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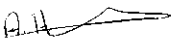
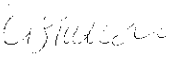
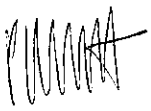
Additional Environmental Assessment Report

210 Spalding Road, Pinchbeck, Spalding, PE11 3PB

Presented to **GEDA Construction**

Issued: July 2020

Delta-Simons Project Number: 19-2129.01

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	1st July 2020				
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1.0 Introduction

1.1 Authorisation, Context and Purpose

Delta-Simons Environmental Consultants Limited ('Delta-Simons') was requested by GEDA Construction (the 'Client') to carry out additional site investigation services for land at 210 Spalding Road, Pinchbeck, Spalding, PE11 3PB (hereafter referred to as the 'Site'). The Site is subject to outline Planning Permission reference H14-0109-19.

The purpose of this Report is to undertake an additional environmental assessment following demolition of the former buildings at the Site. The investigation has obtained information regarding ground conditions, from which risks to end-users, the environment and structures have been assessed, with mitigation measures suggested where necessary.

It is understood that the proposed development comprises the construction of 72 residential dwellings with associated infrastructure and private gardens.

1.2 Scope of Works

The scope of the investigation and layout of this report has been designed with consideration of guidance on Land Contamination: Risk Management pages of the GOV.UK web pages, the relevant requirements of the National Planning Policy Framework 2019 (NPPF) (paragraphs 170 & 178-180)[1] and the Planning Practice Guidance (Land Affected by Contamination)[2].

The project was carried out to an agreed brief as set out in Delta-Simons' proposal dated 15th November 2019 (Ref. 19-2129.01). The scope of works is outlined in Section 3.2.

[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf
[2] https://www.gov.uk/guidance/land-affected-by-contamination

1.3 Existing Information

The following information has been made available to Delta-Simons for review:

- Nicholls Colton Group, Ground Investigation Report, Spalding Road, Pinchbeck, Lincolnshire, (Ref. GI18204-IR), dated November 2018; and
- Nicholls Colton Group, Gas Assessment, Spalding Road, Pinchbeck, Lincolnshire, (Ref. G18204), dated November 2018.

1.4 Limitations

The assessment is limited to the issues agreed within the proposal for the works. Notes on limitations associated with this assessment are provided in Appendix A.

2.0 Site Details

A summary of the current Site status, environmental setting and key historical features is presented below. This has been summarised from the existing reports listed in Section 1.4 which should be consulted for further detail.

Site Description	The Site is located off Spalding Road, Pinchbeck, approximately 1.3 km south of Pinchbeck town centre. The Site currently comprises a vacant parcel of land following demolition of the former buildings. At the time of Nicholls Colton's Ground Investigation Report (2018), the Site was used for commercial purposes relating to a nursery and restaurant. Two single-storey brick warehouses and greenhouse structures were present in the east of the Site. A customer car park occupied the south-western area, whilst the remainder of the Site comprised allotments and rough scrubland, with extensive areas of overgrown vegetation. The north-eastern area of the Site, which was noted to formerly comprise a builder's yard, was observed to be surfaced with compacted stone and was overgrown. No potential sources of contamination were identified during the walkover. The surrounding area comprised industrial properties to the north, an access track and industrial properties to the east, an access road associated with the adjacent Johnson Community Hospital to the south, and residential properties and the B1356 Spalding Road to the west.
Published Geology	The Site is indicated to be underlain by superficial Tidal Flat Deposits (clay and silt) and bedrock of the Oxford Clay Formation (mudstone).
Specific Ground Conditions	Ground conditions encountered during Nicholls Colton's intrusive investigation comprised topsoil to a maximum depth of 0.30 metres below ground level (m bgl), Made Ground to a maximum depth of 0.90 m bgl, followed by Tidal Flat Deposits to a maximum depth of 6.45 m bgl. Bedrock was not encountered during the investigation. Groundwater was encountered at depths of between 2.20 and 3.20 m bgl during the previous investigation and was measured at depths of between 1.34 and 1.68 m bgl during post-investigation monitoring.
Hydrogeology	The Tidal Flat Deposits and Oxford Clay Formation are classified as Unproductive Strata. The Site is not located within a groundwater Source Protection Zone. There are no licensed abstractions from groundwater located within 250 m of the Site.
Hydrology	The nearest surface water feature is a drain located on-Site. Furthermore, Vernatt's Drain is located approximately 120 m south of the Site. There are no licensed abstractions from surface water located within 250 m of the Site.
Coal Mining	The Site is not located within an area generally recognised for mining.
Radon Gas	The Site lies in an area where less than 1% of homes are above the Action Level with respect to radon according to the British Geological Survey (BGS). The BGS state that no radon protection measures are necessary in the construction of new buildings or extensions at the Site.

