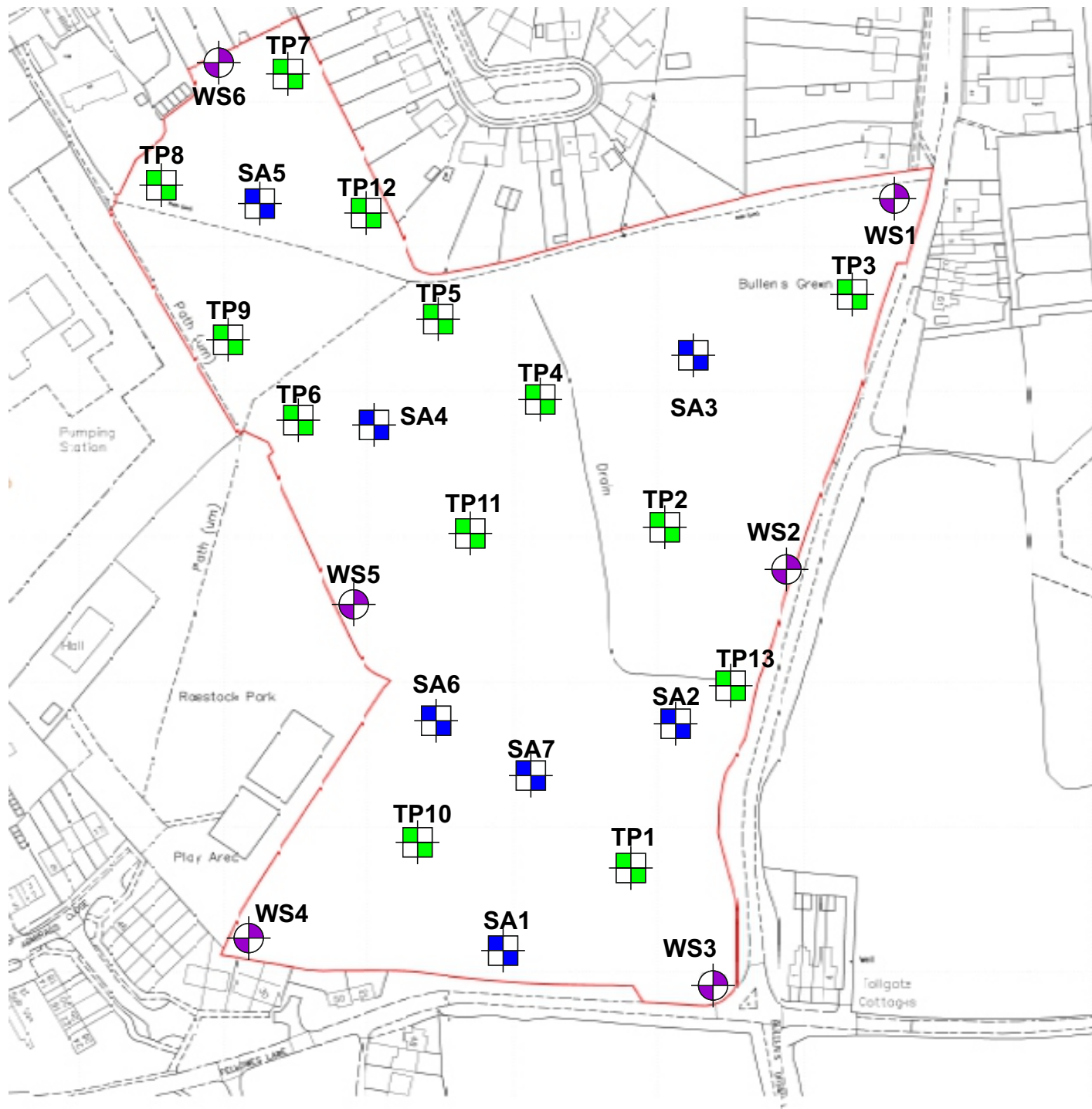
Site Photographs

Exploratory Point Location Plan

Land off Bullens Green Lane,
Colney Heath, Hertfordshire,
AL4 0QQ.

Canton Ltd

July 2020



-  Infiltration testing Locations
-  Trial Pit Locations
-  Window Sample Borehole Locations

Not to scale.
All positions are approximate.
Based on proposed plan provided
by the client.

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Number WS1	
Excavation Method Percussion Liner Sampling Techniques		Dimensions		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.10	C				(0.50)	Scrub vegetation onto grey silty gravelly SAND with occasional rootlets. Gravel is flint. (TOPSOIL)			
0.70	SV 31kPa				0.50	Soft orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded coal, flint, and sandstone. (WEATHERED LOWESTOFT FORMATION)			
0.70	D								
0.80	C								
1.00-1.45	SPT(C) N=13		3,2/2,3,4,4						
1.20	SV 73kPa								
1.20	D								
1.60	SV 70kPa				(2.80)	Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded coal, flint, and sandstone. (WEATHERED LOWESTOFT FORMATION)			
1.60	D								
2.00-2.45	SPT(C) N=21		3,4/5,4,6,6						
2.20	D								
2.60	D								
3.00-3.45	SPT(C) N=22		2,3/5,6,5,6			Orange brown clayey SAND. (WEATHERED LOWESTOFT FORMATION)			
3.20	SV 62kPa				3.30 (0.20)				
3.20	D				3.50 (0.20)				
3.50	SV 81kPa				3.70	Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded coal, flint, and sandstone. (WEATHERED LOWESTOFT FORMATION)			
3.70	D				(0.50)				
4.00-4.45	SPT(C) N=9		Water strike(1) at 4.00m. 2,1/2,3,2,2		4.20				
4.20	D					Loose orange and red brown occasionally mottled grey and black clayey silty SAND. (WEATHERED LOWESTOFT FORMATION)			
4.60	SV 42kPa				(0.80)	Firm grey mottled orange brown variably silty CLAY and silty SAND. (LOWESTOFT FORMATION)			
4.60	D				5.00				
						Complete at 5.00m			
Remarks Monitoring standpipe installed upon completion. Groundwater encountered within sand band at 4.0m depth.							Scale (approx) 1:50	Logged By SF	Figure No. P20-164.WS1

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Number WS2	
Excavation Method Percussion Liner Sampling Techniques		Dimensions		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	C				(0.40) 0.40	Scrub vegetation onto grey silty gravelly SAND with occasional rootlets. Gravel is flint. (TOPSOIL)			
0.70 0.80 1.00-1.45	D C SPT(C) N=18		3,3/3,4,5,6		(2.00)	Very stiff brown slightly sandy slightly gravelly CLAY with roots. 50mm diameter root at 0.6m depth and roots up to 15mm diameter up to 2.2m depth. Gravel is fine to coarse angular to sub-rounded flint and coal. (WEATHERED LOWESTOFT FORMATION) ...from 1.0m depth, becoming orange brown mottled grey.	       		
1.20 1.60 1.80 2.00-2.45 2.20	D SV 172kPa D SPT(C) N=22 D		4,5/5,6,5,6		2.40	Firm grey mottled orange brown slightly sandy silty CLAY. (WEATHERED LOWESTOFT FORMATION)	      		
2.60 2.80 3.00-3.45 3.20	SV 96kPa D SPT(C) N=27 D		4,4/5,7,8,7		(1.10) 3.50	Orange brown, brown and grey clayey SAND. (WEATHERED LOWESTOFT FORMATION)	      		
3.80 4.00-4.45 4.20	D SPT(C) N=29 D		9,8/8,8,5,8		(0.90) 4.40	...from 4.0m depth, becoming slightly gravelly. Gravel is fine and angular flint.	     		
4.60 4.80	SV 86kPa D				(0.60) 5.00	Stiff dark grey silty CLAY. (LOWESTOFT FORMATION)	 		
						Complete at 5.00m			
Remarks No groundwater encountered. Monitoring standpipe installed upon completion.							Scale (approx) 1:50	Logged By SF	Figure No. P20-164.WS2

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ			Number WS3	
Excavation Method Percussion Liner Sampling Techniques		Dimensions		Ground Level (mOD)		Client Canton Ltd			Job Number P20-164	
		Location		Dates 17/06/2020		Engineer MC			Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
0.20	C				(0.20) 0.20	Grass onto grey brown slightly sandy slightly gravelly silty CLAY with frequent rootlets. (TOPSOIL)				
0.50	D									
0.80	SV 42kPa									
0.90	D		3,4/3,4,5,5							
1.00-1.45	SPT(C) N=17				(1.80)	Very stiff brown mottled grey and orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse rounded to sub-rounded flint. (WEATHERED LOWESTOFT FORMATION)				
1.20	SV 47kPa					...from 1.0m depth, becoming orange brown slightly mottled grey.				
1.20	D									
1.80	D									
2.00-2.45	SPT(C) N=16		3,3/4,4,4,4		2.00	Firm orange brown mottled grey slightly gravelly sandy silty CLAY. Gravel is fine to coarse angular to sub-rounded flint. (WEATHERED LOWESTOFT FORMATION)				
2.20	SV 62kPa									
2.20	D									
2.80	SV 59kPa				(1.70)					
2.80	D									
3.00-3.45	SPT(C) N=17		3,3/4,4,4,5			...from 3.0m depth, becoming grey mottled orange brown.				
3.20	D									
3.30	SV 69kPa									
3.80	D				3.70	Brown and orange brown clayey SAND. (WEATHERED LOWESTOFT FORMATION)				
4.00-4.45	SPT(C) N=14		Water strike(1) at 4.00m. 5,5/3,4,4,3		(1.20)					
4.20	D									
4.90	D				4.90 5.00	Soft brown slightly sandy silty CLAY. (WEATHERED LOWESTOFT FORMATION)				
						Complete at 5.00m				
Remarks Groundwater within sand band at 4.0m depth. Monitoring standpipe installed upon completion.							Scale (approx)	Logged By		
							1:50	SF		
							Figure No. P20-164.WS3			

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Number WS4	
Excavation Method Percussion Liner Sampling Techniques		Dimensions		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	C				(0.20) 0.20	Grass onto grey slightly sandy slightly gravelly silty CLAY with frequent rootlets. (TOPSOIL)			
0.50	D								
0.80	SV 70kPa								
0.80	C				(1.10)	Stiff grey mottled orange brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse angular to sub-rounded coal, flint and sandstone. (WEATHERED LOWESTOFT FORMATION)			
0.90	D								
1.00-1.45	SPT(C) N=22		2,3/2,3,5,12						
1.20	SV 68kPa				1.30				
1.20	D					Medium dense orange brown sandy GRAVEL. Gravel is fine to coarse sub-angular to sub-rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.60	D				(0.90)				
2.00-2.45	SPT(C) N=26		12,11/11,5,5,5						
2.20	D		Water strike(1) at 2.20m.		2.20	Orange brown SAND. (WEATHERED LOWESTOFT FORMATION)			
2.50	D				(0.40)				
2.80	SV 64kPa				2.60	Stiff grey mottled orange brown sandy CLAY. (LOWESTOFT FORMATION)			
2.80	D				(0.40)				
3.00-3.45	SPT(C) N=13		2,2/3,3,3,4		3.00	Firm grey mottled orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular flint and chalk. (LOWESTOFT FORMATION)			
3.20	D								
3.30	SV 49kPa				(1.00)				
3.80	D								
4.00-4.45	SPT(C) N=7		2,2/2,2,1,2		4.00	Complete at 4.00m			
Remarks Groundwater seepages within sand band 2.20-2.60m depth. Monitoring standpipe installed upon completion.							Scale (approx) 1:50	Logged By SF	Figure No. P20-164.WS4

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Number WS5	
Excavation Method Percussion Liner Sampling Techniques		Dimensions		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.50	SV 26kPa				(0.40) 0.40	Grass onto grey slightly sandy slightly gravelly silty CLAY with frequent rootlets. (TOPSOIL)			
0.80	D					Stiff orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded flint, coal and occasional chalk and sandstone. (WEATHERED LOWESTOFT FORMATION)			
1.00-1.45	SPT(C) N=24		3,3/4,6,6,8		(1.10)				
1.20	D								
1.60	D		Water strike(1) at 1.50m.		1.50	Medium dense orange brown slightly gravelly SAND. Gravel is fine to coarse sub-angular to sub-rounded flint. (WEATHERED LOWESTOFT FORMATION)			
2.00-2.45	SPT(C) N=15		7,6/7,3,3,2		(0.80)				
2.20	D				2.30	Firm orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded flint and occasional chalk and sandstone. (WEATHERED LOWESTOFT FORMATION)			
2.60	D				(0.70)				
2.80	SV 49kPa								
3.00-3.45	SPT(C) N=6		1,1/0,1,1,4		3.00	Soft grey brown and orange brown slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to sub-rounded flint. (LOWESTOFT FORMATION)			
3.20	D					...from 3.50m depth, becoming firm.			
3.60	SV 73kPa								
3.60	D								
4.00-4.45	SPT(C) N=21		2,3/3,4,7,7		(2.00)	...from 4.0m depth, becoming stiff.			
4.20	D								
4.80	D				5.00	Complete at 5.00m			
Remarks Groundwater seepages within sand 1.50-2.30m depth. Monitoring standpipe installed upon completion.							Scale (approx) 1:50	Logged By SF	Figure No. P20-164.WS5

Client Canton Ltd	Job Number P20-164
Engineer MC	Sheet 1/1

Description	Legend	Water	Instr
Scrub vegetation onto grey slightly sandy slightly gravelly silty CLAY with frequent rootlets. Gravel is flint. (TOPSOIL)			
Firm orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded flint, coal and occasional chalk and sandstone. (WEATHERED LOWESTOFT FORMATION)	                              	 	
...from 2.0m depth, becoming stiff.			
Very stiff grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint and chalk. (LOWESTOFT FORMATION)	                      	 	
Complete at 5.00m			

Scale (approx)	Logged By
1:50	SF
Figure No. P20-164.WS6	

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP1			
Excavation Method Machine Excavated Trial Pits		Dimensions 1.70m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164			
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1			
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water			
0.20	C				(0.30)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)					
0.80 0.80 1.00	C D SV 78kPa				0.30	Firm orange brown slightly sandy slightly gravelly silty CLAY. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)					
1.60 1.80	D SV 72kPa				(2.10)						
2.20	D				2.40	Complete at 2.40m					
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion.					
						Scale (approx)		Logged By		Figure No.	
						1:25		MC		P20-164.TP1	

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP2	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.70m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.30	C				(0.35) 0.35	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.90 1.00	D SV 91kPa					Firm to stiff orange brown mottled grey slightly sandy slightly gravelly silty CLAY. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.40	SV 102kPa				(1.85)				
1.50	D								
2.10	D				2.20	Complete at 2.20m			
						Remarks Trial pit sides remained stable upon completion. No groundwater encountered.			
						Scale (approx) 1:25	Logged By MC	Figure No. P20-164.TP2	

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP3			
Excavation Method Machine Excavated Trial Pits		Dimensions 1.70m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164			
		Location				Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water		
0.20	C				(0.30)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)					
0.70 0.80	D SV 78kPa				0.30 (0.60)	Firm brown to orange brown slightly sandy gravelly silty CLAY with rootlets to 0.50m depth. Gravel of fine to coarse angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)					
1.10	D				0.90 (1.30)	Firm orange brown mottled grey slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)					
1.80 1.90	SV 67kPa D				2.20	Soft to firm orange brown slightly gravelly very sandy CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			▼1		
2.40	B		Water strike(1) at 2.20m, fell to 2.40m in 5 mins.		(0.30) 2.50	Complete at 2.50m			▼1		
						Remarks Trial pit sides remained stable upon completion. Groundwater encountered at 2.20m depth, filling trial pit to 2.40m upon completion of excavation.					
						Scale (approx) 1:25		Logged By MC		Figure No. P20-164.TP3	

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	C				(0.40)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)		
0.30	D				0.40	Firm grey occasionally orange brown slightly sandy slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)		
0.50	C				(0.25)			
					0.65	Firm orange brown mottled grey slightly sandy silty CLAY with occasional to rare gravel sized sandy pockets throughout. (WEATHERED LOWESTOFT FORMATION)		
0.80	SV 84kPa							
0.80	D							
1.40	SV 101kPa				(1.55)			
1.80	D							
2.00	SV 91kPa					...from 2.0m depth, becoming silty CLAY.		
					2.20	Complete at 2.20m		



No groundwater encountered.
Trial pit sides remained stable upon completion.

Scale (approx)	Logged By	Figure No.
1:25	MC	P20-164.TP4

PADDOCK GEO ENGINEERING					Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ			Trial Pit Number TP5			
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd			Job Number P20-164		
		Location		Dates 17/06/2020-19/06/2020		Engineer MC			Sheet 1/1		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description			Legend	Water	
0.40	D				(0.50)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)					
0.70	D				0.50	Firm orange brown slightly sandy slightly gravelly silty CLAY. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)					
0.90	SV 84kPa										
1.60	SV 101kPa				(1.80)						
1.60	D										
2.20	D				2.30	Complete at 2.30m					
						Remarks Trial pit sides remained stable upon completion. No groundwater encountered.					
						Scale (approx) 1:25		Logged By MC		Figure No. P20-164.TP5	

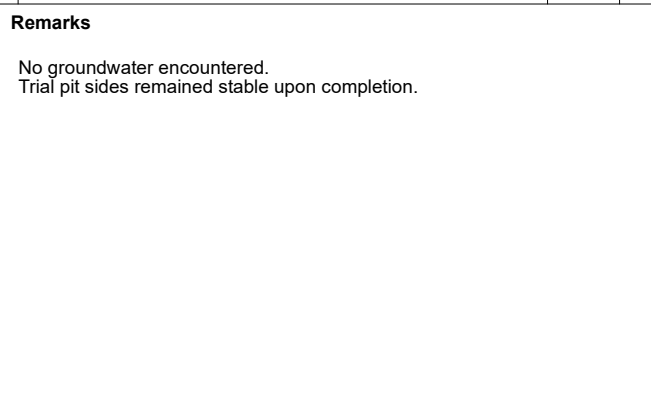
						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP6	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.20	C				(0.30) 0.30	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.80 0.80 0.80	SV 78kPa C D				(1.70)	Firm to stiff orange brown mottled grey slightly gravelly silty CLAY with occasional gravel sized sand pockets. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.80 1.80	SV 84kPa D				2.00	Complete at 2.00m			
						Remarks Trial pit sides remained stable upon completion. No groundwater encountered.			
						Scale (approx) 1:25		Logged By MC	

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP7	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location				Dates 17/06/2020- 19/06/2020		Engineer MC	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.20	C				(0.35)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.50	SV 39kPa				0.35	Soft to firm orange brown to mottled grey slightly sandy slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
0.60 0.70	C D				(0.55)				
					0.90	Firm brown to grey slightly sandy very gravelly CLAY. Gravel of fine to coarse angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.20	D				(0.40)				
1.40	SV 20kPa				1.30	Very soft to soft orange brown occasionally grey sandy to very sandy silty CLAY with very clayey sand lenses throughout. (WEATHERED LOWESTOFT FORMATION)			
1.80	SV 20kPa				(1.10)				
1.90	D								
2.30	SV 26kPa				2.40	Complete at 2.40m			
									
Remarks No groundwater encountered. Trial pit sides remained stable upon completion.									
Scale (approx) 1:25				Logged By MC		Figure No. P20-164.TP6			

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP8	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.20	D				(0.30)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.80 0.80 0.80	SV 91kPa C D				0.30	Firm to stiff orange brown mottled grey slightly gravelly silty CLAY. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.20 1.40	D SV 110kPa				(2.00)	...from 1.0m depth, gravelly silty CLAY with gravel of flint and occasional chalk.			
2.00 2.10	D SV 97kPa				2.30	Complete at 2.30m			
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion.			
						Scale (approx) 1:25	Logged By MC	Figure No. P20-164.TP8	

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP9	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.20	C				(0.30)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.50	SV 39kPa				0.30	Soft to firm orange brown mottled grey slightly sandy slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
0.60	D								
1.00	SV 75kPa				(1.50)				
1.30	D								
1.80	SV 44kPa				1.80				
1.80	D					Complete at 1.80m			
						Remarks Trial pit sides remained stable upon completion. No groundwater encountered.			
						Scale (approx) 1:25		Logged By MC	