Historical Features On-Site	From the earliest edition of mapping dated 1887, the Site predominantly comprised agricultural land, with a line of trees and a drain running across the centre of the Site from east to west. By 1904, the line of trees had been removed and a building in the western tip of the Site was labelled as a 'beer house'. 1932 mapping showed a small building to have been constructed in the western half of the Site, and by 1968, a number of buildings had been constructed in the western area of the Site. Circa 1981, two depot buildings were shown to have been constructed on-Site and all buildings in the western area had been demolished. By 1988, a builder's yard was noted in the northern half of the Site with a settling pond and nursery to the south. The Site remained unchanged to 2018.
Potentially Contaminative Historical Features Off-Site	Potential sources of contamination within 250 m of the Site include: ▲ 1887: The Great Northern Railway was located approximately 80 m to the east of the Site and a windmill was located 50 m to the north. The railway was dismantled circa 1981; ▲ 1968: Unspecified commercial properties were located approximately 50 m to the south of the Site; and ▲ 2000: Various commercial and industrial properties were shown in the vicinity of the Site to the east and north.
Previous Reports	Delta-Simons has been provided with the following reports relating to the Site: ▲ Nicholls Colton Group, Ground Investigation Report, Spalding Road, Pinchbeck, Lincolnshire, (Ref. GI18204-IR), dated November 2018; and ▲ Nicholls Colton Group, Gas Assessment, Spalding Road, Pinchbeck, Lincolnshire, (Ref. G18204), dated November 2018. Nicholls Colton's ground investigation report included a desk study, as well as details of the intrusive investigation undertaken. Additional information from the desk study considered pertinent to this Assessment (other than previously mentioned) is from an environmental review from a database compiled by The Landmark Information Group®. The following entries were identified in the surrounding area: ▲ One discharge consent located approximately 22 m west of the Site, relating to unknown discharge onto land, dated to 1988-1996; ▲ Three pollution incidents to controlled waters, the closest of which was located approximately 28 m east of the Site, relating to the discharge of waste oils into Pennygate Drain. The incident was classified as a Category 3 – minor incident; ▲ Two substantiated pollution incident register records, the nearest of which was located approximately 135 m north of the Site, relating to a Category 4 – significant incident to water; ▲ One historical landfill site located approximately 368 m south-west of the Site. There were no further landfill sites, waste management facilities, registered landfill or waste transfer sites located within 500 m of the Site; ▲ There were no areas of potentially infilled land (water or non-water) located within 250 m of the Site; ▲ Two active contemporary trade directories located approximately 90 m south of the Site, relating to Johnson Community Hospital; and ▲ Two points of interest relating to commercial services recorded within 250 m of the Site, relating to distribution and haulage, and repair and servicing.

	Nicholls Colton undertook an intrusive investigation from 15th to 19th October 2018 comprising the drilling of four (4 no.) window sample boreholes (WS1 to WS4) to a maximum depth of 6.45 m bgl and the excavation of five (5 no.) trial pits (TP1 to TP5) to a maximum depth of 3.3 m bgl. No visual or olfactory evidence was identified during the investigation. The results of laboratory soil chemical analysis identified a single elevated concentration of lead in WS1 (0.45 to 0.70 m bgl). No asbestos containing materials (ACMs) were identified within the samples analysed. At the time of writing, it was considered that the soils at the Site did not represent a risk to future Site users, therefore no mitigation measures were considered necessary. However, given that the footprint of existing buildings covered large areas of the Site, it was recommended that a post demolition investigation should be undertaken to target these areas. Ground gas monitoring was undertaken on two occasions, with a further three rounds included within an addendum report (Gas Assessment, 2018). The monitoring recorded maximum carbon dioxide and methane concentrations of 5.1% v/v (WS4) and 1.3% v/v (WS3), respectively. A maximum flow of 0.2 l/hr was recorded during the monitoring period. Based on the worst-case readings, and the calculated worst case GSV's of 0.0026 l/hr and 0.0102 l/hr for carbon dioxide and methane, the Site was classified as a Characteristic Situation 1 (CS1). Therefore, no gas protection measures were considered necessary for the proposed development at the Site. <u>Delta-Simons Commentary</u> The ground gas monitoring previously undertaken by Nicholls Colton recorded maximum concentrations of carbon dioxide at 5.1 %v/v and methane at 1.3 % v/v. Given that carbon dioxide exceeded 5% and methane exceeded 1%, it would usually be recommended to consider an increase from CS1 / Green to CS2 / Amber 1. However, given that elevated concentrations of ground gases were only recorded on one occasion, and that the underlying geology comprises predominantly cohesive deposits which will limit lateral and vertical migration, and furthermore, that no significant sources of ground gas have been identified at the Site or within close vicinity of the Site, Delta-Simons agree with the recommendations made by Nicholls Colton, that the Site can be classified as CS1 / Green. No ground gas protection measures are necessary under this scenario.

3.0 Site Investigation

3.1 Intrusive Investigation

Delta-Simons carried out intrusive investigation work on 1st June 2020 to provide environmental information following demolition of the former buildings at the Site.

3.2 Scope of Ground Investigation

The ground investigation comprised the following items:

- Supervision of all works by a Delta-Simons Geo-Environmental engineer. All intrusive locations were logged to BS5930:2015 Code of Practice for Site Investigations;
- Drilling of eight dynamic sampler boreholes (DS101 to DS108) to a maximum depth of 3.0 m bgl, with collection of representative shallow soil samples for subsequent laboratory analysis;
- Collection of three samples for laboratory California Bearing Ratio (CBR) testing; and
- Collection of five samples for Waste Classification (WAC) testing.

3.3 Ground Investigation Factual Data

An Approximate Intrusive Location Plan is presented as Figure 1.

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

3.4 In-Situ Testing and Sampling

SPT tests were undertaken in all boreholes at 1.00 m intervals. The results of these tests are presented in the borehole logs included as Appendix B.

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

3.5 Geotechnical Laboratory Testing

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

The programme of geotechnical testing undertaken on samples obtained from the natural soils is presented within the table below.

Analysis	No. Tested
Moisture content	8
Plastic and liquid limits	8
Remoulded CBR compaction testing	3

3.6 Environmental Sampling, In-Situ Testing and Laboratory Analysis

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

Groundwater was sampled from five of the newly installed boreholes (DS101, DS103, DS104, DS106 and DS107) on 10th June 2020. The groundwater samples were collected using a dedicated disposable bailer.

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

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

Analytes	No. of Samples Tested		Rationale
	Soil	Ground-water	
Asbestos	8	-	Analysed all samples for presence of asbestos.
Heavy metals, speciated polycyclic aromatic hydrocarbons (sPAH)	8	5	Potential contaminants of concern, common to many sites.
Total Petroleum Hydrocarbons, Criteria Working Group Method (TPHCWG), Benzene, Toluene, Ethylbenzene and Xylene (BTEX)	8	5	
(pH, water soluble sulphate), acid soluble sulphate and total sulphur	4	(5)	To assess potential for chemical attack on buried concrete.

3.7 Monitoring Programme

Three rounds of groundwater level and ground gas monitoring were undertaken on the five newly installed boreholes (DS101, DS103, DS104, DS106 and DS107) on 10th June 2020. Measurements of the depth to groundwater within the monitoring wells were taken using an electronic dip meter. The groundwater level monitoring sheets are included as Appendix F.

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

4.0 Ground Summary

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

4.1 Ground Conditions

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

Summary of Observed Ground Conditions				
Strata	**Typical Strata Description**	**Depth Range of Strata Base (m)**	**Maximum Proven Thickness (m)**	**Comments**
Made Ground	Granular deposits were generally encountered as light grey gravelly fine to medium sand. Gravel content generally comprised concrete and brick. Cohesive deposits were generally encountered as dark brown slightly gravelly silty clay. Gravel content comprised brick.	*0.30 - 0.70*	*0.70*	*Made Ground deposits encountered at all locations.*
Tidal Flat Deposits	Firm dark brown mottled grey silty clay. Soft dark brown mottled light brown slightly clayey silt. Very soft dark grey silt.	*0.80 – 3.00*	*(Not proven)*	-

4.2 Visual and Olfactory Evidence of Contamination - Soils

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

4.3 Groundwater

Groundwater strikes recorded as excavation progressed during the Site investigation range from 1.70 to 2.60 m bgl. The groundwater strikes during drilling are summarised below.