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	D				(0.40)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)		
0.90 0.90 0.90	SV 88kPa C D				0.40 (1.70)	Firm to stiff orange brown mottled grey slightly gravelly to gravelly silty CLAY. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)		
1.90	D				2.10			
2.20	D				(0.20) 2.30	Medium dense orange brown slightly clayey to clayey very gravelly SAND. Gravel of fine to coarse angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)		
						Complete at 2.30m		



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PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP11	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.40	D				(0.50)	Crops onto dark brown grey slightly sandy slightly gravelly silty CLAY with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.90 0.90	SV 109kPa D				0.50	Stiff orange brown occasional mottled grey slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.60 1.60	SV 104kPa D				(1.70)				
2.00	SV 117kPa								
2.10	D				2.20	Complete at 2.20m			
						Remarks Trial pit sides remained stable upon completion. No groundwater encountered.			
						Scale (approx) 1:25	Logged By MC	Figure No. P20-164.TP11	

PADDOCK GEO ENGINEERING						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP12		
Excavation Method Machine Excavated Trial Pits		Dimensions 1.60m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164		
		Location				Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description			Legend	Water
0.70 0.70	SV 65kPa D				(0.50) 0.50 <					

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number TP13	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.80m x 1.30m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.70 0.70	C D				(0.90)	Vegetation onto brown to dark brown slightly sandy slightly gravelly silty CLAY with roots and rootlets. Gravel of clayware pipe, plastic and flint. (MADE GROUND)			
1.20 1.20	C D				0.90 (0.40)	Firm orange brown occasionally grey slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION) ...at 0.90m depth, black ribbed plastic drainage pipe.			
					1.30	Complete at 1.30m			
						Remarks Trial pit sides remained stable upon completion. Significant water inflow at 0.90m deoth from historical black ribbed plastic drainage pipe.			
						Scale (approx) 1:25		Logged By MC	

PADDOCK GEO ENGINEERING					Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA1		
Excavation Method Machine Excavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.30	C				(0.35)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.80	D				0.35	Stiff pale to orange brown gravelly CLAY with roots to 1.10m depth. Gravel of fine to coarse rounded to sub-angular flint. (WEATHERED LOWESTOFT FORMATION) ...from 0.60m depth, becoming dark orange brown to grey brown.			
1.30	D				(1.55)				
1.80	D				1.90	Complete at 1.90m			
					Remarks No groundwater encountered. Trial pit sides remained stable upon completion. Infiltration testing undertaken.				
					Scale (approx) 1:25		Logged By MC		Figure No. P20-164.SA1

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA2	
Excavation Method Machine Ecavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.40	D				(0.20)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.60	SV 89kPa				(0.60)	Stiff grey to orange brown slightly gravelly silty CLAY with rootlets to 0.50m depth. Gravel of fine to medium rounded to sub-angular flint. (WEATHERED LOWESTOFT FORMATION)			
1.00	SV 96kPa				0.80	Stiff orange brown mottled grey slightly gravelly silty CLAY. Gravel of fine to medium rounded to sub-angular flint. (WEATHERED LOWESTOFT FORMATION)			
1.00	D				(0.70)				
					1.50	Complete at 1.50m			
									
Remarks Infiltration testing undertaken. Trial pit sides remained stable upon completion. No groundwater encountered.									
Scale (approx) 1:25					Logged By MC		Figure No. P20-164.SA2		

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA3	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.30	C				(0.40)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.70 0.70	SV 93kPa D				0.40	Firm to stiff orange brown mottled grey slightly gravelly to gravelly silty CLAY with rootlets to 0.60m depth. Gravel of fine to medium sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.20	SV 102kPa				(1.10)				
1.40	D				1.50	Complete at 1.50m			
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion. Infiltration testing undertaken.			
						Scale (approx) 1:25		Logged By MC	

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA4	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location				Dates 17/06/2020- 19/06/2020		Engineer MC	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.50	D				(0.70)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets to 0.50m depth. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
1.00	D				0.70	Stiff grey to orange brown slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.30	SV 78kPa				(1.30)	...from 1.20m depth, becoming orange brown occasionally grey.			
1.80 1.80	SV 78kPa D				2.00	Complete at 2.00m			
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion. Infiltration testing undertaken.			
						Scale (approx) 1:25		Logged By MC	

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA5	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.40	C				(0.45)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.90 1.00	D SV 52kPa				0.45 (1.05)	Firm orange brown to grey slightly gravelly silty CLAY with occasional fine to medium gravel sized pockets of sand. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
					1.50	Complete at 1.50m			
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion. Infiltration testing undertaken.			
						Scale (approx) 1:25		Logged By MC	

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA6	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.30	D				0.40 0.40	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
0.70	D				0.50 0.90	Firm grey slightly sandy slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
1.50	D				1.10 2.00	Firm to stiff orange brown slightly gravelly silty CLAY with occasional gravel sized pockets of sand. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
						Complete at 2.00m			
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion. Infiltration testing undertaken.			
						Scale (approx) 1:25		Logged By MC	

						Site Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ		Trial Pit Number SA7	
Excavation Method Machine Excavated Trial Pits		Dimensions 1.30m x 0.35m		Ground Level (mOD)		Client Canton Ltd		Job Number P20-164	
		Location		Dates 17/06/2020- 19/06/2020		Engineer MC		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.00	SV 106kPa				(0.50)	Crops onto dark brown grey slightly sandy slightly gravelly clayey loamy SILT with frequent roots and rootlets. Gravel of fine to coarse angular to sub-rounded flint. (TOPSOIL)			
1.40	SV 117kPa				0.50	Firm to stiff orange brown mottled grey slightly sandy slightly gravelly silty CLAY. Gravel of fine to coarse sub-angular to rounded flint. (WEATHERED LOWESTOFT FORMATION)			
					(1.00)				
					1.50	Complete at 1.50m			
						Remarks No groundwater encountered. Trial pit sides remained stable upon completion. Infiltration testing undertaken.			
						Scale (approx) 1:25		Logged By MC	



Arisings from borehole WS1.



Arisings from borehole WS2.



Arisings from borehole WS3.



Arisings from borehole WS4.



Arisings from borehole WS5.



Arisings from borehole WS6.



Photograph of trial pit SA1.



Photograph of arisings from trial pit SA1.



Photograph of trial pit SA2.



Photograph of arisings from trial pit SA2.



Photograph of trial pit SA3.



Photograph of arisings from trial pit SA3.



Photograph of trial pit SA4.



Photograph of arisings from trial pit SA4.



Photograph of trial pit SA5.



Photograph of arisings from trial pit SA5.



Photograph of trial pit SA6.



Photograph of arisings from trial pit SA6.



Photograph of trial pit SA7.



Photograph of arisings from trial pit SA7.



Photograph of trial pit TP1.



Photograph of arisings from trial pit TP1.



Photograph of trial pit TP2.



Photograph of arisings from trial pit TP2.



Photograph of trial pit TP3.



Photograph of arisings from trial pit TP3.



Photograph of trial pit TP4.



Photograph of arisings from trial pit TP4.



Photograph of trial pit TP5.



Photograph of arisings from trial pit TP5.



Photograph of trial pit TP6.



Photograph of arisings from trial pit TP6.



Photograph of trial pit TP7.



Photograph of arisings from trial pit TP7.



Photograph of trial pit TP8.



Photograph of arisings from trial pit TP8.



Photograph of trial pit TP9.



Photograph of arisings from trial pit TP9.



Photograph of trial pit TP10.



Photograph of arisings from trial pit TP10.



Photograph of trial pit TP11.



Photograph of arisings from trial pit TP11.



Photograph of trial pit TP12.



Photograph of arisings from trial pit TP12.



Photograph of trial pit TP13.



Photograph of arisings from trial pit TP13.

APPENDIX C – GEOCHEMICAL DATA

Chemical Analysis Reports

Chemical Analysis Results Summary

PGE In-House GACs

Waste Classification Report

**Matt Paddock**

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Analytical Report Number : 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane,
Colney Heath, AL4 0QQ

Your job number: P20-064

Your order number: P20-064 GI

Report Issue Number: 1

Samples Analysed: 33 soil samples

Samples received on: 02/07/2020

**Sample instructed/
Analysis started on:** 02/07/2020

Analysis completed by: 10/07/2020

Report issued on: 10/07/2020

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)

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

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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.

Iss No 20-17619-1 Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ P20-064.XLS

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The results included within the report relate only to the sample(s) submitted for testing.

Page 1 of 11

Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

Your Order No: P20-064 GI

Lab Sample Number				1552323	1552324	1552325	1552326	1552327
Sample Reference				SA1	SA1	SA3	SA4	TP1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.70	1.00	0.20
Date Sampled				17/06/2020	17/06/2020	17/06/2020	17/06/2020	18/06/2020
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	13	13	13	13	20
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.1	7.5	8.2	8.1	8.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	500	280	170	180	550
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.015	-	0.013	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	3.9	-	2.2	-	3.9

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.35	-	< 0.05	-	0.52
Pyrene	mg/kg	0.05	MCERTS	0.29	-	< 0.05	-	0.45
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.19	-	< 0.05	-	0.29
Chrysene	mg/kg	0.05	MCERTS	0.18	-	< 0.05	-	0.33
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	0.40
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	0.19
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.01	-	< 0.80	-	2.51
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	-	14	-	9.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.66	-	1.1	-	0.73
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	-	0.2	-	1.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	0.3
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	-	36	-	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	-	14	-	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	41	-	10	-	59
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	-	23	-	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	-	59	-	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51	-	44	-	70

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
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Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4

Your Order No: P20-064 GI

Lab Sample Number				1552328	1552329	1552330	1552331	1552332
Sample Reference				TP1	TP2	TP3	TP3	TP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.30	0.20	1.10	0.50
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
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	25	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.2	16	16	17	16
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	7.4	8.0	7.7	7.1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	180	520	560	190	470
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	-	-	0.016	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	3.8	4.0	-	3.4

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	0.53	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	0.51	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.31	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	0.39	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.37	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.25	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.38	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	2.74	< 0.80	-	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	9.6	9.6	-	7.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.69	0.59	-	0.69
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.9	1.3	-	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.2	0.2	-	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	20	18	-	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	17	24	-	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	67	67	-	40
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.4	0.5	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	12	12	-	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	33	29	-	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	50	49	-	48

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	-	< 10	< 10	-	< 10
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Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4
Your Order No: P20-064 GI

Lab Sample Number				1552333	1552334	1552335	1552336	1552337
Sample Reference				TP4	TP5	TP6	TP7	TP7
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.40	0.80	0.20	0.60
Date Sampled				18/06/2020	18/06/2020	18/06/2020	19/06/2020	19/06/2020
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	16	17	15	16
Total mass of sample received	kg	0.001	NONE	0.50	0.70	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	7.2	6.6	6.4	8.3
Total Sulphate as SO ₄	mg/kg	50	MCERTS	330	540	380	420	230
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.015	0.025	0.014	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-	-	3.0	1.7

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	9.5	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	0.68	1.0
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	0.9	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	22	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	21	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	48	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	15	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	34	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	68	45

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	-	-	-	< 10	< 10
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Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4
Your Order No: P20-064 GI

Lab Sample Number				1552338	1552339	1552340	1552341	1552342
Sample Reference				TP9	TP10	TP10	TP11	TP13
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.30	0.90	0.40	0.70
Date Sampled				19/06/2020	19/06/2020	19/06/2020	19/06/2020	19/06/2020
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	13	17	14	17
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	1.0	0.50

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	7.7	7.6	6.7	7.2
Total Sulphate as SO ₄	mg/kg	50	MCERTS	420	490	350	470	740
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.0070	-	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	3.2	-	3.7	2.6	5.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	1.7
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	1.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.93
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	1.0
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	1.6
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.66
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.60
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.84

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	< 0.80	10.2
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3	-	50	12	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.73	-	2.5	1.3	0.74
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	-	0.3	0.7	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	-	< 0.2	< 0.2	0.3
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	39	30	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	-	14	11	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34	-	20	29	52
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	-	42	24	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	-	66	44	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57	-	63	57	93

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	< 10	-	< 10	< 10	24
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Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4
Your Order No: P20-064 GI

Lab Sample Number				1552343	1552344	1552345	1552346	1552347
Sample Reference				WS1	WS1	WS2	WS2	WS2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	1.60	0.20	0.80	1.20
Date Sampled				17/06/2020	17/06/2020	17/06/2020	17/06/2020	17/06/2020
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	4.0	9.9	9.0	12	10
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	7.6	5.4	6.3	5.5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	640	270	770	510	490
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.021	-	-	0.043
Loss on Ignition @ 450°C	%	0.2	MCERTS	5.9	-	5.2	4.1	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	0.54	-	< 0.05	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	0.58	-	< 0.05	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.31	-	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	0.35	-	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.45	-	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.21	-	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.40	-	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.84	-	< 0.80	< 0.80	-
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.3	-	13	14	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.61	-	1.1	1.3	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.8	-	1.1	0.9	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	-	< 0.2	< 0.2	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	-	31	35	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	-	20	16	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	61	-	37	25	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	-	19	21	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	-	51	58	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69	-	69	68	-

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	< 10	-	< 10	< 10	-
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Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4
Your Order No: P20-064 GI

Lab Sample Number				1552348	1552349	1552350	1552351	1552352
Sample Reference				WS2	WS3	WS3	WS4	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.80	0.20	1.80	0.20	0.80
Date Sampled				17/06/2020	17/06/2020	17/06/2020	17/06/2020	17/06/2020
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	8.4	13	14	13
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50	0.50	0.50

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	5.0	6.4	5.5	7.0	7.6
Total Sulphate as SO ₄	mg/kg	50	MCERTS	750	450	480	460	180
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.16	-	0.029	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	3.1	-	3.6	2.7

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.30	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.26	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	10	-	12	16
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.92	-	0.81	0.79
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.0	-	1.4	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	28	-	29	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	14	-	18	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	23	-	40	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	18	-	17	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	41	-	43	53
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	48	-	64	37

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	-	< 10	-	< 10	< 10
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Analytical Report Number: 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4

Your Order No: P20-064 GI

Lab Sample Number				1552353	1552354	1552355		
Sample Reference				WS4	WS5	WS6		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				1.20	2.60	0.10		
Date Sampled				17/06/2020	17/06/2020	17/06/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	10	16		
Total mass of sample received	kg	0.001	NONE	0.50	0.50	0.50		

Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected		
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	7.2	7.2		
Total Sulphate as SO ₄	mg/kg	50	MCERTS	220	170	540		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.015	0.015	-		
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-	4.2		

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	< 0.80		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	11		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.78		
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	1.3		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	< 0.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	26		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	26		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	58		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	0.4		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	16		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	36		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	80		

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	-	-	< 10		
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Analytical Report Number : 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

* 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 *
1552323	SA1	None Supplied	0.30	Brown loam and sand with vegetation and gravel.
1552324	SA1	None Supplied	0.80	Brown clay and sand with gravel.
1552325	SA3	None Supplied	0.70	Light brown clay and sand with gravel.
1552326	SA4	None Supplied	1.00	Light brown clay and sand with gravel.
1552327	TP1	None Supplied	0.20	Brown clay with gravel and vegetation.
1552328	TP1	None Supplied	1.60	Light brown clay and sand with stones and gravel
1552329	TP2	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
1552330	TP3	None Supplied	0.20	Brown loam and clay with vegetation and gravel
1552331	TP3	None Supplied	1.10	Light brown clay and sand with gravel.
1552332	TP4	None Supplied	0.50	Brown loam and clay with vegetation and gravel
1552333	TP4	None Supplied	0.80	Light brown clay and sand with gravel.
1552334	TP5	None Supplied	0.40	Brown clay with gravel.
1552335	TP6	None Supplied	0.80	Brown clay and sand with vegetation and gravel
1552336	TP7	None Supplied	0.20	Brown clay and sand with gravel and vegetation.
1552337	TP7	None Supplied	0.60	Light brown clay and sand.
1552338	TP9	None Supplied	0.20	Brown loam and clay with vegetation and gravel
1552339	TP10	None Supplied	0.30	Brown clay and sand with gravel.
1552340	TP10	None Supplied	0.90	Light brown clay and sand with gravel.
1552341	TP11	None Supplied	0.40	Brown clay and sand with gravel.
1552342	TP13	None Supplied	0.70	Brown loam and clay with vegetation and gravel
1552343	WS1	None Supplied	0.10	Brown loam and sand with vegetation and gravel.
1552344	WS1	None Supplied	1.60	Light brown clay and sand with gravel and chalk.
1552345	WS2	None Supplied	0.20	Brown loam and clay with vegetation and gravel
1552346	WS2	None Supplied	0.80	Brown loam and clay with vegetation and gravel
1552347	WS2	None Supplied	1.20	Brown clay and sand with chalk and vegetation.
1552348	WS2	None Supplied	2.80	Brown clay with gravel.
1552349	WS3	None Supplied	0.20	Brown clay and sand with vegetation and gravel
1552350	WS3	None Supplied	1.80	Light brown clay and sand with gravel and vegetation.
1552351	WS4	None Supplied	0.20	Brown clay and sand with vegetation and gravel
1552352	WS4	None Supplied	0.80	Light brown clay and sand with gravel.
1552353	WS4	None Supplied	1.20	Light brown clay and sand with gravel.
1552354	WS5	None Supplied	2.60	Light brown clay and sand with gravel.
1552355	WS6	None Supplied	0.10	Brown clay and sand with vegetation and gravel

Analytical Report Number : 20-17619

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
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
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-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
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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.

Sample Deviation Report



Sample ID	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
SA3		S	20-17619	1552325	b	Speciated EPA-16 PAHs in soil	L064-PL	b
TP11		S	20-17619	1552341	b	Speciated EPA-16 PAHs in soil	L064-PL	b

Human Health Generic Contamination Risk Assessment - Land off Fellows Lane, Colney Heath, AL4 0QQ (19 Samples)

Determinand	Units	95th Percentile Upper Confidence Limit (Mean)	Assessment Criteria Residential with Home Grown Produce Concentration (cc)	Mean Exceeds cc	Outliers	True Mean (μ)	Exceeding Samples
Metals/Metalloids							
Arsenic	mg kg ⁻¹	19.07	37.0				
Beryllium	mg kg ⁻¹	1.22	1.7				
Cadmium	mg kg ⁻¹	0.24	11.0				
Chromium	mg kg ⁻¹	31	910				
Inorganic Mercury	mg kg ⁻¹	0.36	40.0				
Nickel	mg kg ⁻¹	23	180				
Lead	mg kg ⁻¹	51	190				
Selenium	mg kg ⁻¹	1.00	250				
Copper	mg kg ⁻¹	21	2400				
Zinc	mg kg ⁻¹	69	3700				
Vanadium	mg kg ⁻¹	48.69	410				
Phytotoxic Metals (Phytotoxicity)							
Copper	mg kg ⁻¹	21	111				
Zinc	mg kg ⁻¹	69	330				
Hydrocarbons							
Total Petroleum Hydrocarbons							
TPH EC6-EC10 (PRO)	mg kg ⁻¹	NE	65				
TPH EC10-EC21 (DRO)	mg kg ⁻¹	NE	300				
TPH EC21-EC40 (Min.Oil)	mg kg ⁻¹	NE	1500				
Total TPH	mg kg ⁻¹	12.85	600				
Poly Aromatic Hydrocarbons							
Benzo(a)pyrene	mg kg ⁻¹	0.34	2.70				
Napthalene	mg kg ⁻¹	0.05	5.60				
Dibenzo(a,h) anthracene	mg kg ⁻¹	0.05	0.28				
Flourene	mg kg ⁻¹	0.05	400.00				
Phenols	mg kg ⁻¹	NE	420.00				
OTHER							
pH	-	7.6	<5, >12				
Sulphate (Total)	mg kg ⁻¹	NE	2500				
Sulphur	mg kg ⁻¹	N/A	2500				
Water Soluble Boron	mg kg ⁻¹	1.30	290				
Asbestos Screen	Detection	Not Detected	Not Detected				
Asbestos Quantification	%	-	N/A				

NOTE:

na - Not applicable

ne - Not evaluated, all results below the appropriate guideline level

nc - not displayed as results are not meaningful due to large uncertainty from small data set

GENERIC HUMAN HEALTH SCREENING TOTAL SOIL CONCENTRATION ASSESSMENT CRITERIA (GAC)

DETERMINAND		RESIDENTIAL (mg/kg)		COMMERCIAL (mg/kg)
Chemical	GAC Sources and units	With Home Grown produce	Without Home Grown produce	
Asbestos Screen & ID*	-	Detected	Detected	Detected
Cyanide - Total	SNIFFER	53.25	53.25	53.25
Cyanide - Free	SNIFFER	53.25	53.25	53.25
Loss on Ignition @ 450°C	-	-	-	-
Sulphate (as SO ₄) - Total	BRE****	2400	2400	2400
Sulphide	ICRCL	2500	2500	2500
Sulphur - Total	ICRCL	2500	2500	2500
Phenol (Total Monohydric)	CLEA	420	420	3200
pH	ICRCL	<5,>12	<5,>12	-
Metals and Metalloids (CLEA Metals)				
Arsenic	LQM S4UL	37	40	640
Beryllium	LQM S4UL	1.7	1.7	12
Cadmium	LQM S4UL	11	85	190
Chromium III	LQM S4UL	910	910	8600
Lead	DEFRA C4SL	190	310	2300
Mercury (Total)	LQM S4UL (Inorganic)	40	56	1100
Selenium	LQM S4UL	250	430	12000
Copper (phytotoxicity)	LQM S4UL	2400 (111)	7100	68000
Nickel	LQM S4UL	180	180	980
Zinc (phytotoxicity)	LQM S4UL	3700 (330)	40000	730000
Vanadium	LQM S4UL	410	1200	9000
Boron - Water Soluble	LQM S4UL	290	11000	240000
Total Petroleum Hydrocarbons**				
TPH (EC6-EC10) - PRO	LQM S4UL (2.5% SOM)	65	100	4800
TPH (EC10-EC21) - DRO	LQM S4UL (2.5% SOM)	300	600	23000
TPH (EC21-EC40) - Min. Oil	LQM S4UL (2.5% SOM)	1500	1900	28000
Total TPH (EC10-EC40)	LQM S4UL (2.5% SOM)	600	900	23000
Polycyclic Aromatic Hydrocarbons***				
Naphthalene	LQM S4UL (2.5% SOM)	5.6	5.6	460
Flourene	LQM S4UL (2.5% SOM)	400	3800	68000
Benzo[a]pyrene	LQM S4UL (2.5% SOM)	2.7	3.2	35
Dibenzo[a,h]anthracene	LQM S4UL (2.5% SOM)	0.28	0.32	3.6

Notes

The Generic Assessment Criteria (GAC) are based on CLEA Soil Guidance Values published values and CIEH/LQM S4CLs where available or ICRCL, DoE, BRE and HSE levels where necessary.
Where gaps remain GACs were calculated using the latest CLEA spreadsheet using DEFRA C4SL toxicology and physiochemical parameters from DEFRA SP1010.