Exploratory Hole	Water strike during drilling (m bgl)	Stratum	Comment
DS101	2.50	Tidal Flat Deposits	-
DS102	2.60		
DS103	2.00		
DS104	2.00		
DS105	1.70		
DS106	1.80		
DS106	2.00		
DS107	2.00		

Groundwater levels were monitored on three occasions between 10th and 24th June 2020. Monitoring data is provided in Appendix F and summarised in the table below.

Exploratory Hole	Response Zone	Water level during monitoring Max to Min Range	LNAPL Y/N	Stratum
	m bgl	m bgl		
DS101	0.50 – 3.00	1.62 – 1.62	N	Tidal Flat Deposits
DS103	0.50 – 3.00	1.65 – 1.46	N	Tidal Flat Deposits
DS104	0.50 – 3.00	1.62 – 1.41	N	Made Ground Tidal Flat Deposits
DS106	0.50 – 3.00	1.57 – 1.41	N	Tidal Flat Deposits
DS107	0.50 – 3.00	1.76 – 1.76	N	Made Ground Tidal Flat Deposits

Groundwater levels during monitoring varied between 1.57 and 1.62 m bgl within the Tidal Flat Deposits.

4.4 Visual and Olfactory Evidence of Contamination - Groundwater

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

4.5 Material Properties

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

Parameter	Tidal Flat Deposits
Average California Bearing Ratio (CBR)[2]	3.10% - 5.55%
Moisture Content – w[2]	15% – 31%
Liquid Limit – wL[2]	32% – 35%
Plastic Limit – wP[2]	19% – 23%
Plasticity Index – IP[2]	11% – 14%
Uncorrected SPT N Value	2 – 7
Corrected[1] SPT (N60)	2 – 9

Notes:
1. SPT N values corrected for energy delivered to drive rods utilising the determined energy ratio (Er): N60 = (Er x N)/60 after BS EN ISO 22476-3:2005 [Ref. 5]
2. From laboratory test results

4.6 Geochemical Testing

Geochemical analysis was undertaken on four samples of Tidal Flat Deposits and five groundwater samples, tested for selective contaminants (BRE Special Digest 1:2005 (3rd Edition), Concrete in Aggressive Ground, the results of which are summarised in the table below

Tests	No. of Tests	Minimum	Maximum
Soil - pH	4	8.3	8.7
Soil - Total Sulphur	4	0.011%	0.107%

Tests	No. of Tests	Minimum	Maximum
Soil – Acid Soluble Sulphate	4	0.023%	0.058%
Soil - Water Soluble Sulphate	4	14.1 mg/L	144 mg/L
Water – pH	5	7.2	7.6
Water - Sulphate	5	29.8 mg/L	264 mg/L

4.7 Ground Gas Data

Gas monitoring results are present in Appendix F and are summarised in the table below, a total of three rounds of gas monitoring were undertaken over a period of three weeks.

Barometric pressures ranged from 1012mB (visit 2) to 1021mB (visit 3).

Exploratory Hole	Steady Gas Concentration (%v/v)						Steady Flow Rate (l/hr)		Response Zone (m bgl)		Stratum	Flooded?
	Methane		Carbon Dioxide		Oxygen							
	Min	Max	Min	Max	Min	Max	Min	Max	From	To		
DS101	<0.1	<0.1	0.3	0.5	15.1	20.3	<0.1	<0.1	0.50	3.00	Tidal Flat Deposits	N
DS103	<0.1	<0.1	0.9	0.9	19.0	20.1	<0.1	<0.1	0.50	3.00	Tidal Flat Deposits	N
DS104	<0.1	<0.1	0.5	0.5	19.5	20.4	<0.1	<0.1	0.50	3.00	Tidal Flat Deposits	N
DS106	<0.1	<0.1	0.4	2.1	19.4	19.6	<0.1	<0.1	0.50	3.00	Tidal Flat Deposits	N
DS107	<0.1	<0.1	1.0	1.0	19.7	19.7	<0.1	<0.1	0.50	3.00	Tidal Flat Deposits	N

5.0 Generic Quantitative Risk Assessment

5.1 Introduction

The presence of hazardous substances in or on a site is generally only of concern if an actual or potential unacceptable risk exists. Legislation and guidance on the assessment of contaminated sites, consistent with UK best practice, acknowledges the need for a tiered risk-based approach. A Preliminary Risk Assessment is presented in Section 2.2. This section represents a Generic Quantitative Risk Assessment (GQRA) being a comparison of site contaminant levels against Generic Assessment Criteria.