* Guidance level set at any fibre identification.

** TPH 3 band is employed as a screening tool to instigate detailed speciated analysis to the TPHCWG methodology. Based on mean of fractions included

*** Testing based on USEPA Priority 16 compounds. GACs for four compounds and total PAH with published GACs only, used as a screening tool.

**** BRE SD1 - DS-1 Concrete Sulphate Design Class limit. Sulphate is not considered to pose a significant risk to human health under normal circumstances.



CLIENT:
PROJECT No:
PROJECT TITLE:

Canton Ltd
P20-164
Land off Bullens Green Lane, Colney Heath
AL4 0QQ

Waste Classification Report



GEPS9-7GR3Y-4DLUS

Job name

Colney Heath

Description/Comments

Project

P20-164

Site

Roundhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

Related Documents

#	Name	Description
None		

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Matthew Paddock
Date:
15 Jul 2020 15:40 GMT
Telephone:
07377 422528

Company:
Paddock Geo Engineering
The Annex,
14 Burns Road
Milton Keynes
MK3 5A

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Matthew Paddock
Created date: 15 Jul 2020 15:40 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	SA1	0.3	Non Hazardous		3
2	SA3	0.7	Non Hazardous		5
3	TP1	0.2	Non Hazardous		7
4	TP2	0.3	Non Hazardous		9
5	TP3	0.2	Non Hazardous		11
6	TP4	0.5	Non Hazardous		13
7	TP7	0.2	Non Hazardous		15
8	TP7[2]	0.6	Non Hazardous		17
9	TP9	0.2	Non Hazardous		19
10	TP10	0.9	Non Hazardous		21
11	TP11	0.4	Non Hazardous		23
12	TP13	0.7	Non Hazardous		25

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
13	WS1	0.1	Non Hazardous		27
14	WS2	0.2	Non Hazardous		29
15	WS2[2]	0.8	Non Hazardous		31
16	WS3	0.2	Non Hazardous		33
17	WS4	0.2	Non Hazardous		35
18	WS4[2]	0.8	Non Hazardous		37
19	WS6	0.1	Non Hazardous		39

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	41
Appendix B: Rationale for selection of metal species	42
Appendix C: Version	42

Classification of sample: SA1

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	SA1	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.3 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3	10	mg/kg	1.32	13.203 mg/kg	0.00132 %
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9	0.66	mg/kg	2.775	1.832 mg/kg	0.000183 %
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2	1.1	mg/kg	3.22	3.542 mg/kg	0.000354 %
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0	0.2	mg/kg	1.142	0.228 mg/kg	0.0000228 %
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9	21	mg/kg	1.462	30.693 mg/kg	0.00307 %
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1	14	mg/kg	1.126	15.762 mg/kg	0.00158 %
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	41	mg/kg	1.56	63.952 mg/kg	0.0041 %
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7	0.3	mg/kg	1.353	0.406 mg/kg	0.0000406 %
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7	13	mg/kg	2.976	38.691 mg/kg	0.00387 %
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8			1	mg/kg	2.554	2.554 mg/kg	0.000255 %
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9	51	mg/kg	2.774	141.481 mg/kg	0.0141 %
12	TPH (C6 to C40) petroleum group							
			TPH	10	mg/kg		10 mg/kg	0.001 %
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3	0.05	mg/kg		0.05 mg/kg	0.000005 %
14	acenaphthylene							
		205-917-1	208-96-8	0.05	mg/kg		0.05 mg/kg	0.000005 %
15	acenaphthene							
		201-469-6	83-32-9	0.05	mg/kg		0.05 mg/kg	0.000005 %

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.35 mg/kg		0.35 mg/kg	0.000035 %		
20	pyrene	204-927-3	129-00-0		0.29 mg/kg		0.29 mg/kg	0.000029 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.19 mg/kg		0.19 mg/kg	0.000019 %		
22	chrysene	601-048-00-0	205-923-4		0.18 mg/kg		0.18 mg/kg	0.000018 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0301 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: SA3

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	SA3	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.7 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
		033-003-00-0	215-481-4	1327-53-3									
2		beryllium { beryllium oxide }				1.1	mg/kg	2.775	3.053	mg/kg	0.000305 %		
		004-003-00-8	215-133-1	1304-56-9									
3		boron { diboron trioxide; boric oxide }				0.2	mg/kg	3.22	0.644	mg/kg	0.0000644 %		
		005-008-00-8	215-125-8	1303-86-2									
4		cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
		048-002-00-0	215-146-2	1306-19-0									
5		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				36	mg/kg	1.462	52.616	mg/kg	0.00526 %		
			215-160-9	1308-38-9									
6		copper { dicopper oxide; copper (I) oxide }				14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
		029-002-00-X	215-270-7	1317-39-1									
7		lead { lead chromate }			1	10	mg/kg	1.56	15.598	mg/kg	0.001 %		
		082-004-00-2	231-846-0	7758-97-6									
8		mercury { mercury dichloride }				0.3	mg/kg	1.353	0.406	mg/kg	0.0000406 %		
		080-010-00-X	231-299-8	7487-94-7									
9		nickel { nickel chromate }				23	mg/kg	2.976	68.454	mg/kg	0.00685 %		
		028-035-00-7	238-766-5	14721-18-7									
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1	mg/kg	2.554	2.554	mg/kg	0.000255 %		
		034-002-00-8											
11		zinc { zinc chromate }				44	mg/kg	2.774	122.062	mg/kg	0.0122 %		
		024-007-00-3	236-878-9	13530-65-9									
12		TPH (C6 to C40) petroleum group				10	mg/kg		10	mg/kg	0.001 %		
				TPH									
13		naphthalene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		601-052-00-2	202-049-5	91-20-3									
14		acenaphthylene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			205-917-1	208-96-8									
15		acenaphthene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			201-469-6	83-32-9									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0305 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP1

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP1	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				9.1 mg/kg	1.32	12.015 mg/kg	0.0012 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				0.73 mg/kg	2.775	2.026 mg/kg	0.000203 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				1.5 mg/kg	3.22	4.83 mg/kg	0.000483 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				22 mg/kg	1.462	32.154 mg/kg	0.00322 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	24.77 mg/kg	0.00248 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	59 mg/kg	1.56	92.029 mg/kg	0.0059 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				14 mg/kg	2.976	41.668 mg/kg	0.00417 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				70 mg/kg	2.774	194.19 mg/kg	0.0194 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.52 mg/kg		0.52 mg/kg	0.000052 %		
20	pyrene	204-927-3	129-00-0		0.45 mg/kg		0.45 mg/kg	0.000045 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.29 mg/kg		0.29 mg/kg	0.000029 %		
22	chrysene	601-048-00-0	205-923-4		0.33 mg/kg		0.33 mg/kg	0.000033 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.4 mg/kg		0.4 mg/kg	0.00004 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.19 mg/kg		0.19 mg/kg	0.000019 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.33 mg/kg		0.33 mg/kg	0.000033 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0387 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP2

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP2	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.3 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9					
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2					
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0					
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9					
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	1				
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7					
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8							
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9					
12	TPH (C6 to C40) petroleum group							
			TPH					
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3					
14	acenaphthylene							
		205-917-1	208-96-8					
15	acenaphthene							
		201-469-6	83-32-9					

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.53 mg/kg		0.53 mg/kg	0.000053 %		
20	pyrene	204-927-3	129-00-0		0.51 mg/kg		0.51 mg/kg	0.000051 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.31 mg/kg		0.31 mg/kg	0.000031 %		
22	chrysene	601-048-00-0	205-923-4		0.39 mg/kg		0.39 mg/kg	0.000039 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.37 mg/kg		0.37 mg/kg	0.000037 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.25 mg/kg		0.25 mg/kg	0.000025 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.38 mg/kg		0.38 mg/kg	0.000038 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0324 %		

Key

- User supplied data
 - Determinand defined or amended by HazWasteOnline (see Appendix A)
 - Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP3

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP3	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				9.6 mg/kg	1.32	12.675 mg/kg	0.00127 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				0.59 mg/kg	2.775	1.637 mg/kg	0.000164 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				1.3 mg/kg	3.22	4.186 mg/kg	0.000419 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg	0.0027 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	67 mg/kg	1.56	104.508 mg/kg	0.0067 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				12 mg/kg	2.976	35.715 mg/kg	0.00357 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				49 mg/kg	2.774	135.933 mg/kg	0.0136 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0325 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP4

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP4	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.5 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9					
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2					
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0					
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9					
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	1				
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7					
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8							
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9					
12	TPH (C6 to C40) petroleum group							
			TPH					
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3					
14	acenaphthylene							
		205-917-1	208-96-8					
15	acenaphthene							
		201-469-6	83-32-9					

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0294 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP7

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP7	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3					
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9					
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2					
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0					
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9					
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1					
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	1				
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7					
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7					
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8							
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9					
12	TPH (C6 to C40) petroleum group							
			TPH					
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3					
14	acenaphthylene							
		205-917-1	208-96-8					
15	acenaphthene							
		201-469-6	83-32-9					

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0368 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP7[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP7[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.6 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
	033-003-00-0	215-481-4	1327-53-3							
2	beryllium { beryllium oxide }				1 mg/kg	2.775	2.775 mg/kg	0.000278 %		
	004-003-00-8	215-133-1	1304-56-9							
3	boron { diboron trioxide; boric oxide }				0.6 mg/kg	3.22	1.932 mg/kg	0.000193 %		
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				30 mg/kg	1.462	43.847 mg/kg	0.00438 %		
		215-160-9	1308-38-9							
6	copper { dicopper oxide; copper (I) oxide }				19 mg/kg	1.126	21.392 mg/kg	0.00214 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	13 mg/kg	1.56	20.278 mg/kg	0.0013 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %		
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				21 mg/kg	2.976	62.502 mg/kg	0.00625 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8									
11	zinc { zinc chromate }				45 mg/kg	2.774	124.837 mg/kg	0.0125 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %		
			TPH							
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
	601-052-00-2	202-049-5	91-20-3							
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-917-1	208-96-8							
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		201-469-6	83-32-9							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.03 %		

Key

- User supplied data
 - Determinand defined or amended by HazWasteOnline (see Appendix A)
 - Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP9

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP9	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		arsenic { arsenic trioxide }				9.3	mg/kg	1.32	12.279	mg/kg	0.00123 %		
	033-003-00-0	215-481-4	1327-53-3										
2		beryllium { beryllium oxide }				0.73	mg/kg	2.775	2.026	mg/kg	0.000203 %		
	004-003-00-8	215-133-1	1304-56-9										
3		boron { diboron trioxide; boric oxide }				0.9	mg/kg	3.22	2.898	mg/kg	0.00029 %		
	005-008-00-8	215-125-8	1303-86-2										
4		cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
	048-002-00-0	215-146-2	1306-19-0										
5		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
		215-160-9	1308-38-9										
6		copper { dicopper oxide; copper (I) oxide }				16	mg/kg	1.126	18.014	mg/kg	0.0018 %		
	029-002-00-X	215-270-7	1317-39-1										
7		lead { lead chromate }			1	34	mg/kg	1.56	53.034	mg/kg	0.0034 %		
	082-004-00-2	231-846-0	7758-97-6										
8		mercury { mercury dichloride }				0.3	mg/kg	1.353	0.406	mg/kg	0.0000406 %		
	080-010-00-X	231-299-8	7487-94-7										
9		nickel { nickel chromate }				16	mg/kg	2.976	47.62	mg/kg	0.00476 %		
	028-035-00-7	238-766-5	14721-18-7										
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1	mg/kg	2.554	2.554	mg/kg	0.000255 %		
	034-002-00-8												
11		zinc { zinc chromate }				57	mg/kg	2.774	158.126	mg/kg	0.0158 %		
	024-007-00-3	236-878-9	13530-65-9										
12		TPH (C6 to C40) petroleum group				10	mg/kg		10	mg/kg	0.001 %		
			TPH										
13		naphthalene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
	601-052-00-2	202-049-5	91-20-3										
14		acenaphthylene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		205-917-1	208-96-8										
15		acenaphthene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		201-469-6	83-32-9										

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0324 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Fam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP10

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP10	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.9 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				50 mg/kg	1.32	66.016 mg/kg	0.0066 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				2.5 mg/kg	2.775	6.938 mg/kg	0.000694 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				0.3 mg/kg	3.22	0.966 mg/kg	0.0000966 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				39 mg/kg	1.462	57.001 mg/kg	0.0057 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				14 mg/kg	1.126	15.762 mg/kg	0.00158 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	20 mg/kg	1.56	31.196 mg/kg	0.002 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				42 mg/kg	2.976	125.003 mg/kg	0.0125 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				63 mg/kg	2.774	174.771 mg/kg	0.0175 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.048 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP11

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	TP11	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.4 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	15.844 mg/kg	0.00158 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				1.3 mg/kg	2.775	3.608 mg/kg	0.000361 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				30 mg/kg	1.462	43.847 mg/kg	0.00438 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				11 mg/kg	1.126	12.385 mg/kg	0.00124 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	29 mg/kg	1.56	45.235 mg/kg	0.0029 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				24 mg/kg	2.976	71.43 mg/kg	0.00714 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				57 mg/kg	2.774	158.126 mg/kg	0.0158 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.035 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: TP13

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
TP13	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.7 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				10 mg/kg	1.32	13.203 mg/kg	0.00132 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				0.74 mg/kg	2.775	2.054 mg/kg	0.000205 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				1.8 mg/kg	3.22	5.796 mg/kg	0.00058 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				24 mg/kg	1.462	35.077 mg/kg	0.00351 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				21 mg/kg	1.126	23.644 mg/kg	0.00236 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	52 mg/kg	1.56	81.11 mg/kg	0.0052 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				15 mg/kg	2.976	44.644 mg/kg	0.00446 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				93 mg/kg	2.774	257.996 mg/kg	0.0258 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				24 mg/kg		24 mg/kg	0.0024 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		1.7 mg/kg		1.7 mg/kg	0.00017 %		
20	pyrene	204-927-3	129-00-0		1.7 mg/kg		1.7 mg/kg	0.00017 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.93 mg/kg		0.93 mg/kg	0.000093 %		
22	chrysene	601-048-00-0	205-923-4		1 mg/kg		1 mg/kg	0.0001 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.6 mg/kg		1.6 mg/kg	0.00016 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.66 mg/kg		0.66 mg/kg	0.000066 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		1.2 mg/kg		1.2 mg/kg	0.00012 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.6 mg/kg		0.6 mg/kg	0.00006 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.84 mg/kg		0.84 mg/kg	0.000084 %		
Total:								0.0472 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0024%)

Classification of sample: WS1

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS1	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.1 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				8.3 mg/kg	1.32	10.959 mg/kg	0.0011 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				0.61 mg/kg	2.775	1.693 mg/kg	0.000169 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				1.8 mg/kg	3.22	5.796 mg/kg	0.00058 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				25 mg/kg	1.126	28.147 mg/kg	0.00281 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	61 mg/kg	1.56	95.149 mg/kg	0.0061 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				13 mg/kg	2.976	38.691 mg/kg	0.00387 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				69 mg/kg	2.774	191.416 mg/kg	0.0191 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.54 mg/kg		0.54 mg/kg	0.000054 %		
20	pyrene	204-927-3	129-00-0		0.58 mg/kg		0.58 mg/kg	0.000058 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.31 mg/kg		0.31 mg/kg	0.000031 %		
22	chrysene	601-048-00-0	205-923-4		0.35 mg/kg		0.35 mg/kg	0.000035 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.45 mg/kg		0.45 mg/kg	0.000045 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.21 mg/kg		0.21 mg/kg	0.000021 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.4 mg/kg		0.4 mg/kg	0.00004 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0381 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: WS2

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS2	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg	0.00172 %			
	033-003-00-0	215-481-4	1327-53-3								
2	beryllium { beryllium oxide }				1.1 mg/kg	2.775	3.053 mg/kg	0.000305 %			
	004-003-00-8	215-133-1	1304-56-9								
3	boron { diboron trioxide; boric oxide }				1.1 mg/kg	3.22	3.542 mg/kg	0.000354 %			
	005-008-00-8	215-125-8	1303-86-2								
4	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %			
	048-002-00-0	215-146-2	1306-19-0								
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				31 mg/kg	1.462	45.308 mg/kg	0.00453 %			
		215-160-9	1308-38-9								
6	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	37 mg/kg	1.56	57.713 mg/kg	0.0037 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				19 mg/kg	2.976	56.549 mg/kg	0.00565 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
11	zinc { zinc chromate }				69 mg/kg	2.774	191.416 mg/kg	0.0191 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %			
			TPH								
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		205-917-1	208-96-8								
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0391 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: WS2[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS2[2]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.8 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3	14	mg/kg	1.32	18.485 mg/kg	0.00185 %
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9	1.3	mg/kg	2.775	3.608 mg/kg	0.000361 %
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2	0.9	mg/kg	3.22	2.898 mg/kg	0.00029 %
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0	0.2	mg/kg	1.142	0.228 mg/kg	0.0000228 %
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9	35	mg/kg	1.462	51.154 mg/kg	0.00512 %
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1	16	mg/kg	1.126	18.014 mg/kg	0.0018 %
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	25	mg/kg	1.56	38.995 mg/kg	0.0025 %
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7	0.3	mg/kg	1.353	0.406 mg/kg	0.0000406 %
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7	21	mg/kg	2.976	62.502 mg/kg	0.00625 %
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8			1	mg/kg	2.554	2.554 mg/kg	0.000255 %
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9	68	mg/kg	2.774	188.642 mg/kg	0.0189 %
12	TPH (C6 to C40) petroleum group							
			TPH	10	mg/kg		10 mg/kg	0.001 %
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3	0.05	mg/kg		0.05 mg/kg	0.000005 %
14	acenaphthylene							
		205-917-1	208-96-8	0.05	mg/kg		0.05 mg/kg	0.000005 %
15	acenaphthene							
		201-469-6	83-32-9	0.05	mg/kg		0.05 mg/kg	0.000005 %