5.2 Human Health GQRA

The assessment of risks in relation to human health has been undertaken using Generic Assessment Criteria (GAC) as detailed within the appropriate tables. Risks from soil, groundwater and Non-Aqueous Phase Liquids (NAPL) have been considered. The GAC are predominantly based on long term (chronic) risk to health. However, in the limited circumstances where short-term (acute) risks are more pronounced, these GAC have been utilised to ensure a thorough and conservative initial assessment is undertaken.

The end use scenario adopted for the assessment is a residential with plant uptake end use, considered appropriate based on the proposed residential development.

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

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

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

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

Contaminant	No. Samples	Max Conc. (mg/kg)	GAC (mg/kg)	GAC Source	No. Exceed GAC	Volatile	Location of Exceedances (depth) = Concentration (mg/kg)	Area of Site of Exceedance
Asbestos	13	Not detected	Detected	DS	0	N	-	-
Metals and metalloids								
Arsenic	13	19	37	LQM	0	N	-	-
Cadmium		0.4	11	LQM	0	N	-	-
Chromium		41	910	LQM	0	N	-	-
Copper		26	2,400	LQM	0	N	-	-
Lead		83	200	C4SL	0	N	-	-
Mercury		0.6	40	LQM	0	Y	-	-
Nickel		38	130	LQM	0	N	-	-
Zinc		98	3,700	LQM	0	N	-	-
Polyaromatic Hydrocarbons								
Fluorene	13	0.30	170	LQM	0	Y	-	-
Phenanthrene		4.2	95	LQM	0	N	-	-
Anthracene		1.3	2,400	LQM	0	N	-	-
Fluoranthene		15	280	LQM	0	N	-	-
Pyrene		14	620	LQM	0	N	-	-
Benzo[a]anthracene		9.6	7.2	LQM	1	N	STP1 (0.50 m) = 9.6	North
Chrysene		7.3	15	LQM	0	N	-	-
Benzo[b]fluoranthene		9.7	2.6	LQM	1	N	STP1 (0.50 m) = 9.7	North
Benzo[k]fluoranthene		6	77	LQM	0	N	-	-
Benzo[a]pyrene		9.3	2.2	LQM	1	N	STP1 (0.50 m) = 9.3	North
Indeno(1,2,3-c,d)pyrene		4.9	27	LQM	0	N	-	-
Dibenz(a,h)anthracene		1.2	0.24	LQM	1	N	STP1 (0.50 m) = 1.2	North
Benzo[g,h,i]perylene		5.1	320	LQM	0	N	-	-

Contaminant	No. Samples	Max Conc. (mg/kg)	GAC (mg/kg)	GAC Source	No. Exceed GAC	Volatile	Location of Exceedances (depth) = Concentration (mg/kg)	Area of Site of Exceedance
Petroleum Hydrocarbons								
Aliphatic TPH >C16-C21	13	9.9	65,000	LQM	0	N	-	-
Aliphatic TPH >C21-C35		82	65,000	LQM	0	N	-	-
Aliphatic TPH >C35-C44		62	65,000	LQM	0	N	-	-
Aromatic TPH >C12-C16		5.4	140	LQM	0	Y	-	-
Aromatic TPH >C16-C21		65	260	LQM	0	N	-	-
Aromatic TPH >C21-C35		180	1,100	LQM	0	N	-	-
Aromatic TPH >C35-C44		61	1,100	LQM	0	N	-	-
Total Petroleum Hydrocarbons		169	5,000	DS	0	Y	-	-

Notes: Shaded = Maximum concentration exceeds GAC
C4SL = Category 4 Screening Levels (C4SLs) published by DEFRA.
DS = In-house GAC derived by Delta-Simons Environmental Consultants Ltd, 2018.
LQM = Land Quality Management/CIEH S4ULs for Human Health Risk Assessment, 2014.