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0384 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: WS3

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS3	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3	10	mg/kg	1.32	13.203 mg/kg	0.00132 %
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9	0.92	mg/kg	2.775	2.553 mg/kg	0.000255 %
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2	1	mg/kg	3.22	3.22 mg/kg	0.000322 %
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0	0.2	mg/kg	1.142	0.228 mg/kg	0.0000228 %
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9	28	mg/kg	1.462	40.924 mg/kg	0.00409 %
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1	14	mg/kg	1.126	15.762 mg/kg	0.00158 %
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	23	mg/kg	1.56	35.876 mg/kg	0.0023 %
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7	0.3	mg/kg	1.353	0.406 mg/kg	0.0000406 %
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7	18	mg/kg	2.976	53.573 mg/kg	0.00536 %
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8			1	mg/kg	2.554	2.554 mg/kg	0.000255 %
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9	48	mg/kg	2.774	133.159 mg/kg	0.0133 %
12	TPH (C6 to C40) petroleum group							
			TPH	10	mg/kg		10 mg/kg	0.001 %
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3	0.05	mg/kg		0.05 mg/kg	0.000005 %
14	acenaphthylene							
		205-917-1	208-96-8	0.05	mg/kg		0.05 mg/kg	0.000005 %
15	acenaphthene							
		201-469-6	83-32-9	0.05	mg/kg		0.05 mg/kg	0.000005 %

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0299 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: WS4

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS4	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number										
1		arsenic { arsenic trioxide }				12	mg/kg	1.32	15.844	mg/kg	0.00158 %			
		033-003-00-0	215-481-4	1327-53-3										
2		beryllium { beryllium oxide }				0.81	mg/kg	2.775	2.248	mg/kg	0.000225 %			
		004-003-00-8	215-133-1	1304-56-9										
3		boron { diboron trioxide; boric oxide }				1.4	mg/kg	3.22	4.508	mg/kg	0.000451 %			
		005-008-00-8	215-125-8	1303-86-2										
4		cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %			
		048-002-00-0	215-146-2	1306-19-0										
5		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				29	mg/kg	1.462	42.385	mg/kg	0.00424 %			
			215-160-9	1308-38-9										
6		copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %			
		029-002-00-X	215-270-7	1317-39-1										
7		lead { lead chromate }			1	40	mg/kg	1.56	62.393	mg/kg	0.004 %			
		082-004-00-2	231-846-0	7758-97-6										
8		mercury { mercury dichloride }				0.3	mg/kg	1.353	0.406	mg/kg	0.0000406 %			
		080-010-00-X	231-299-8	7487-94-7										
9		nickel { nickel chromate }				17	mg/kg	2.976	50.597	mg/kg	0.00506 %			
		028-035-00-7	238-766-5	14721-18-7										
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1	mg/kg	2.554	2.554	mg/kg	0.000255 %			
		034-002-00-8												
11		zinc { zinc chromate }				64	mg/kg	2.774	177.545	mg/kg	0.0178 %			
		024-007-00-3	236-878-9	13530-65-9										
12		TPH (C6 to C40) petroleum group				10	mg/kg		10	mg/kg	0.001 %			
				TPH										
13		naphthalene				0.05	mg/kg		0.05	mg/kg	0.000005 %			
		601-052-00-2	202-049-5	91-20-3										
14		acenaphthylene				0.05	mg/kg		0.05	mg/kg	0.000005 %			
			205-917-1	208-96-8										
15		acenaphthene				0.05	mg/kg		0.05	mg/kg	0.000005 %			
			201-469-6	83-32-9										

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.3 mg/kg		0.3 mg/kg	0.00003 %		
20	pyrene	204-927-3	129-00-0		0.26 mg/kg		0.26 mg/kg	0.000026 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0368 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: WS4[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
WS4[2]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.8 m		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %		
	033-003-00-0	215-481-4	1327-53-3							
2	beryllium { beryllium oxide }				0.79 mg/kg	2.775	2.193 mg/kg	0.000219 %		
	004-003-00-8	215-133-1	1304-56-9							
3	boron { diboron trioxide; boric oxide }				0.6 mg/kg	3.22	1.932 mg/kg	0.000193 %		
	005-008-00-8	215-125-8	1303-86-2							
4	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
	048-002-00-0	215-146-2	1306-19-0							
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				35 mg/kg	1.462	51.154 mg/kg	0.00512 %		
		215-160-9	1308-38-9							
6	copper { dicopper oxide; copper (I) oxide }				13 mg/kg	1.126	14.637 mg/kg	0.00146 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	18 mg/kg	1.56	28.077 mg/kg	0.0018 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %		
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				18 mg/kg	2.976	53.573 mg/kg	0.00536 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8									
11	zinc { zinc chromate }				37 mg/kg	2.774	102.643 mg/kg	0.0103 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				10 mg/kg		10 mg/kg	0.001 %		
			TPH							
13	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
	601-052-00-2	202-049-5	91-20-3							
14	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-917-1	208-96-8							
15	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		201-469-6	83-32-9							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.0279 %		

Key

- User supplied data
 - Determinand defined or amended by HazWasteOnline (see Appendix A)
 - Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Classification of sample: WS6

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS6	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.1 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number					
1	arsenic { arsenic trioxide }							
	033-003-00-0	215-481-4	1327-53-3	11	mg/kg	1.32	14.524 mg/kg	0.00145 %
2	beryllium { beryllium oxide }							
	004-003-00-8	215-133-1	1304-56-9	0.78	mg/kg	2.775	2.165 mg/kg	0.000216 %
3	boron { diboron trioxide; boric oxide }							
	005-008-00-8	215-125-8	1303-86-2	1.3	mg/kg	3.22	4.186 mg/kg	0.000419 %
4	cadmium { cadmium oxide }							
	048-002-00-0	215-146-2	1306-19-0	0.2	mg/kg	1.142	0.228 mg/kg	0.0000228 %
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }							
		215-160-9	1308-38-9	26	mg/kg	1.462	38 mg/kg	0.0038 %
6	copper { dicopper oxide; copper (I) oxide }							
	029-002-00-X	215-270-7	1317-39-1	26	mg/kg	1.126	29.273 mg/kg	0.00293 %
7	lead { lead chromate }							
	082-004-00-2	231-846-0	7758-97-6	58	mg/kg	1.56	90.469 mg/kg	0.0058 %
8	mercury { mercury dichloride }							
	080-010-00-X	231-299-8	7487-94-7	0.4	mg/kg	1.353	0.541 mg/kg	0.0000541 %
9	nickel { nickel chromate }							
	028-035-00-7	238-766-5	14721-18-7	16	mg/kg	2.976	47.62 mg/kg	0.00476 %
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }							
	034-002-00-8			1	mg/kg	2.554	2.554 mg/kg	0.000255 %
11	zinc { zinc chromate }							
	024-007-00-3	236-878-9	13530-65-9	80	mg/kg	2.774	221.932 mg/kg	0.0222 %
12	TPH (C6 to C40) petroleum group							
			TPH	10	mg/kg		10 mg/kg	0.001 %
13	naphthalene							
	601-052-00-2	202-049-5	91-20-3	0.05	mg/kg		0.05 mg/kg	0.000005 %
14	acenaphthylene							
		205-917-1	208-96-8	0.05	mg/kg		0.05 mg/kg	0.000005 %
15	acenaphthene							
		201-469-6	83-32-9	0.05	mg/kg		0.05 mg/kg	0.000005 %

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.05 mg/kg		0.05 mg/kg	0.000005 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.05 mg/kg	0.000005 %		
Total:								0.043 %		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because In house threshold.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.001%)

Appendix A: Classifier defined and non CLP determinands

• **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

• **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 17 May 2015

Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

• **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

■ **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

■ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics (edit as required)

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.1, May 2018**
HazWasteOnline Classification Engine Version: 2020.190.4405.8635 (08 Jul 2020)
HazWasteOnline Database: 2020.190.4405.8635 (08 Jul 2020)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

**Matt Paddock**

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Analytical Report Number : 20-17624

Project / Site name:	Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ	Samples received on:	02/07/2020
Your job number:	P20-064	Sample instructed/ Analysis started on:	02/07/2020
Your order number:	P20-064 GI	Analysis completed by:	15/07/2020
Report Issue Number:	1	Report issued on:	15/07/2020
Samples Analysed:	3 10:1 WAC samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
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.

i2 Analytical

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Waste Acceptance Criteria Analytical Results

Report No:	20-17624						
					Client: Paddock		
Location	Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ						
Lab Reference (Sample Number)	1552367 / 1552368				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	17/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SA1+SA2+TP13+WS3+WS4 Combined						
Depth (m)	0.20-0.70						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	3.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	1.25				100	--	--
pH (units)**	6.7				--	>6	--
Acid Neutralisation Capacity (mol / kg)	-8.6				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
	(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0025			0.0227	0.5	2	25
Barium *	0.0081			0.0719	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0013			0.012	0.5	10	70
Copper *	0.0026			0.024	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0007			0.0061	0.5	10	30
Nickel *	0.0016			0.015	0.4	10	40
Lead *	0.0015			0.013	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0020			0.018	4	50	200
Chloride *	1.5			13	800	15000	25000
Fluoride	0.29			2.6	10	150	500
Sulphate *	4.3			39	1000	20000	50000
TDS*	35			310	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	16.3			146	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.60						
Dry Matter (%)	86						
Moisture (%)	14						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	20-17624						
					Client: Paddock		
Location	Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ						
Lab Reference (Sample Number)	1552369 / 1552370				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	17/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SA3+TP4+TP5+TP11+TP11+WS5 Combined						
Depth (m)	0.30-0.90						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	2.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.0				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.00				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
	(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0013			0.0115	0.5	2	25
Barium *	0.0061			0.0540	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0014			0.013	0.5	10	70
Copper *	0.0047			0.041	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0004			< 0.0040	0.5	10	30
Nickel *	0.0023			0.020	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0039			0.035	4	50	200
Chloride *	1.4			12	800	15000	25000
Fluoride	0.27			2.4	10	150	500
Sulphate *	3.5			31	1000	20000	50000
TDS*	29			260	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	15.4			136	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.60						
Dry Matter (%)	85						
Moisture (%)	15						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



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Watford, WD18 8YS

email:reception@i2analytical.com

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.

This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



Analytical Report Number : 20-17624

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

* 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 *
1552367	A2+TP13+WS	Combined	0.20-0.70	Brown clay and sand with vegetation and gravel
1552369	TP5+TP11+TP12	Combined	0.30-0.90	Brown clay and sand with gravel.
1552371	P7+TP7+WS	Combined	0.10-0.90	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 20-17624

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance"	L046-PL	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as received, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
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
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Iss No 20-17624-1 Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ P20-064.XLS

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The results included within the report relate only to the sample(s) submitted for testing.

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Analytical Report Number : 20-17624

Project / Site name: Roadhouse Farm, Roestock Lane, Colney Heath, AL4 0QQ

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.

Sample ID	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
SA1+SA2+TP13+WS3+WS4	Combined	S	20-17624	1552367	c	BTEX in soil (Monoaromatics)	L073B-PL	c
SA1+SA2+TP13+WS3+WS4	Combined	S	20-17624	1552367	c	Total BTEX in soil (Poland)	L073-PL	c
SA3+TP4+TP5+TP11+TP11+WS5	Combined	S	20-17624	1552369	c	BTEX in soil (Monoaromatics)	L073B-PL	c
SA3+TP4+TP5+TP11+TP11+WS5	Combined	S	20-17624	1552369	c	Total BTEX in soil (Poland)	L073-PL	c
SA5+TP7+TP7+WS6+WS6	Combined	S	20-17624	1552371	c	BTEX in soil (Monoaromatics)	L073B-PL	c
SA5+TP7+TP7+WS6+WS6	Combined	S	20-17624	1552371	c	Total BTEX in soil (Poland)	L073-PL	c

APPENDIX D – GEOTECHNICAL DATA

Geotechnical Laboratory Testing Results

Infiltration Testing Data



TEST CERTIFICATE

Liquid and Plastic Limits

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



4041

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

Client: Paddock Geo Engineering
Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Client Reference: P20-164
Job Number: 20-17216
Date Sampled: 17/06/2020
Date Received: 24/06/2020
Date Tested: 11/07/2020
Sampled By: Not Given

Contact: Matt Paddock
Site Address: Roundhouse Farm, Roestock Lane, Colney Heath
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

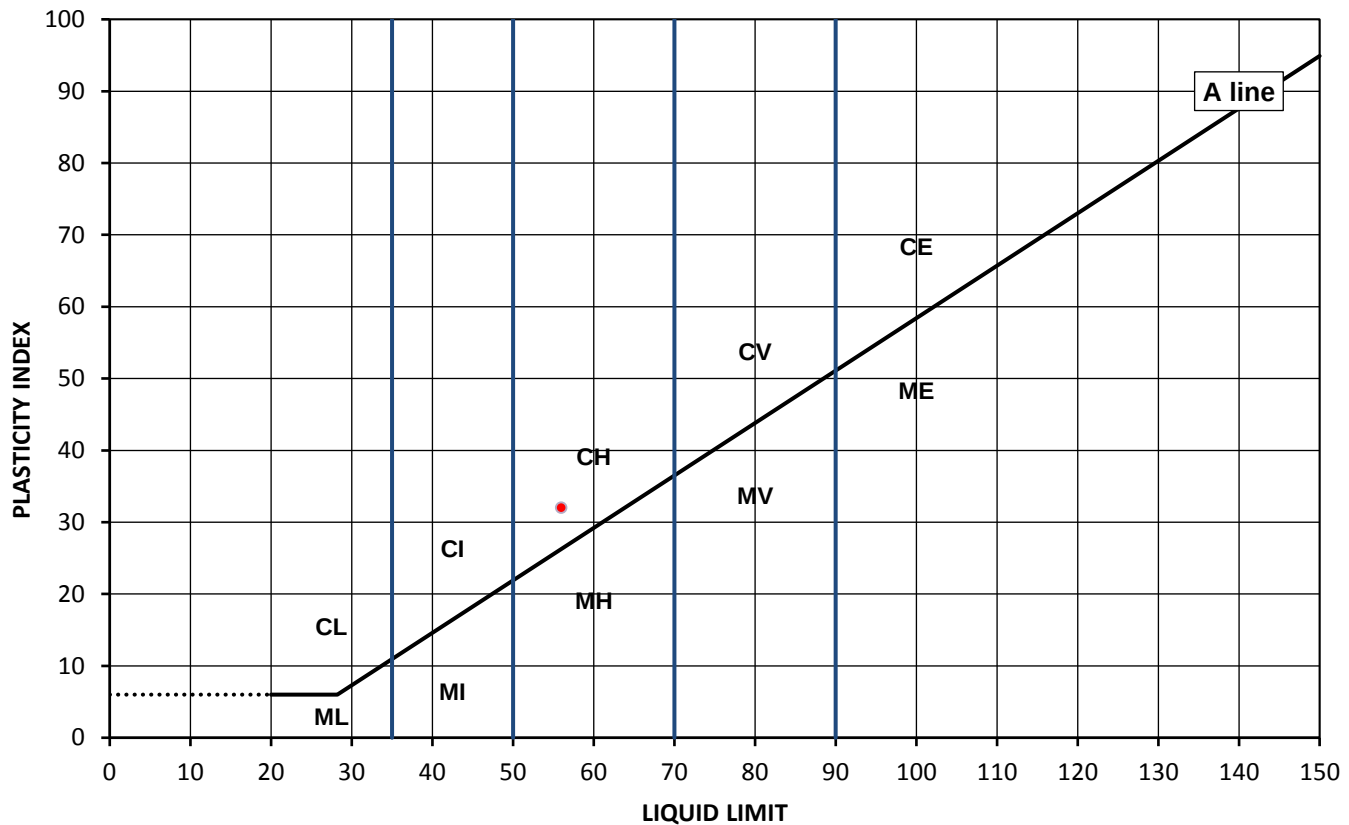
Test Results:

Laboratory Reference: 1549960
Hole No.: SA1
Sample Reference: Not Given
Soil Description: Orange slightly gravelly slightly sandy CLAY with fragments of chalk

Depth Top [m]: 1.30
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	56	24	32	88



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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i2 Analytical Ltd
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Northampton NN4 7EB



Environmental Science

4041

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Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549961

Hole No.: SA3

Sample Reference: Not Given

Soil Description: Brown mottled grey gravelly sandy CLAY with fragments of chalk

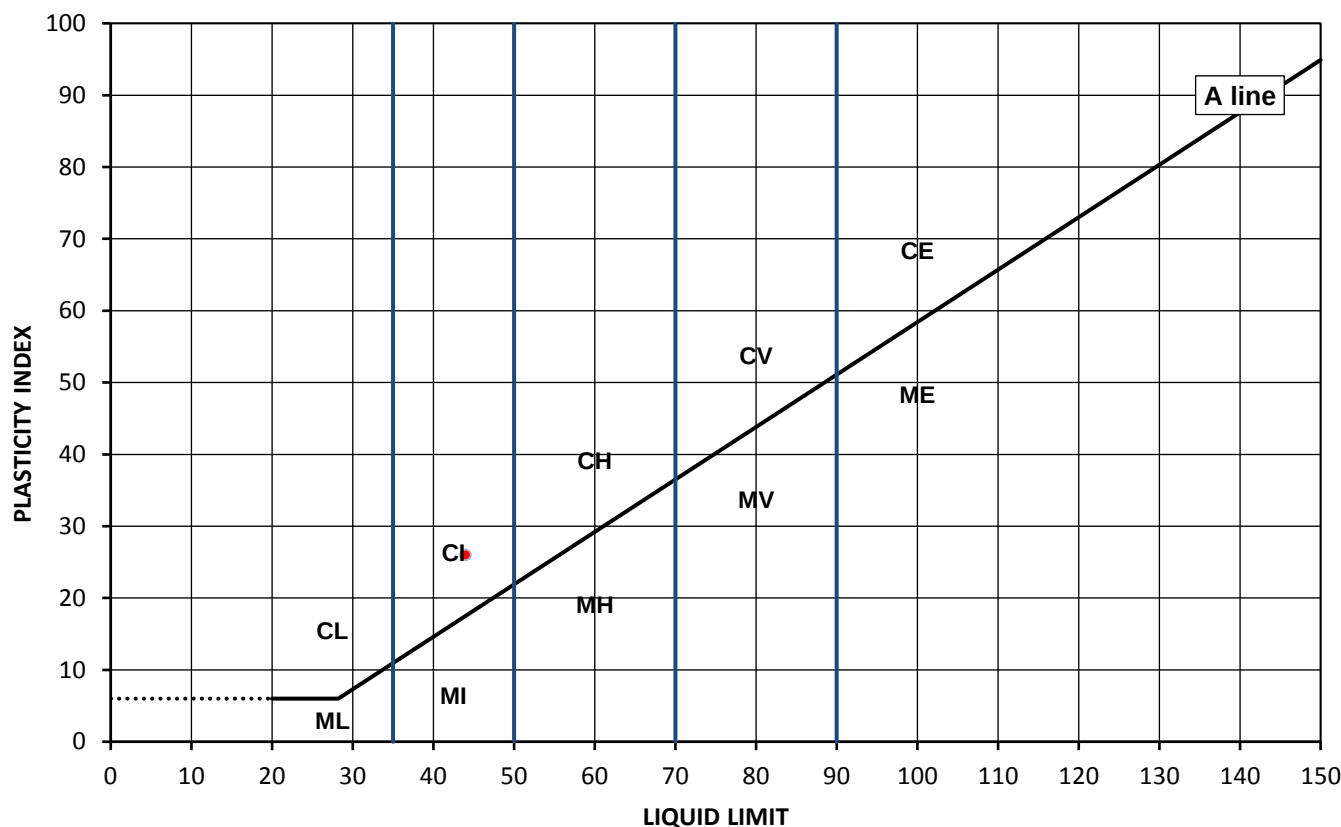
Depth Top [m]: 1.40

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	44	18	26	54



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

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PL Deputy Head of Geotechnical Section
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TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