Marginally elevated concentrations of PAHs have been identified at Stockpile 1 (STP1) above their respective GAC.

Although detectable concentrations of heavy metals and petroleum hydrocarbons have been identified within soil samples at the Site, no concentrations were found to exceed their respective GAC.

No asbestos containing materials (ACMs) have been identified within the samples analysed.

The soil analysis results are considered further in the Conceptual Site Model (CSM) presented in Section 7.0 with regard to potential pollutant linkages.

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

No potentially volatile contaminants have been identified above detection limits within groundwater samples taken from the Site.

Soil and groundwater exposure models used in generating Generic Assessment Criteria do not account for the potential for NAPL to represent a source of risk to human health, principally due to the production of vapours. Whilst it is possible to calculate theoretical soil saturation limits, in reality, due to co-solubility effects, these are not an appropriate indicator of the presence of NAPL. In order to assess the presence of NAPL, for petroleum hydrocarbons, an assessment criterion of 5,000 mg/kg has been applied based on professional experience.

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

- No observations of NAPL were made within the soils observed during drilling;
- No concentrations of Total Petroleum Hydrocarbons in excess of 5,000 mg/kg were recorded;
- No NAPL was measured during groundwater monitoring works.

On this basis, there is no evidence of NAPL being present on the Site.

5.3 Controlled Waters/Water Environment GQRA

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

Given the 'prevent and limit' approach of the Water Framework Directive (2000/60/EC) and the identified receptors, a range of Water Quality Standards (WQS) have been applied as Generic Assessment Criteria (GAC), these include Water Framework Directive standards and thresholds (WFD), the Freshwater Environmental Quality Standards (EQS), the UK Drinking Water Quality Standards (DWQS), WHO Guidelines for Drinking Water Quality or SEPA resource protection values which have been used as initial conservative GAC to assess whether groundwater contamination requires further assessment or discussion in terms of the risks to controlled waters. Where specific water quality standards are not available, Delta-Simons has adopted surrogate values based on professional judgement (DS GAC).

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

Contaminant	No. Samples	Max Conc. (µg/l)	GAC (µg/l)	GAC Source	No. Exceed GAC	Location of Exceedances	Area of Site of Exceedance
Metals and Metalloids (all those above detection limits)							
Arsenic	5	3.10	50	WFD 2015b	0	-	-
Copper		1.0	2.12	WFD 2015c	0	-	-
Nickel		1.0	8.46	WFD 2015c	0	-	-
Zinc		2.8	23.1	WFD 2015c	0	-	-

Notes: Shaded = Maximum concentration exceeds GAC.
WFD 2015b = Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015. Part 2 Table 1 - Standards for Specific Pollutants
WFD 2015c = Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015. Schedule 5 Table 1 - Threshold Values for Groundwater

Detectable concentrations of heavy metals have been identified within groundwater samples, however, no concentrations were found to exceed their respective GAC.

The groundwater analysis results are considered further in the CSM presented in Section 7.0 with regard to potential pollutant linkages.

No LNAPL has been identified at the Site.

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

Elevated concentrations of organic contaminants have only been encountered within Stockpile 1 (STP1). Given that it is proposed to dispose of the stockpiled soils off-Site, and that elevated concentrations of organic contaminants have not been identified elsewhere on-Site, it is considered unlikely that upgraded water supply pipes would be required.

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

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

5.4 Waste Classification

The key guidance document in relation to hazardous waste is: Technical Guidance WM3, Hazardous Waste: Interpretation of the definition and classification of hazardous waste (1st edition 2015). This document provides a common technical basis for applying the definition and classification of hazardous waste in the UK.

Hazardous waste classification presents certain challenges within the context of contaminated soils because classification relies upon the detailed knowledge of toxicological properties of specific substances. Therefore,

to completely profile waste soils the advanced categorisation of specific substances would be required. However, this level of testing is not practicable and, for example, typical laboratory testing only provides cation concentrations for heavy metals rather than concentrations of specific heavy metal compounds. Therefore, a conservative approach is usually adopted utilising a suitable worst-case surrogate substance.

Since the Landfill Directive was implemented into UK law, landfill sites have been divided into those accepting inert, non-hazardous and hazardous waste. Landfills may only accept waste of the same classification as the landfill, although some non-hazardous landfills with specially prepared engineered cells, can accept certain types of hazardous waste such as Stable Non-reactive Hazardous Waste (SNRHW).