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

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549962

Hole No.: SA5

Sample Reference: Not Given

Soil Description: Brown slightly gravelly sandy CLAY

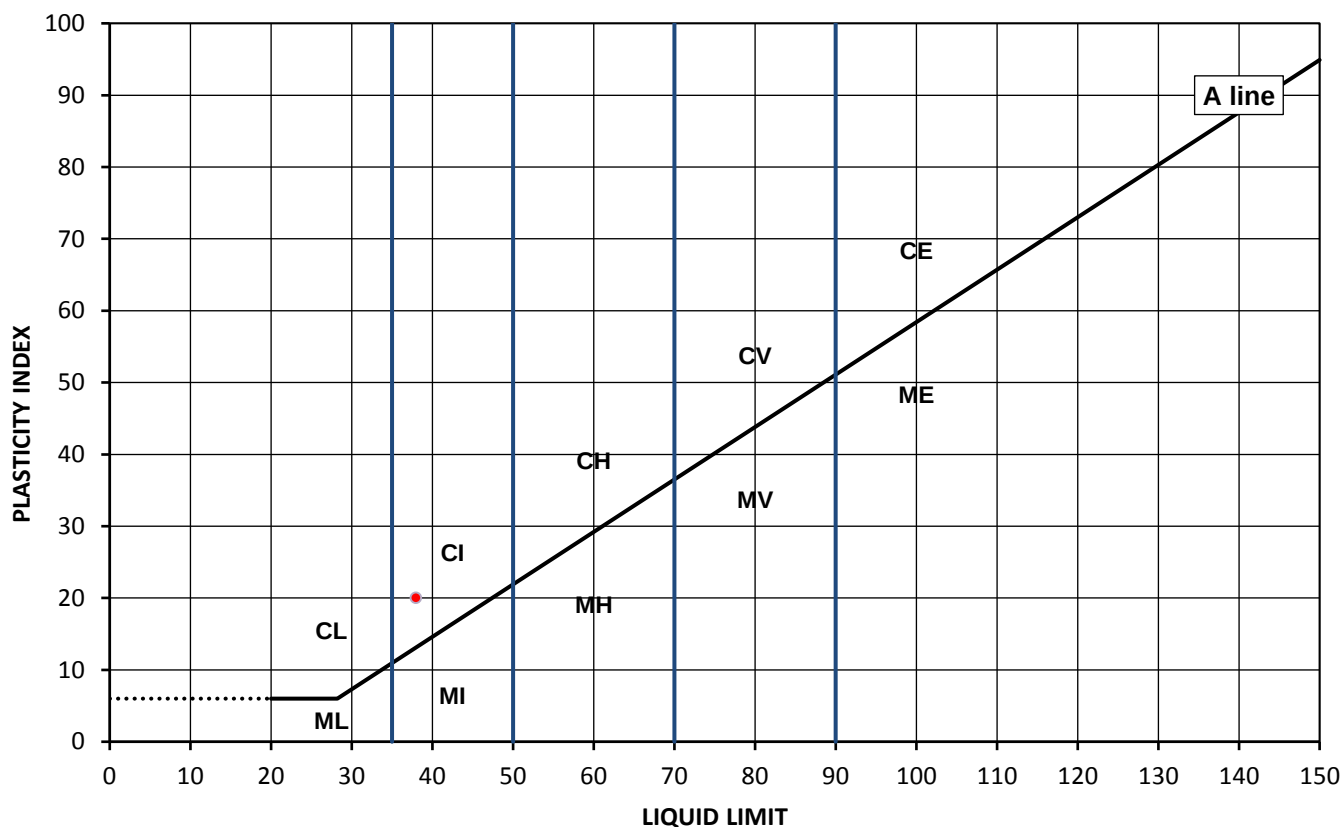
Depth Top [m]: 0.90

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	38	18	20	66



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

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Northampton NN4 7EB



Environmental Science

4041

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

Client: Paddock Geo Engineering

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Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 18/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549964

Hole No.: TP5

Sample Reference: Not Given

Soil Description: Brown slightly gravelly sandy CLAY

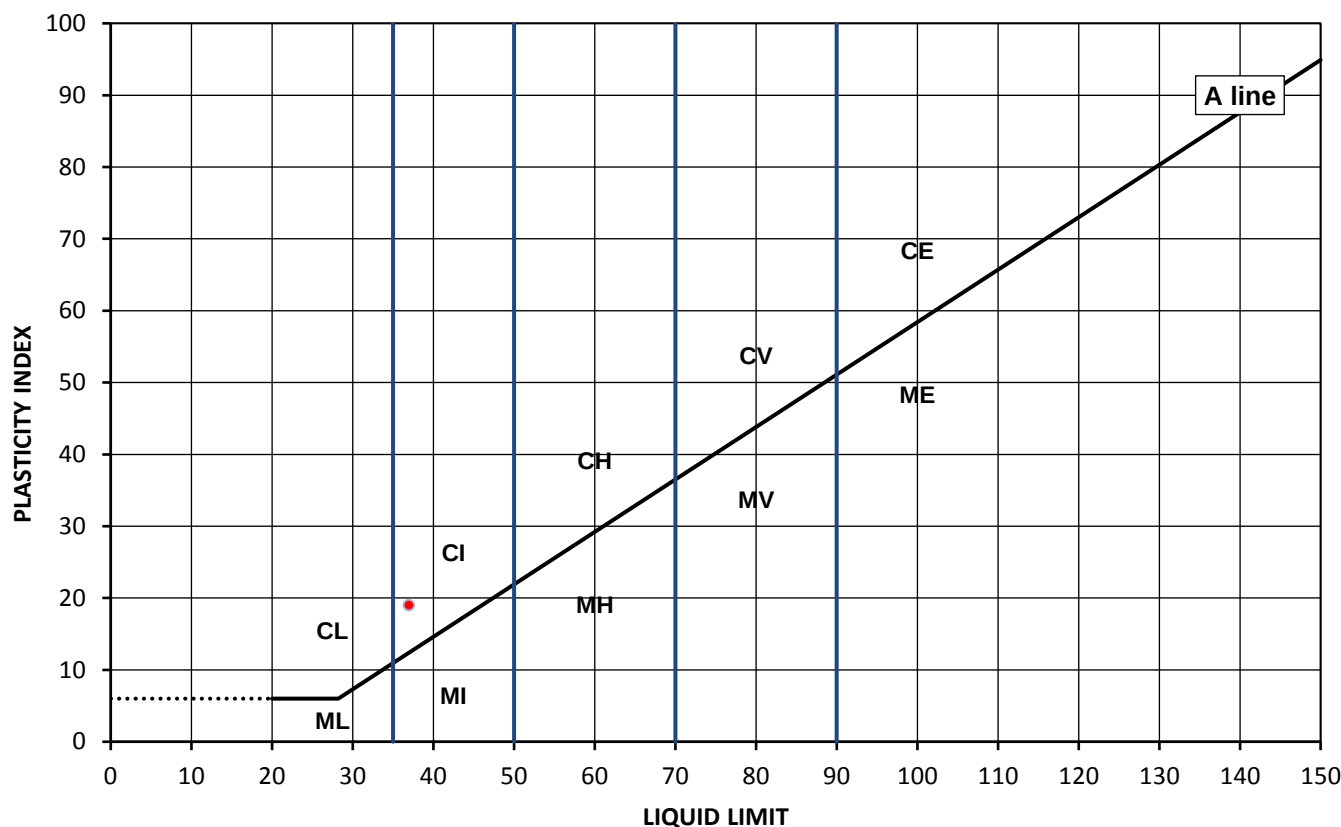
Depth Top [m]: 2.20

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	37	18	19	98



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

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Client: Paddock Geo Engineering

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Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 19/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549965

Hole No.: TP8

Sample Reference: Not Given

Soil Description: Brownish grey slightly gravelly slightly sandy CLAY with fragments of chalk

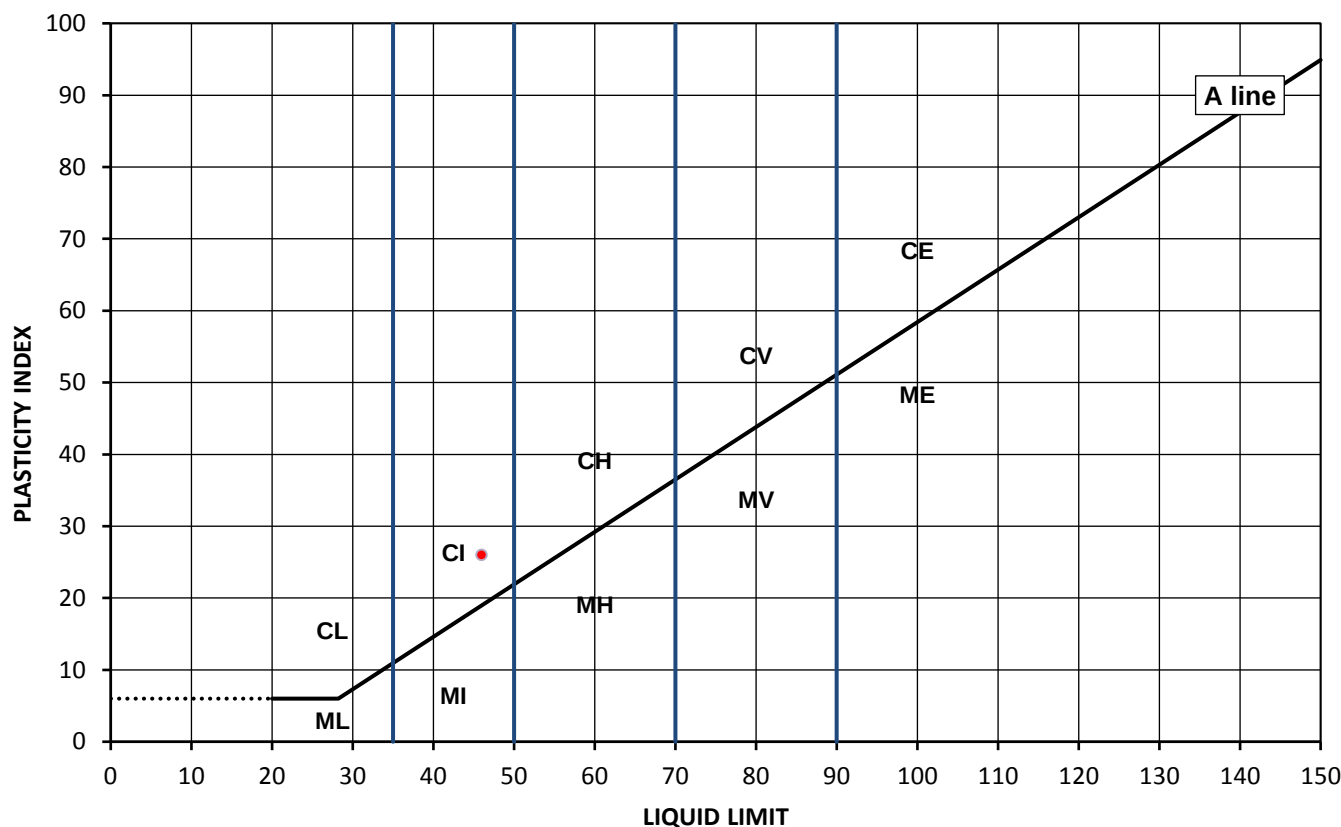
Depth Top [m]: 1.20

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	46	20	26	87



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

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Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 19/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549966

Hole No.: TP9

Sample Reference: Not Given

Soil Description: Mottled brown slightly gravelly sandy CLAY

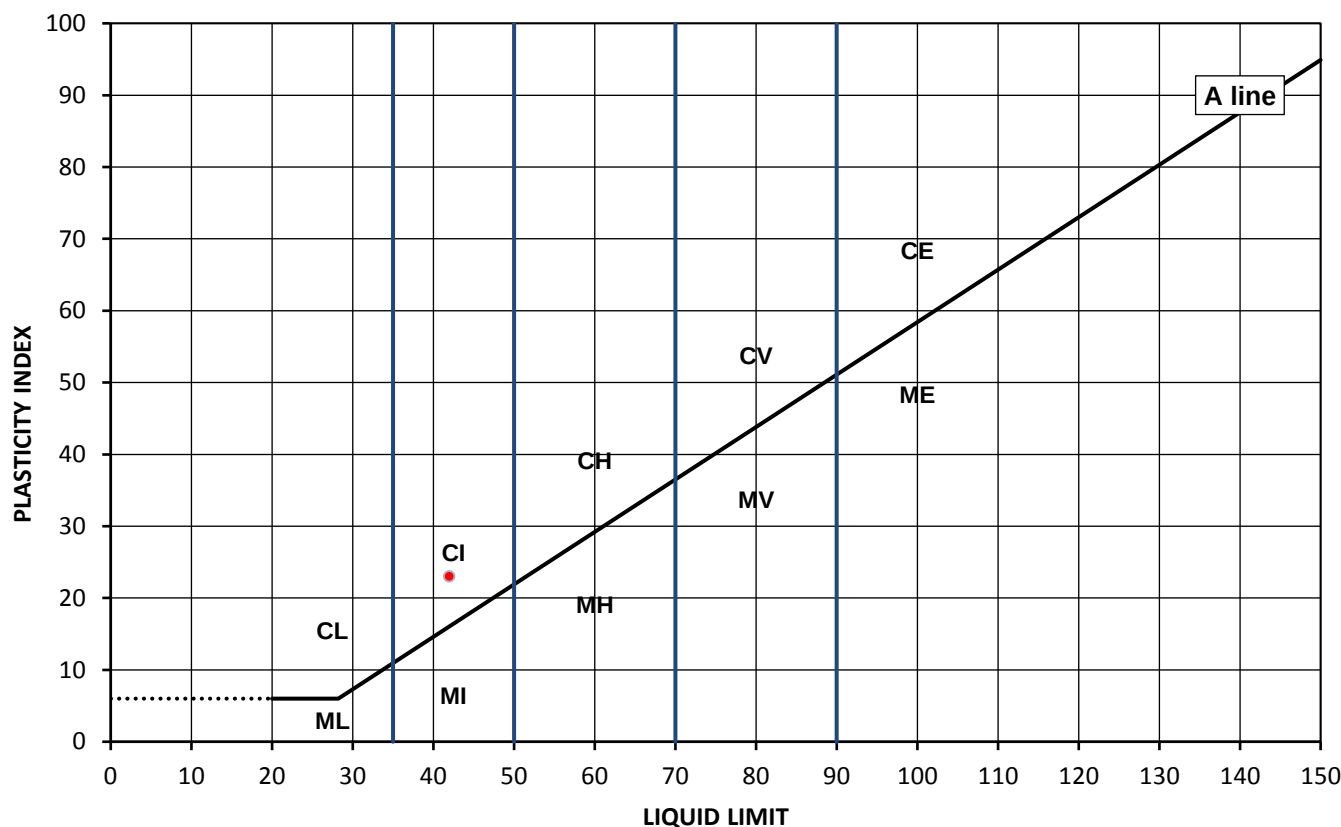
Depth Top [m]: 1.30

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	42	19	23	86



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549967

Hole No.: WS1

Sample Reference: Not Given

Soil Description: Brown mottled grey CLAY

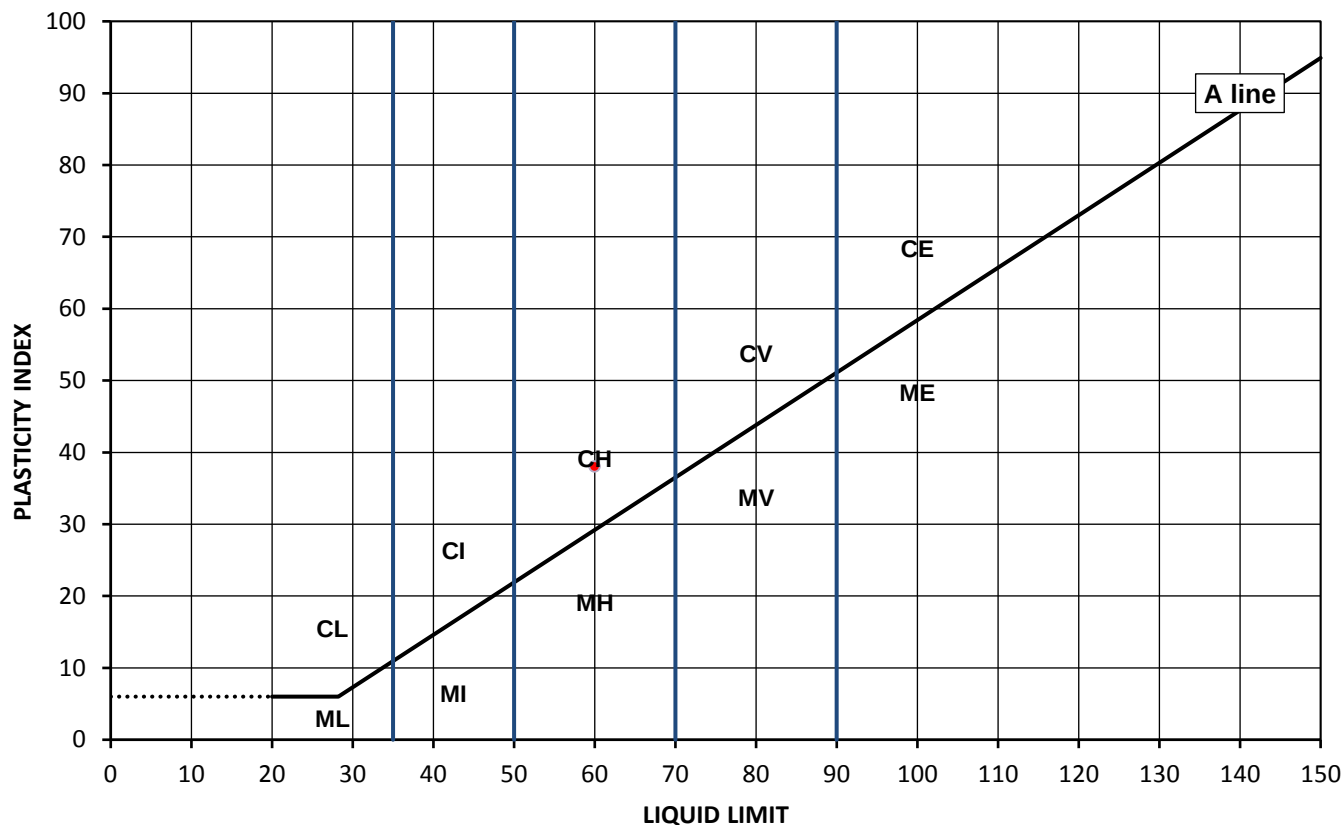
Depth Top [m]: 3.20

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	60	22	38	100



Legend, based on BS 5930:2015 Code of practice for site investigations

	Plasticity	Liquid Limit
C	Clay	
M	Silt	
L	Low	below 35
I	Medium	35 to 50
H	High	50 to 70
V	Very high	70 to 90
E	Extremely high	exceeding 90
O	Organic	append to classification for organic material (eg CHO)

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

Remarks:

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Environmental Science

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Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549968

Hole No.: WS2

Sample Reference: Not Given

Soil Description: Brown mottled grey slightly gravelly slightly sandy CLAY

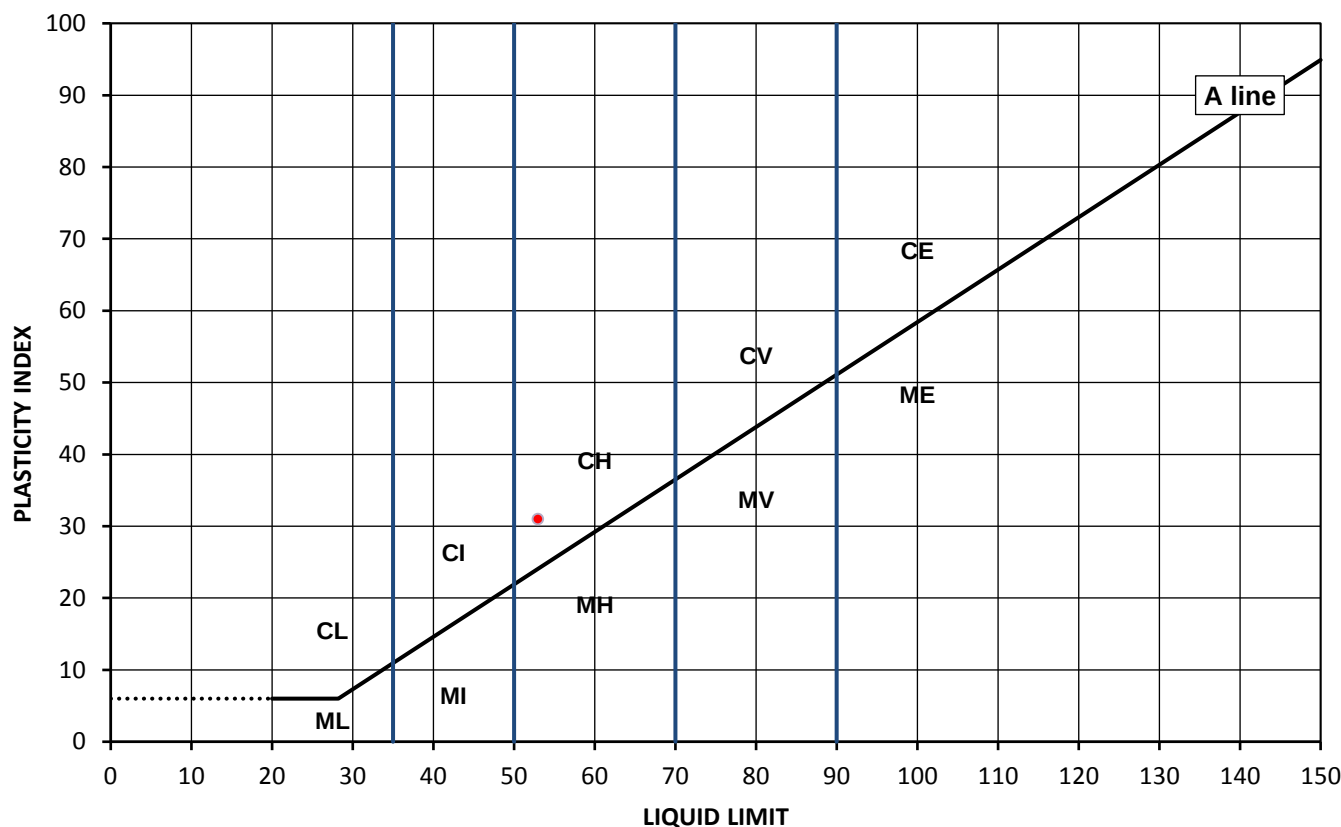
Depth Top [m]: 1.80

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	53	22	31	93



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

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Environmental Science

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Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549969

Hole No.: WS3

Sample Reference: Not Given

Soil Description: Mottled brown slightly gravelly sandy CLAY with fragments of chalk

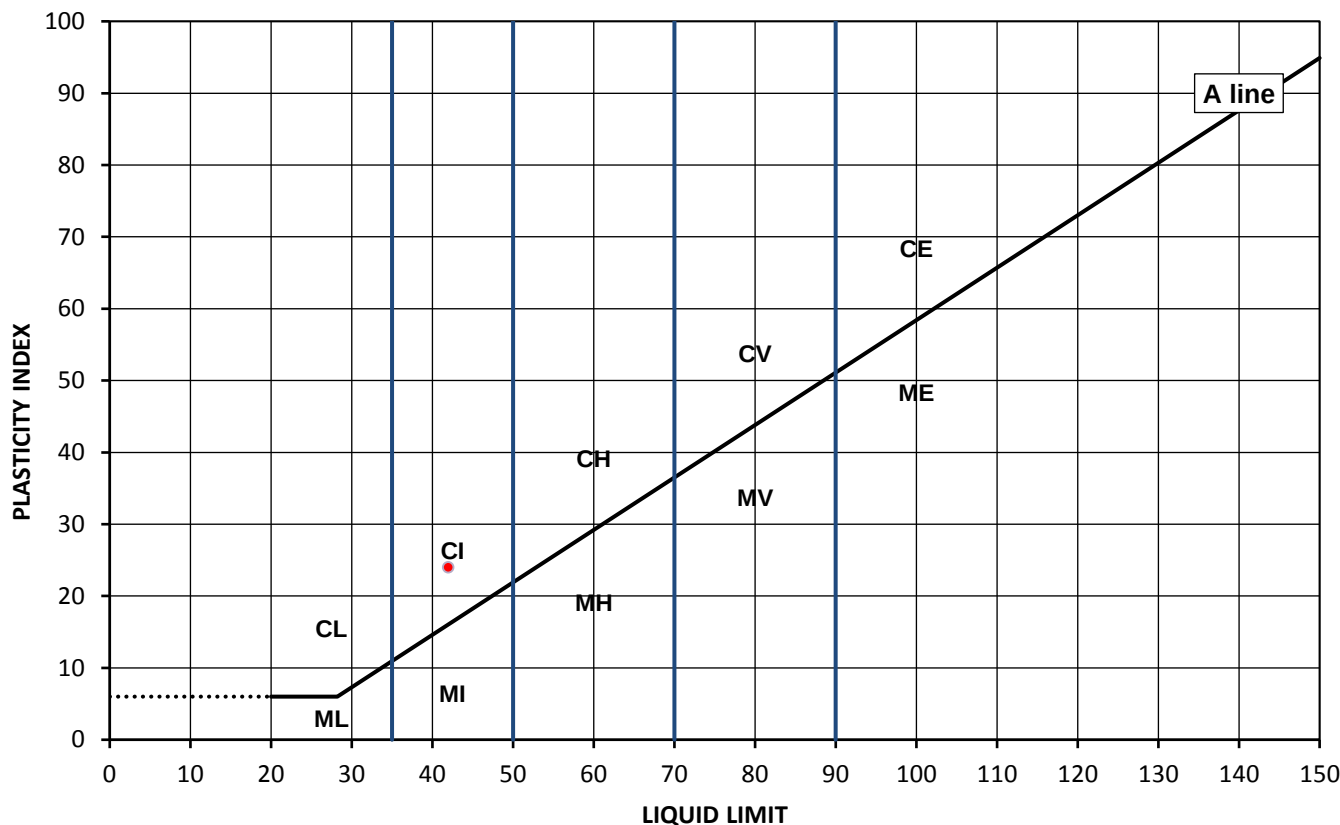
Depth Top [m]: 1.20

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	42	18	24	76



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/07/2020

GF 232.9



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

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

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549970

Hole No.: WS3

Sample Reference: Not Given

Soil Description: Yellowish brown slightly gravelly slightly sandy CLAY

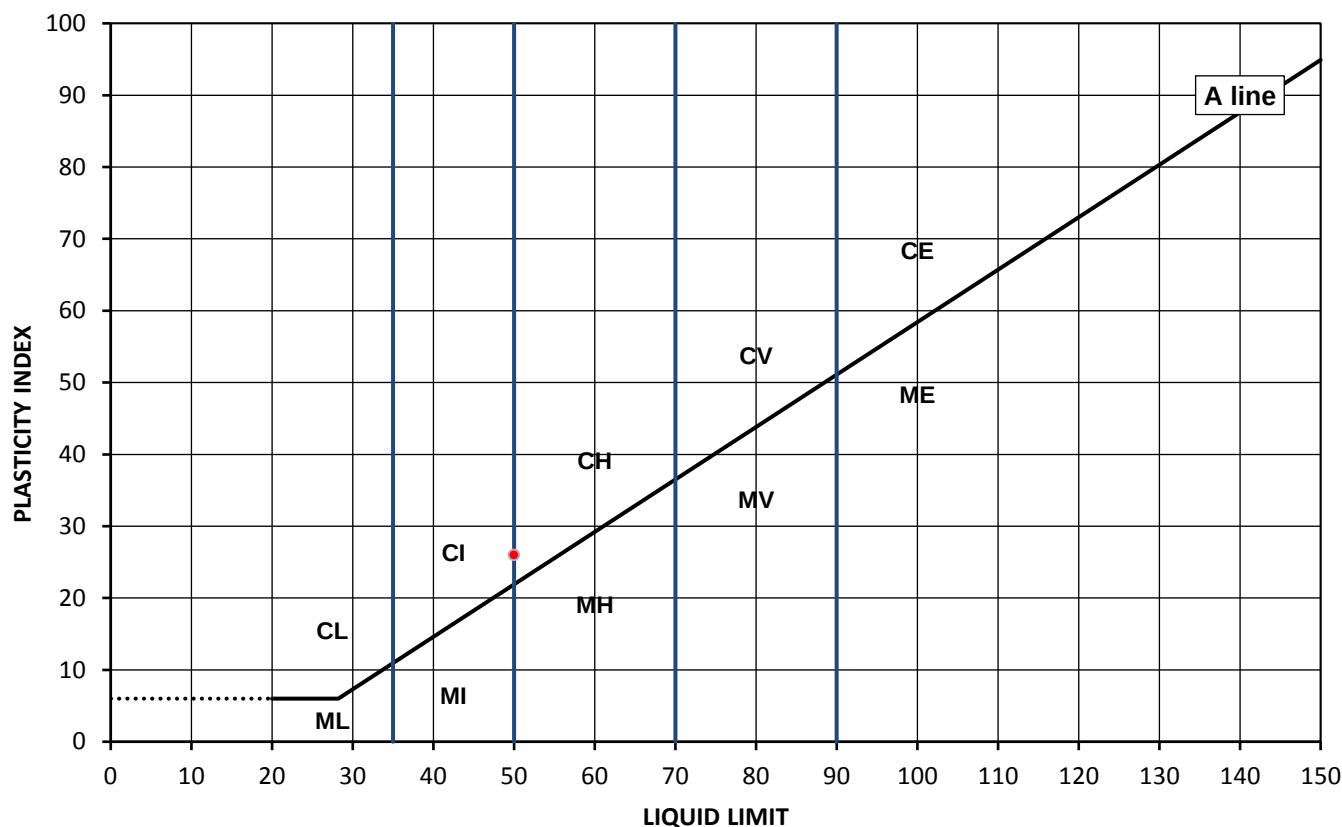
Depth Top [m]: 2.20

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
25	50	24	26	91



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/07/2020

GF 232.9



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

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

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549971

Hole No.: WS4

Sample Reference: Not Given

Soil Description: Mottled brown slightly gravelly slightly sandy CLAY

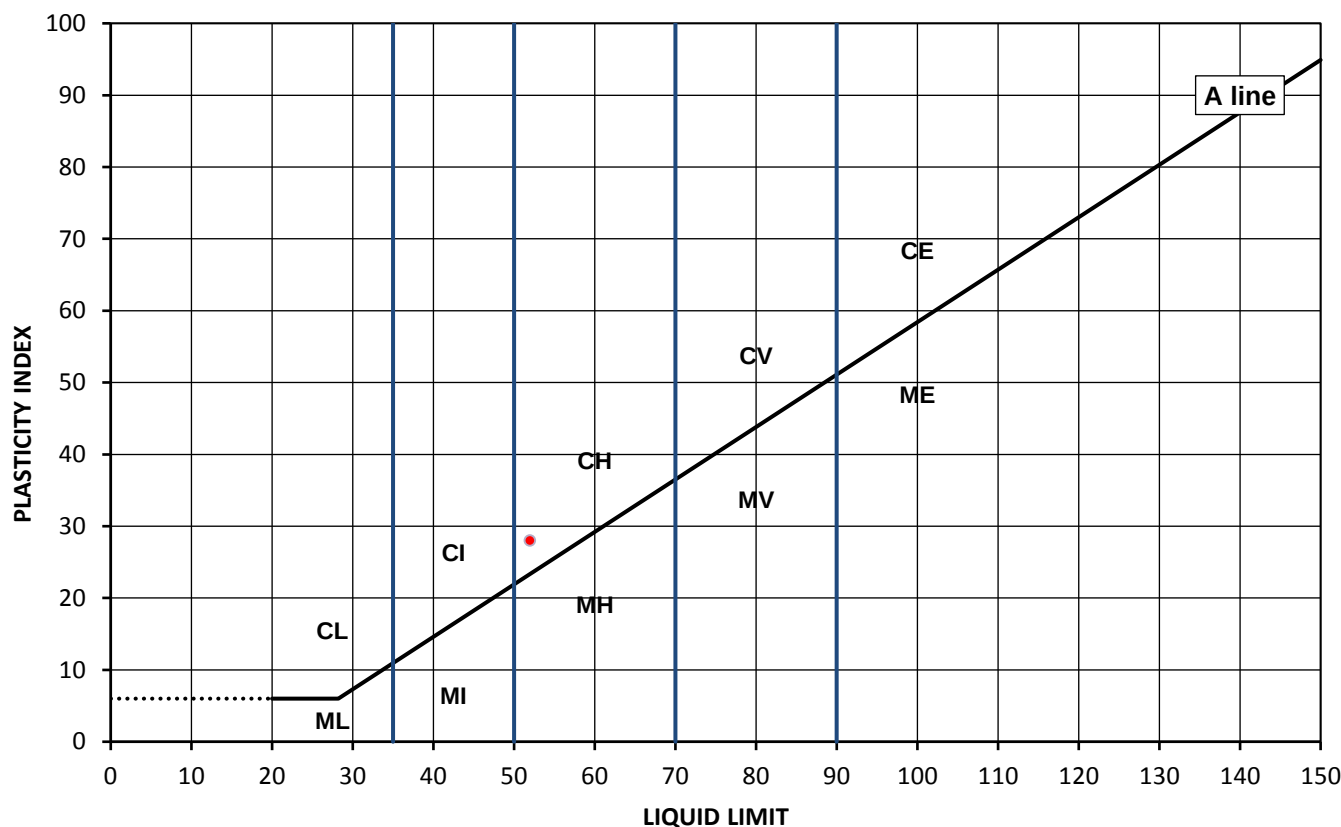
Depth Top [m]: 0.90

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	52	24	28	88



Legend, based on BS 5930:2015 Code of practice for site investigations

	Plasticity	Liquid Limit
C	Clay	
M	Silt	
L	Low	below 35
I	Medium	35 to 50
H	High	50 to 70
V	Very high	70 to 90
E	Extremely high	exceeding 90
O	Organic	append to classification for organic material (eg CHO)

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

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/07/2020

GF 232.9



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

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

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549973

Hole No.: WS6

Sample Reference: Not Given

Soil Description: Brown mottled grey slightly gravelly sandy CLAY with fragments of chalk

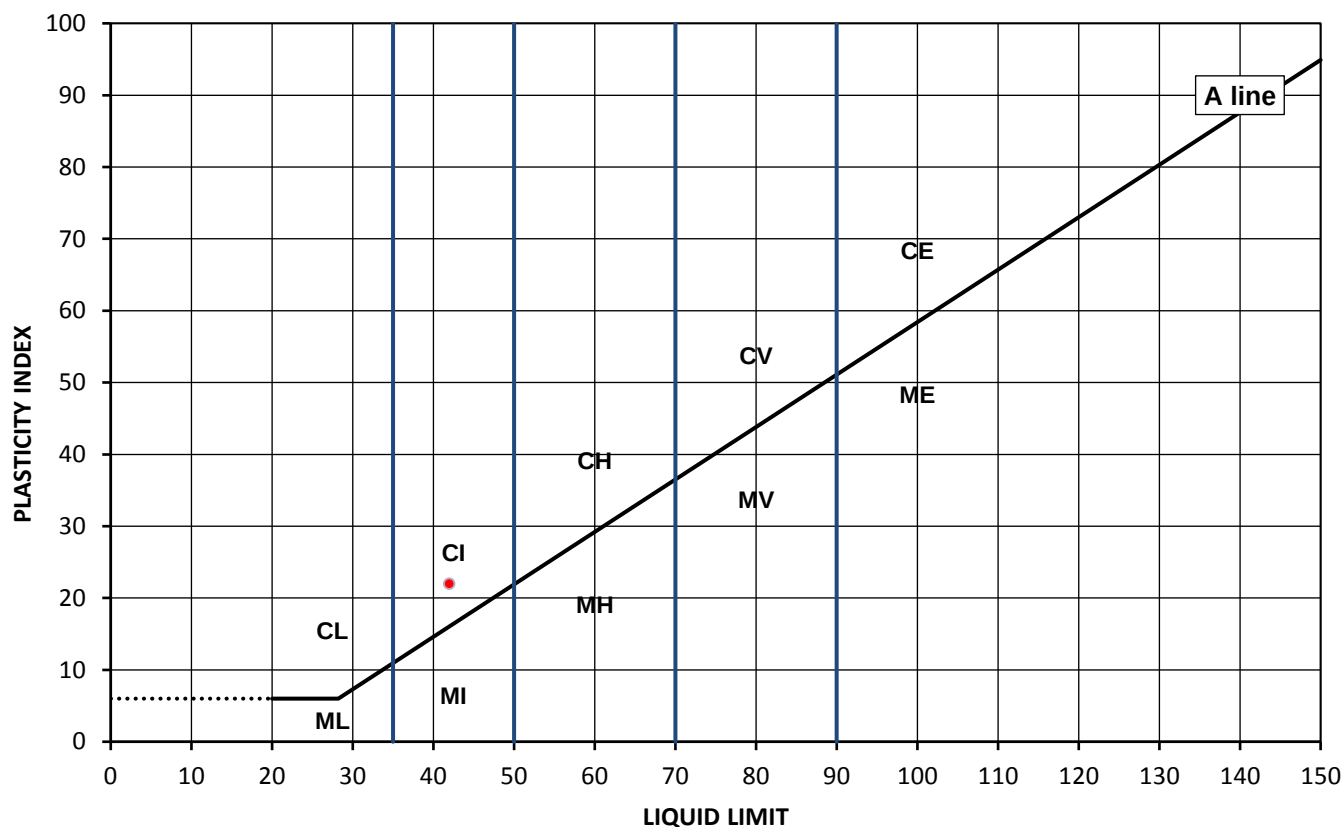
Depth Top [m]: 1.60

Depth Base [m]: Not Given

Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	42	20	22	91



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 15/07/2020

GF 232.9



SUMMARY REPORT

Summary of Classification Test Results

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



Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
Clause 8.2

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06 - 19/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1549960	SA1	Not Given	1.30	Not Given	D	Orange slightly gravelly slightly sandy CLAY with fragments of chalk	Atterberg 1 Point	20		88	56	24	32						
1549961	SA3	Not Given	1.40	Not Given	D	Brown mottled grey gravelly sandy CLAY with fragments of chalk	Atterberg 1 Point	14		54	44	18	26						
1549962	SA5	Not Given	0.90	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	16		66	38	18	20						
1549964	TP5	Not Given	2.20	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	23		98	37	18	19						
1549965	TP8	Not Given	1.20	Not Given	D	Brownish grey slightly gravelly slightly sandy CLAY with fragments of chalk	Atterberg 1 Point	17		87	46	20	26						
1549966	TP9	Not Given	1.30	Not Given	D	Mottled brown slightly gravelly sandy CLAY	Atterberg 1 Point	14		86	42	19	23						
1549967	WS1	Not Given	3.20	Not Given	D	Brown mottled grey CLAY	Atterberg 1 Point	21		100	60	22	38						
1549968	WS2	Not Given	1.80	Not Given	D	Brown mottled grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	17		93	53	22	31						
1549969	WS3	Not Given	1.20	Not Given	D	Mottled brown slightly gravelly sandy CLAY with fragments of chalk	Atterberg 1 Point	15		76	42	18	24						
1549970	WS3	Not Given	2.20	Not Given	D	Yellowish brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	25		91	50	24	26						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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4041

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
Clause 8.2i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 11/07/2020

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1549971	WS4	Not Given	0.90	Not Given	D	Mottled brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	19		88	52	24	28						
1549973	WS6	Not Given	1.60	Not Given	D	Brown mottled grey slightly gravelly sandy CLAY with fragments of chalk	Atterberg 1 Point	20		91	42	20	22						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

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



Tested in Accordance with: BS 1377-2: 1990

Client: Paddock Geo Engineering
Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

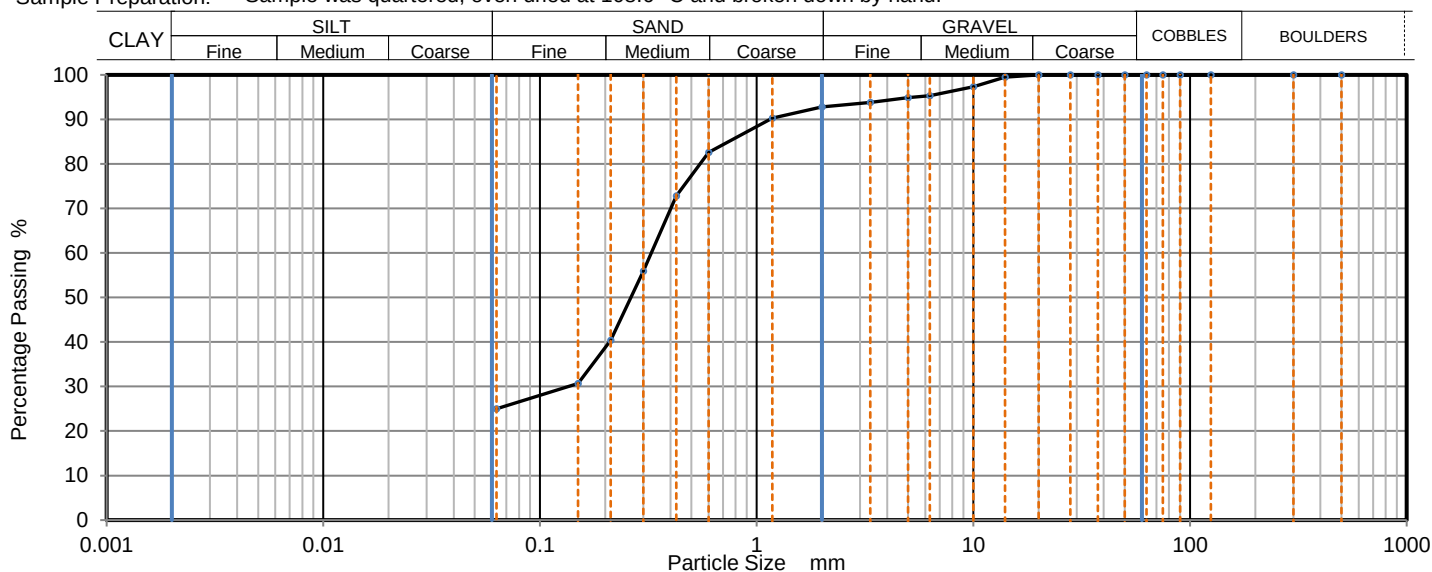
Client Reference: P20-164
Job Number: 20-17216
Date Sampled: 17/06/2020
Date Received: 24/06/2020
Date Tested: 07/07/2020
Sampled By: Not Given

Contact: Matt Paddock
Site Address: Roundhouse Farm, Roestock Lane, Colney Heath
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1549963
Hole No.: TP3
Sample Reference: Not Given
Sample Description: Brown clayey slightly gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.