Waste Acceptance Criteria (WAC) are used to determine the acceptance of waste at landfills they do not provide waste classification. There are specific WAC tests for inert and hazardous landfills. Materials classified as hazardous must meet the hazardous WAC before they are accepted in a hazardous landfill. If materials classified as non-hazardous meet the inert WAC they may accepted in an inert landfill, if not, they may be accepted at a non-hazardous landfill. There are currently no non-hazardous WAC.

Landfill facilities may also have their own individual permit restrictions dictating the waste acceptable at their premises. These permit restrictions are often only available following direct consultation with the landfill facility.

Five soil samples were collected from intrusive locations at varying depths and were submitted for inert WAC analysis to provide representative coverage across the Site. The analysis on these five samples should be provided to appropriate landfill facilities, who should be able to confirm costs for disposal of soils from the Site.

The WAC testing results are included with the soil chemical analysis results, presented in Appendix D.

6.0 Bulk Ground Gas Risk Assessment

6.1 Ground Gas Risk Assessment

Gas monitoring has been carried out on three separate visits between 10th and 24th June 2020.

During the monitoring period, gas concentrations have been recorded in a total of five monitoring positions. The locations of the monitoring wells are highlighted on Figure 1 and indicate representative coverage beneath former building footprints.

Barometric pressures during the gas monitoring period ranged from 1012 mBar to 1021 mBar. All of the three visits were completed during periods of rising pressure.

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

- NHBC/RSK Group PLC (2007), Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present, Report Edition No. 4.; and
- British Standards Institute (BSI, 2015:2019): Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings, BS:8485:2015+A1:2019.

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

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

Location	Maximum Methane (%v/v)	Maximum Carbon Dioxide (%v/v)	Maximum Flow Rate (l/hr)	GSV/Characteristic Situation				Flooded well (Frequency)
				Methane		Carbon Dioxide		
				GSV	CS	GSV	CS	
DS101	<0.1	0.5	<0.1	0.0001	CS1 / Green	0.0005	CS1 / Green	N
DS103	<0.1	0.9	<0.1	0.0001	CS1 / Green	0.0009	CS1 / Green	N
DS104	<0.1	0.5	<0.1	0.0001	CS1 / Green	0.0005	CS1 / Green	N
DS106	<0.1	2.1	0.1	0.0001	CS1 / Green	0.0021	CS1 / Green	N
DS107	<0.1	1.0	<0.1	0.0001	CS1 / Green	0.0001	CS1 / Green	N

The preliminary data indicates that the Site can be provisionally classified as CS1 / Green (very low hazard potential) and NHBC Green in accordance with BS 8485:2015+A1:2019 Table 2. No ground gas protection measures are necessary under this scenario.

6.2 Radon

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

6.3 Organic Vapours

Sources of volatile vapours have not been identified on-Site, therefore, specific vapour resistant membranes are not considered to be necessary within the proposed development.

7.0 Revised Conceptual Site Model

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

Revised Conceptual Site Model				
Source	**Pathways0**	**Receptors**	**Confirmed Risk?**	**Mitigation**
Marginally elevated concentrations of PAHs have been identified within soils in Stockpile 1 (STP1). A single elevated concentration of lead was identified in shallow soils during the previous investigation. Detectable concentrations of heavy metals have been identified within groundwater samples from the Site.	Consumption of home grown produce and attached soil	Human health – future residents	**No**	Although marginally elevated concentrations of PAHs have been identified within the soil in Stockpile 1, it is understood that the stockpiled soil is to be disposed of off-Site. Therefore, the removal of the stockpile will break the pollutant linkage and mitigate the risk to future residents. It is likely that there will be a requirement for the importation of topsoil / subsoil onto the Site to facilitate the proposed development. Any topsoil imported onto the Site, or sourced from the Site and reused, should be tested to confirm suitability, prior to, and once placed, in landscaped / garden areas.
	Direct contact, ingestion and/or inhalation of soil/dust	Human health – construction workers	**Yes**	A 'hotspot' protocol should be in place during the redevelopment for groundworkers to act upon should suspected contamination be identified. As with all brownfield development Sites, groundworkers and sub-surface maintenance workers should be made aware of the possibility of encountering contaminated soils through toolbox talks. Safe working procedures should be implemented, good standards of personal hygiene should be observed and appropriate levels of PPE / RPE provided and utilised.
	Migration of contaminants into groundwater	Unproductive Strata (Tidal Flat Deposits and Oxford Clay Formation)	**No**	Detectable concentrations of heavy metals have been identified within groundwater samples taken from the Site, however none were found to exceed their respective GAC. It is therefore considered that the risk to controlled waters is very low, and no further action is required.
	Migration of contaminants into surface waters	Drain (on-Site) and Vernatt's drain (120 m south)		