Depth Top [m]: 2.40
Depth Base [m]: Not Given
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	97		
6.3	95		
5	95		
3.35	94		
2	93		
1.18	90		
0.6	83		
0.425	73		
0.3	56		
0.212	40		
0.15	31		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	7.20
Sand	67.80
Fines <0.063mm	25.00

Grading Analysis	
D100	mm 20
D60	mm 0.326
D30	mm 0.136
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

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

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

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



Tested in Accordance with: BS 1377-2: 1990

Client: Paddock Geo Engineering

Client Address: 14 Burns Road, Bletchley,
Milton Keynes, MK3 5AL

Contact: Matt Paddock

Site Address: Roundhouse Farm, Roestock Lane, Colney Heath

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

Client Reference: P20-164

Job Number: 20-17216

Date Sampled: 17/06/2020

Date Received: 24/06/2020

Date Tested: 07/07/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1549972

Hole No.: Combined WS4

Sample Reference: Not Given

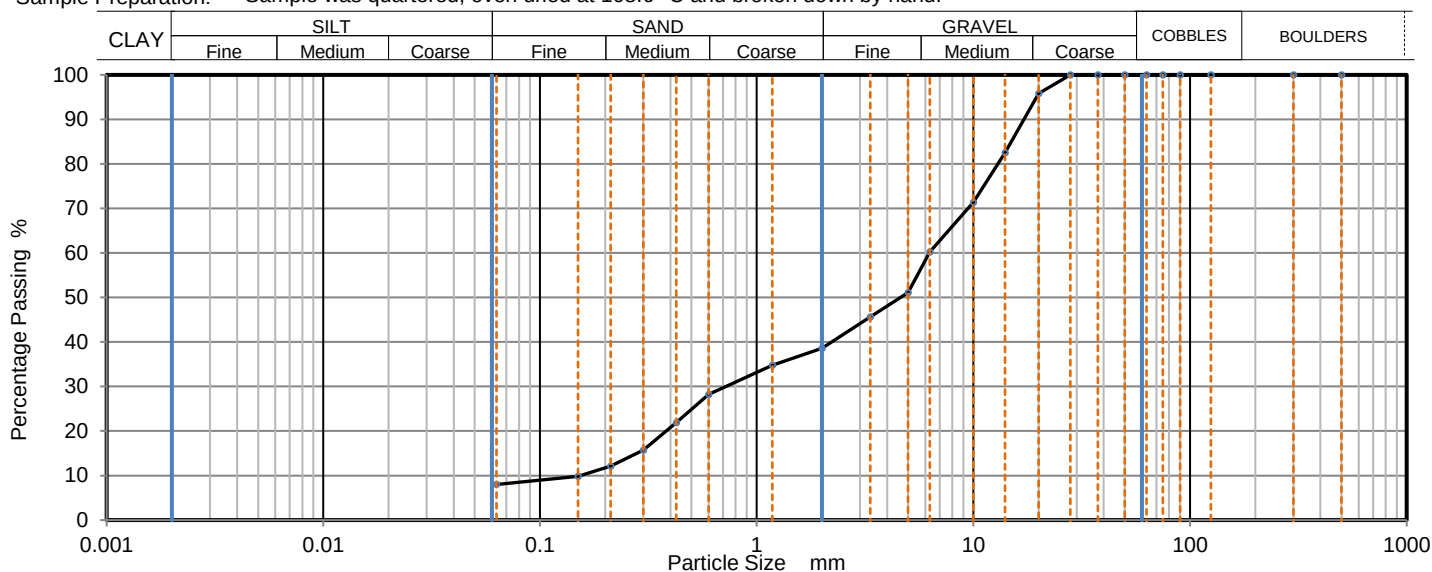
Sample Description: Brown slightly clayey sandy GRAVEL

Sample Preparation: Sample was quartered, oven dried at 108.6 °C and broken down by hand.

Depth Top [m]: 1.60

Depth Base [m]: 2.20

Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	83		
10	71		
6.3	60		
5	51		
3.35	46		
2	39		
1.18	35		
0.6	28		
0.425	22		
0.3	16		
0.212	12		
0.15	10		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	61.40
Sand	30.10
Fines <0.063mm	8.50

Grading Analysis	
D100	mm 28
D60	mm 6.27
D30	mm 0.723
D10	mm 0.154
Uniformity Coefficient	41
Curvature Coefficient	0.54

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

Remarks:

Signed:

Monika Janoszek

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Infiltration Test to BRE365 - SA1 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
10:35	0.0	0	0.90
10:38	3.0	180	0.90
10:48	13.0	780	0.90
11:20	45.0	2700	0.90
11:28	53.0	3180	0.90
13:46	191.0	11460	0.90

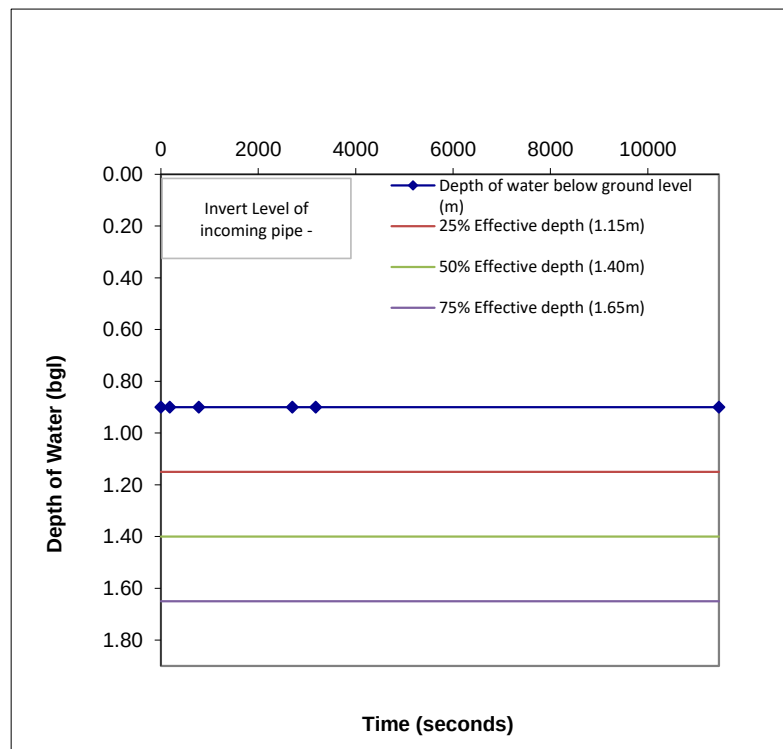
Location: SA1
Weather: Overcast
Engineer: MC
Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation

1.3m	SA1 - 1.9 m depth Assume invert level of incoming drain is 0.9m bgl. Effective depth = 1m	Pit Depths (m bgl)
		Length
		1.3
		Width
		0.35
		Depth
		1.9
		25% Effective Depth
		1.15
		75% Effective Depth
		1.65
		Inlet Depth
		0.9
		0.35m

Linear extrapolated values for calculation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (a_{p50} \times t_{p75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth
 $1.3 \times 0.35 \times (1.65 - 1.15)$
 = **0.2275**

a_{p50} = internal area of TP upto 50% effective depth + base of TP
 $2(1.3 \times) + 2(0.35 \times) + (1.3 \times 0.35)$
 = **2.105**

t_{p75-25} = the time for water level to fall from 75% - 25% effective depth
 = >>>> secs

f= **N/A** m/s

Comment

Insufficient infiltration over three hours - Soakaway Failed

Infiltration Test to BRE365 - SA2 TEST 1

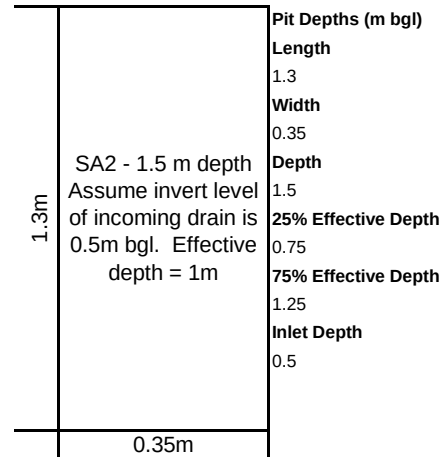
Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
11:20	0.0	0	0.50
11:26	6.0	360	0.50
12:10	50.0	3000	0.52
14:20	180.0	10800	0.56

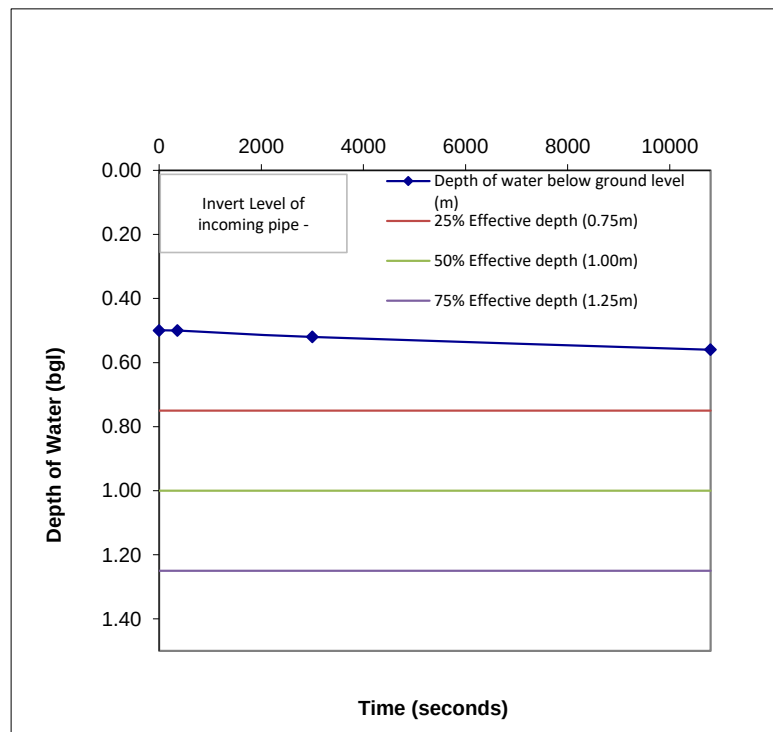
Location: SA2
Weather: Overcast
Engineer: MC
Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation



Linear extrapolated values for calculation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times tp_{75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth
 $1.3 \times 0.35 \times (1.25 - 0.75)$
 $= 0.2275$

ap_{50} = internal area of TP upto 50% effective depth + base of TP
 $2(1.3 \times) + 2(0.35 \times) + (1.3 \times 0.35)$
 $= 2.105$

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth
 $= >>>>$ secs

f= **N/A** m/s

Comment

Insufficient infiltration over three hours -
 Soakaway Failed

Infiltration Test to BRE365 - SA3 TEST 1

Field Data

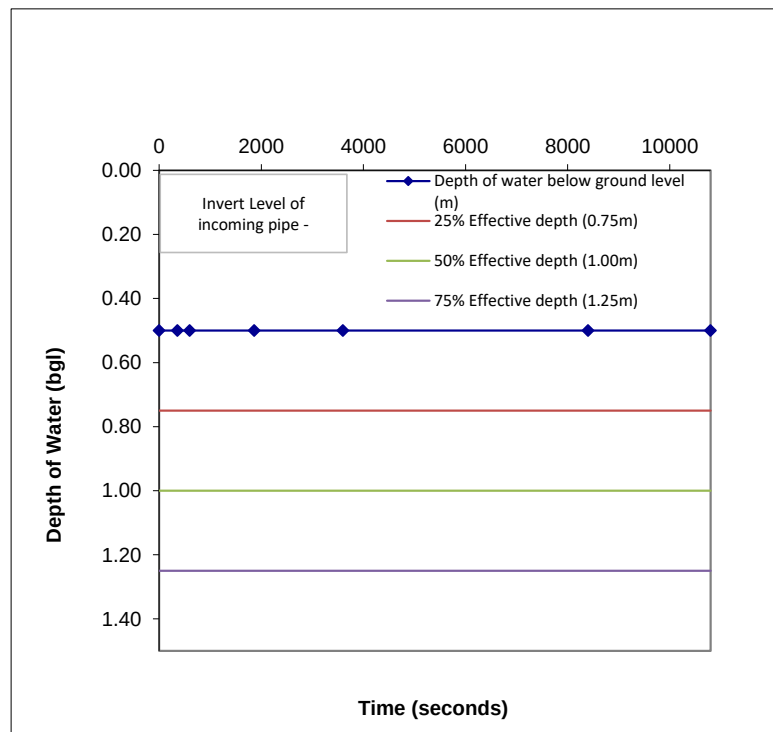
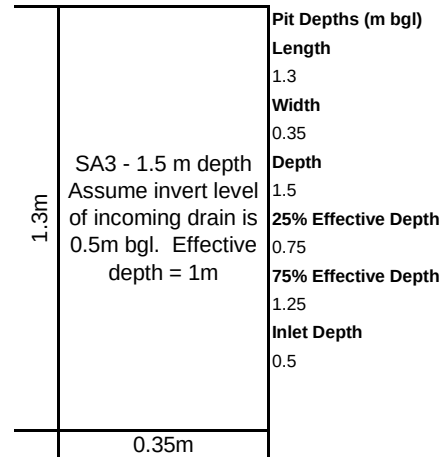
Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
12:00	0.0	0	0.50
12:06	6.0	360	0.50
12:10	10.0	600	0.50
12:31	31.0	1860	0.50
13:00	60.0	3600	0.50
14:20	140.0	8400	0.50
15:00	180.0	10800	0.50

Linear extrapolated values for calculation

Location: SA3
Weather: Overcast
Engineer: MC
Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times tp_{75-25})$

Where:
 V_{p75-25} = effective storage volume between 75% and 25% effective depth
 $1.3 \times 0.35 \times (1.25 - 0.75)$
 $= 0.2275$

ap_{50} = internal area of TP upto 50% effective depth + base of TP
 $2(1.3 \times) + 2(0.35 \times) + (1.3 \times 0.35)$
 $= 2.105$

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth
 $= >>>>$ secs

f= N/A m/s

Comment

Insufficient infiltration three hours - Soakaway Failed

Infiltration Test to BRE365 - SA4 TEST 1

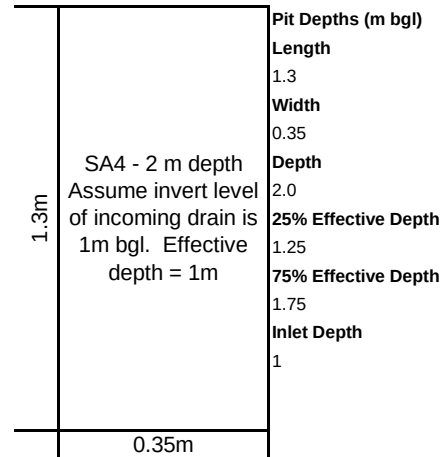
Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
13:00	0.0	0	1.00
13:01	1.0	60	1.00
13:05	5.0	300	1.00
13:10	10.0	600	1.00
13:25	25.0	1500	1.00
13:48	48.0	2880	1.00
14:22	82.0	4920	1.01
15:05	125.0	7500	1.02

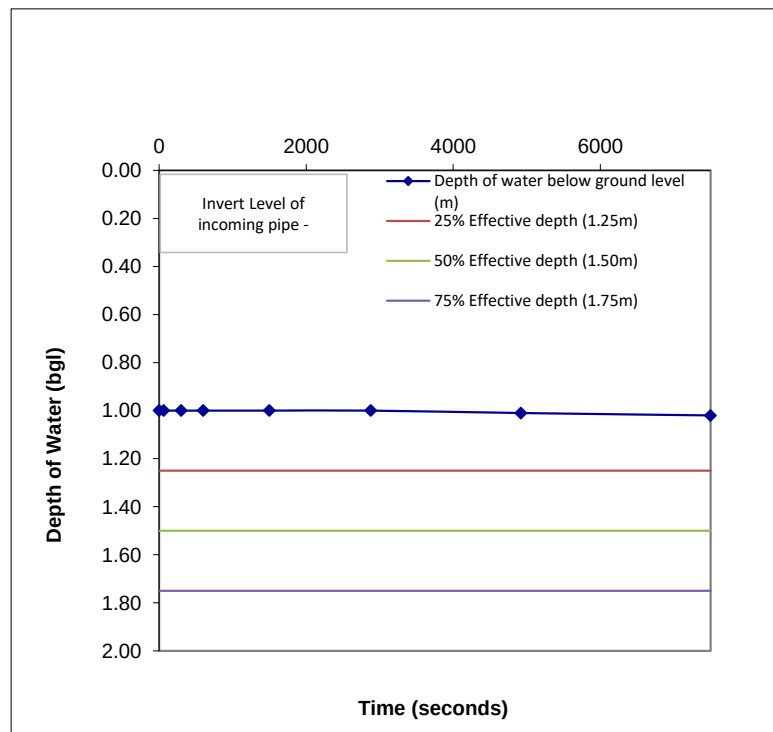
Location: SA4
Weather: Overcast
Engineer: MC
Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation



Linear extrapolated values for calculation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times tp_{75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth
 $1.3 \times 0.35 \times (1.75 - 1.25)$
 = **0.2275**

ap_{50} = internal area of TP upto 50% effective depth + base of TP
 $2(1.3 \times) + 2(0.35 \times) + (1.3 \times 0.35)$
 = **2.105**

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth
 = **>>>>** secs

f= **N/A** m/s

Comment

Insufficient infiltration over two hours -
 Soakaway Failed

Infiltration Test to BRE365 - SA5 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
13:05	0.0	0	0.50
13:10	5.0	300	0.52
13:25	20.0	1200	0.54
14:25	80.0	4800	0.55
15:10	125.0	7500	0.55

Linear extrapolated values for calculation

Location: SA5

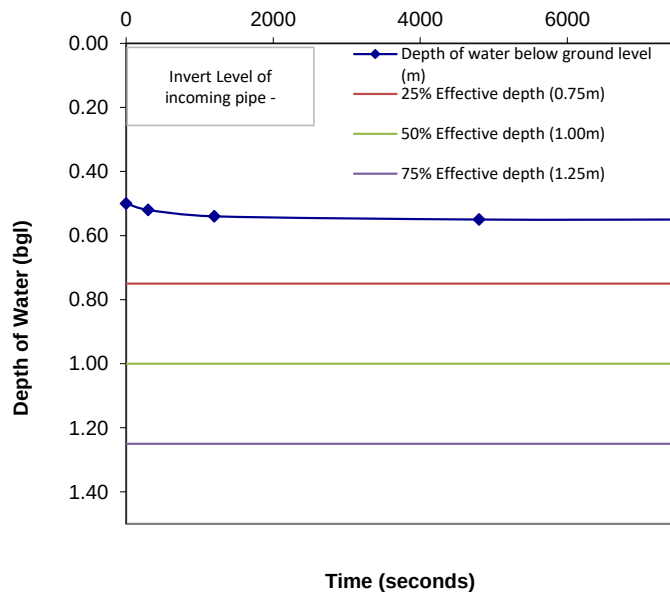
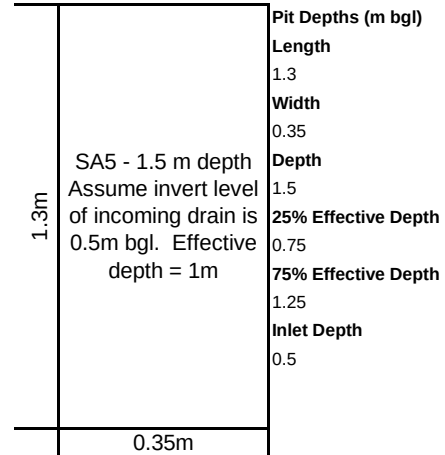
Weather: Overcast

Engineer: MC

Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times tp_{75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.3 \times 0.35 \times (1.25 - 0.75) = 0.2275$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.3 \times 1.00) + 2(0.35 \times 1.00) + (1.3 \times 0.35) = 2.105$$

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth

$$= >>>> \text{secs}$$

$$f = \text{N/A} \text{ m/s}$$

Comment

Insufficient infiltration over two hours -
 Soakaway Failed

Infiltration Test to BRE365 - SA6 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
13:22	0.0	0	1.30
13:25	3.0	180	1.30
13:30	8.0	480	1.30
13:45	23.0	1380	1.30
13:55	33.0	1980	1.30
14:26	64.0	3840	1.30
15:22	120.0	7200	1.30
16:24	182.0	10920	1.30

Linear extrapolated values for calculation

Location: SA6

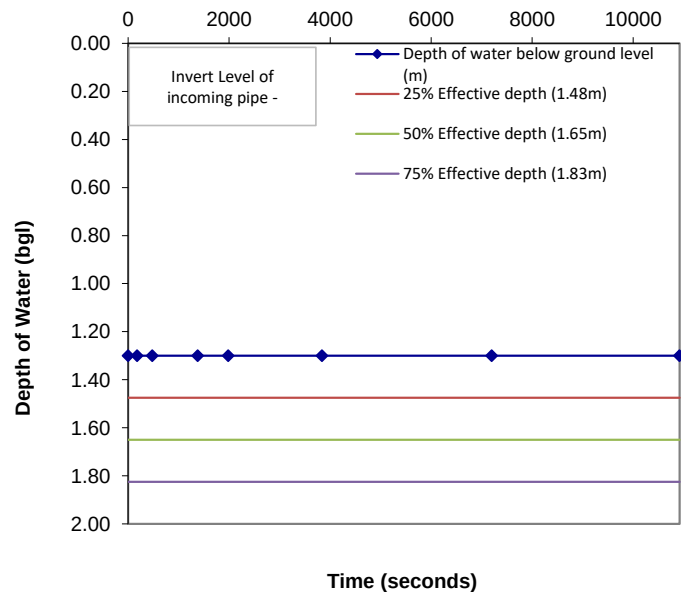
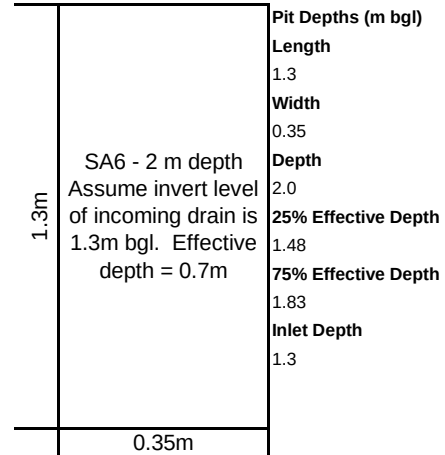
Weather: Overcast

Engineer: MC

Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times tp_{75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth
 $1.3 \times 0.35 \times (1.825 - 1.475)$
 = **0.15925**

ap_{50} = internal area of TP upto 50% effective depth + base of TP
 $2(1.3 \times) + 2(0.35 \times) + (1.3 \times 0.35)$
 = **1.61**

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth
 = **>>>>** secs

f= **N/A** m/s

Comment

Insufficient infiltration over three hours -
 Soakaway Failed

Infiltration Test to BRE365 - SA7 TEST 1

Field Data

Time	Time Elapsed (min)	Time Elapsed (sec)	Depth of Water below GL (m)
14:15	0.0	0	0.50
14:16	1.0	60	0.50
14:18	3.0	180	0.50
14:25	10.0	600	0.50
14:35	20.0	1200	0.50
14:58	43.0	2580	0.50
15:27	72.0	4320	0.50
16:18	123.0	7380	0.50

Linear extrapolated values for calculation

Location: SA7

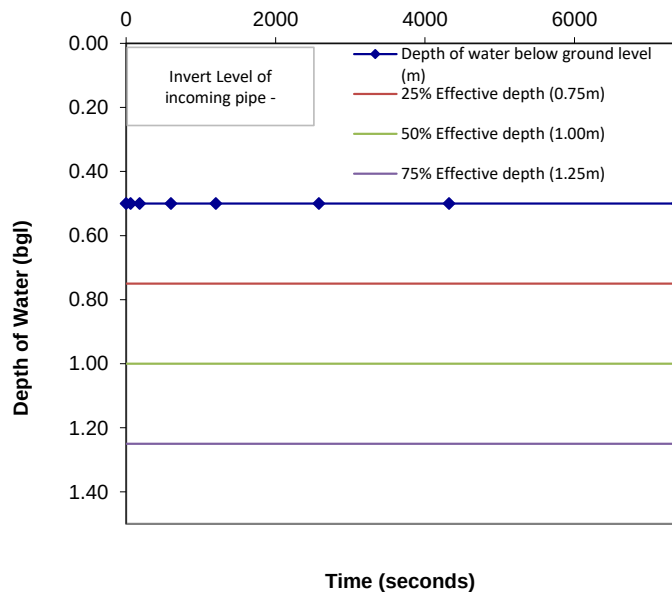
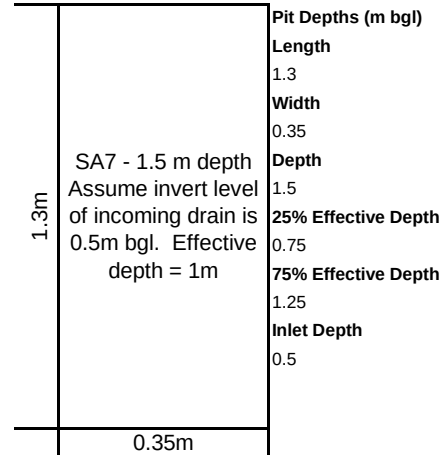
Weather: Overcast

Engineer: MC

Date: 17/06/2020

TEST 1

Strata Tested Weathered Lowestoft Formation



CALCULATION:

Soil Infiltration Rate(f) =
 $V_{p75-25} / (ap_{50} \times tp_{75-25})$

Where:

V_{p75-25} = effective storage volume between 75% and 25% effective depth

$$1.3 \times 0.35 \times (1.25 - 0.75) = 0.2275$$

$$ap_{50} = \text{internal area of TP upto 50\% effective depth + base of TP} \\ 2(1.3 \times 1.0) + 2(0.35 \times 1.0) + (1.3 \times 0.35) = 2.105$$

tp_{75-25} = the time for water level to fall from 75% - 25% effective depth

$$= >>>> \text{secs}$$

$$f = \text{N/A} \text{ m/s}$$

Comment

Insufficient infiltration over two hours -
 Soakaway Failed

APPENDIX E – GROUND GAS MONITORING RESULTS

Ground Gas Monitoring Results

GROUND GAS MONITORING SHEET



SITE:	Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ	
JOB No.:	P20-164	
DATE:	25/06/2020	

BOREHOLE	WS1				Initial/ 30	Stable /		
TIME:	15:20:00	Flow l/h:	0.1	CH4 %	secs	2 mins	3 mins	GSV (l/h)
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	1.45	CO2 %	0.40	0.40	0.40	0.0004
Atm Pressure mb:	1017	BH Level	3.76	O2 %	20.40	20.10	20.00	
Operator:	DR	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS2							
TIME:	15:30:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	DRY	CO2 %	1.50	1.70	1.80	0.0018
Atm Pressure mb:	1017	BH Level	5.03	O2 %	19.80	18.40	18.30	
Operator:	DR	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS3							
TIME:	15:35:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	3.35	CO2 %	0.80	0.80	0.80	0.0008
Atm Pressure mb:	1017	BH Level	4.36	O2 %	20.00	19.20	19.20	
Operator:	DR	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS4							
TIME:	15:50:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	2.31	CO2 %	1.00	1.00	1.00	0.0010
Atm Pressure mb:	1017	BH Level	3.98	O2 %	20.00	18.50	18.60	
Operator:	DR	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS5							
TIME:	16:00:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	4.30	CO2 %	0.00	1.00	1.50	0.0015
Atm Pressure mb:	1017	BH Level	4.65	O2 %	20.10	18.60	18.00	
Operator:	DR	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS6							
TIME:	16:10:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	3.65	CO2 %	1.00	1.00	1.00	0.0010
Atm Pressure mb:	1017	BH Level	4.73	O2 %	20.10	19.20	19.20	
Operator:	DR	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

GROUND GAS MONITORING SHEET



SITE:	Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ							
JOB No.:	P20-164							
DATE:	06/07/2020							
BOREHOLE	WS1				Initial/ 30 secs	2 mins	Stable / 3 mins	GSV (l/h)
TIME:	09:48:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	2.45	CO2 %	0.30	0.40	0.40	0.0004
Atm Pressure mb:	1018	BH Level	3.20	O2 %	20.70	20.80	20.80	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS2							
TIME:	08:50:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	DRY	CO2 %	0.50	0.60	0.60	0.0006
Atm Pressure mb:	1018	BH Level	4.94	O2 %	20.90	20.50	20.50	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS3							
TIME:	08:52:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	3.44	CO2 %	0.20	0.20	0.20	0.0002
Atm Pressure mb:	1018	BH Level	4.24	O2 %	21.00	21.00	21.00	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS4							
TIME:	09:09:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	2.30	CO2 %	0.80	0.90	1.00	0.0010
Atm Pressure mb:	1018	BH Level	3.86	O2 %	20.30	20.10	18.90	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS5							
TIME:	09:20:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	4.22	CO2 %	0.40	0.50	0.60	0.0006
Atm Pressure mb:	1018	BH Level	4.56	O2 %	20.60	20.40	20.30	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS6							
TIME:	09:31:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Sunny	GW m:	DRY	CO2 %	0.20	0.20	0.20	0.0002
Atm Pressure mb:	1018	BH Level	1.57	O2 %	20.40	20.40	20.40	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV Possibly blocked due to vandalism							

GROUND GAS MONITORING SHEET



SITE:	Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ							
JOB No.:	P20-164							
DATE:	14/07/2020							
BOREHOLE	WS1				Initial/ 30 secs	2 mins	Stable / 3 mins	GSV (l/h)
TIME:	14:59:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Slightly overcast	GW m:	1.40	CO2 %	1.10	1.10	1.10	0.0011
Atm Pressure mb:	1017	BH Level	3.65	O2 %	19.60	19.60	19.60	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS2							
TIME:	14:49:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Slightly overcast	GW m:	DRY	CO2 %	1.20	1.30	1.30	0.0013
Atm Pressure mb:	1017	BH Level	4.94	O2 %	19.80	19.70	19.70	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS3							
TIME:	14:40:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Slightly overcast	GW m:	3.32	CO2 %	2.10	2.20	2.20	0.0022
Atm Pressure mb:	1017	BH Level	4.29	O2 %	18.40	18.40	18.40	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS4							
TIME:	15:27:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Slightly overcast	GW m:	2.27	CO2 %	0.80	0.90	1.00	0.0010
Atm Pressure mb:	1017	BH Level	3.84	O2 %	19.60	19.60	19.40	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS5							
TIME:	15:20:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Slightly overcast	GW m:	4.31	CO2 %	0.30	0.60	0.60	0.0006
Atm Pressure mb:	1017	BH Level	4.56	O2 %	20.50	20.30	20.30	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV							

BOREHOLE	WS6							
TIME:	15:05:00	Flow l/h:	0.1	CH4 %	0.00	0.00	0.00	0.0000
TEMP deg C:		DP Pa:		LEL				
Weather:	Slightly overcast	GW m:	DRY	CO2 %	0.40	0.40	0.40	0.0004
Atm Pressure mb:	1017	BH Level	0.00	O2 %	20.20	20.20	20.20	
Operator:	MC	mAOD		H2S ppm				
				VOCs %	0.00			
Comments	No flow recorded - 0.1l/h assumed for calculation of GSV Possibly blocked due to vandalism							

GROUND GAS MONITORING SHEET



SITE:

Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ

JOB No.:

P20-164

DATE:

05/08/2020

BOREHOLE

WS1

TIME:

08:44:00

Flow l/h:

0.1

CH4 %

0.00

Initial/ 30
secs

0.00

2 mins

0.00

Stable /
3 mins

0.00

GSV (l/h)

0.0000

TEMP deg C:

17

DP Pa:

LEL

Weather:

Slightly overcast

GW m:

1.65

CO2 %

0.40

0.40

0.40

0.0004

Atm Pressure mb:

1014

BH Level

3.75

O2 %

20.70

20.70

20.70

Operator:

MC

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS2

TIME:

08:55:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

17

DP Pa:

LEL

Weather:

Slightly overcast

GW m:

DRY

CO2 %

2.10

2.20

2.30

0.0023

Atm Pressure mb:

1014

BH Level

3.93

O2 %

18.60

18.60

18.40

Operator:

MC

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS3

TIME:

09:06:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

17

DP Pa:

LEL

Weather:

Slightly overcast

GW m:

3.52

CO2 %

0.60

0.60

0.70

0.0007

Atm Pressure mb:

1014

BH Level

4.22

O2 %

20.30

20.50

20.50

Operator:

MC

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS4

TIME:

08:06:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

17

DP Pa:

LEL

Weather:

Slightly overcast

GW m:

2.38

CO2 %

0.70

0.70

0.90

0.0009

Atm Pressure mb:

1014

BH Level

3.83

O2 %

19.90

19.80

19.60

Operator:

MC

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS5

TIME:

08:18:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

17

DP Pa:

LEL

Weather:

Slightly overcast

GW m:

4.27

CO2 %

0.50

2.10

2.20

0.0022

Atm Pressure mb:

1014

BH Level

4.45

O2 %

20.20

18.60

18.60

Operator:

MC

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS6

TIME:

08:29:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

17

DP Pa:

LEL

Weather:

Slightly overcast

GW m:

DRY

CO2 %

0.50

0.30

0.40

0.0005

Atm Pressure mb:

1014

BH Level

0.45

O2 %

20.20

20.60

20.60

Operator:

MC

mAOD

H2S ppm

VOCs %

0.00

Comments

Pipe vandalised - appears to have been pulled out, blocked and then replaced.

GROUND GAS MONITORING SHEET



SITE:

Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ

JOB No.:

P20-164

DATE:

03/09/2020

BOREHOLE

WS1

TIME:

15:01:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast, light rain

GW m:

1.25

CO2 %

2.10

2.20

2.20

0.0022

Atm Pressure mb:

1010

BH Level

3.65

O2 %

19.20

19.20

19.20

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS2

TIME:

14:45:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast, light rain

GW m:

DRY

CO2 %

3.80

3.80

3.60

0.0038

Atm Pressure mb:

1010

BH Level

5.04

O2 %

17.30

17.20

17.10

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS3

TIME:

16:35:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast, light rain

GW m:

1.75

CO2 %

0.90

1.00

1.00

0.0010

Atm Pressure mb:

1010

BH Level

4.25

O2 %

20.10

20.10

20.10

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS4

TIME:

15:40:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast, light rain

GW m:

2.38

CO2 %

1.70

1.70

2.00

0.0020

Atm Pressure mb:

1010

BH Level

3.82

O2 %

18.50

18.50

18.10

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS5

TIME:

15:20:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast, light rain

GW m:

2.02

CO2 %

3.60

3.90

3.90

0.0039

Atm Pressure mb:

1010

BH Level

4.48

O2 %

15.70

15.30

15.30

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS6

TIME:

Flow l/h:

CH4 %

0.0000

TEMP deg C:

DP Pa:

LEL

Weather:

GW m:

CO2 %

0.0000

Atm Pressure mb:

BH Level

O2 %

Operator:

mAOD

H2S ppm

VOCs %

Comments

Pipe vandalised.

GROUND GAS MONITORING SHEET



SITE:

Land off Bullens Green Lane, Colney Heath, Hertfordshire, AL4 0QQ

JOB No.:

P20-164

DATE:

01/10/2020

BOREHOLE

WS1

TIME:

10:46:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast

GW m:

2.60

CO2 %

1.40

1.40

1.40

0.0014

Atm Pressure mb:

993

BH Level

3.66

O2 %

19.80

20.00

20.00

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS2

TIME:

10:38:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast

GW m:

DRY

CO2 %

3.10

3.10

2.90

0.0031

Atm Pressure mb:

993

BH Level

5.04

O2 %

18.20

18.10

18.30

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS3

TIME:

10:26:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast

GW m:

3.78

CO2 %

0.80

0.90

0.90

0.0009

Atm Pressure mb:

993

BH Level

4.30

O2 %

20.00

19.90

19.80

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS4

TIME:

10:52:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast

GW m:

DRY

CO2 %

2.80

2.90

2.90

0.0029

Atm Pressure mb:

993

BH Level

4.42

O2 %

18.10

18.00

18.10

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS5

TIME:

11:07:00

Flow l/h:

0.1

CH4 %

0.00

0.00

0.00

0.0000

TEMP deg C:

20

DP Pa:

LEL

Weather:

Overcast

GW m:

3.47

CO2 %

1.70

1.50

1.40

0.0017

Atm Pressure mb:

993

BH Level

4.89

O2 %

18.70

19.00

19.20

Operator:

TN

mAOD

H2S ppm

VOCs %

0.00

Comments

No flow recorded - 0.1l/h assumed for calculation of GSV

BOREHOLE

WS6

TIME:

Flow l/h:

CH4 %

0.0000

TEMP deg C:

DP Pa:

LEL

Weather:

GW m:

CO2 %

0.0000

Atm Pressure mb:

BH Level

O2 %

Operator:

mAOD

H2S ppm

VOCs %

Comments

Pipe vandalised.

CONCEPTUAL GAS MODEL

Offsite Potential Sources -
Current: Affinity Water depot adjacent to W, other commercial/industrial land uses, landfill 271m SW.
Previous: Agricultural land.

Onsite Potential Sources -
Current: Arable field, Small ash pile on NW of site, flytipped waste on east of site (cleared before 17/06/20)
Previous: Arable fields.

Proposed Residential Development