	Direct infiltration in water supply pipes	Drinking water supply pipes	**No**	Hydrocarbons, especially aromatics and chlorinated solvents, are known to permeate plastic pipes. Assessment of the risk to water pipes for any new supply will have to be undertaken as a requirement of the statutory undertakers who should be provided with a copy of this Assessment and provide recommendations for upgrading of potable water supply pipes, if considered necessary.
Ground Gas	Indoor exposure via enclosed space accumulation of ground gas	Human health – future residents	**No**	The ground gas monitoring previously undertaken by Nicholls Colton recorded maximum concentrations of carbon dioxide at 5.1 %v/v and methane at 1.3 % v/v. Given that carbon dioxide exceeded 5% and methane exceeded 1%, it would usually be recommended to consider an increase from CS1 / Green to CS2 / Amber 1. However, given that elevated concentrations of ground gases were only recorded on one occasion, and that the underlying geology comprises predominantly cohesive deposits which will limit lateral and vertical migration, it is considered that the Site can be classified as CS1 / Green. The results of ground gas monitoring undertaken during this investigation have also classified the Site as CS1 / Green. No ground gas protection measures are necessary under this scenario.
Potentially unidentified 'hotspots' of contamination which may be present in areas of the Site that have not been directly investigated.	All pathways	All receptors	**Unknown**	As with all redevelopment works, a 'hotspot' protocol should be in place for groundworkers to act upon during any future redevelopment of the Site. Safe working procedures should be implemented, good standards of personal hygiene should be observed, and appropriate levels of PPE provided and utilised. This recommendation should be captured in Site health and safety documentation and in maintenance plans.

8.0 Conclusions and Recommendations

8.1 Contamination Issues

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

Although marginally elevated concentrations of PAHs have been identified within the soil in Stockpile 1, it is understood that the stockpiled soil is to be disposed of off-Site. Therefore, the removal of the stockpile will break the pollutant linkage and mitigate the risk to future residents.

It is likely that there will be a requirement for the importation of topsoil / subsoil onto the Site to facilitate the proposed development. Any topsoil imported onto the Site, or sourced from the Site and reused, should be tested to confirm suitability, prior to, and once placed, in landscaped / garden areas.

A 'hotspot' protocol should be in place during the redevelopment for groundworkers to act upon should suspected contamination be identified.

As with all brownfield development Sites, groundworkers and sub-surface maintenance workers should be made aware of the possibility of encountering contaminated soils through toolbox talks. Safe working procedures should be implemented, good standards of personal hygiene should be observed and appropriate levels of PPE / RPE provided and utilised.

The ground gas monitoring previously undertaken by Nicholls Colton recorded maximum concentrations of carbon dioxide at 5.1 %v/v and methane at 1.3 % v/v. Given that carbon dioxide exceeded 5% and methane exceeded 1%, it would usually be recommended to consider an increase from CS1 / Green to CS2 / Amber 1. However, given that elevated concentrations of ground gases were only recorded on one occasion, and that the underlying geology comprises predominantly cohesive deposits which will limit lateral and vertical migration, it is considered that the Site can be classified as CS1 / Green. The results of ground gas monitoring undertaken during this investigation have also classified the Site as CS1 / Green. No ground gas protection measures are necessary under this scenario.

Detectable concentrations of heavy metals have been identified within groundwater samples taken from the Site, however none were found to exceed their respective GAC. It is therefore considered that the risk to controlled waters is very low, and no further action is required.

8.2 Summary of Recommendations

On the basis of the information obtained and reviewed as part of this Assessment and the conclusions drawn above, Delta-Simons makes the following recommendations:

- It is recommended that a Remediation Method Statement (RMS) setting out remediation and construction phase mitigation measures is produced for the Site;
- Any topsoil imported onto the Site as part of the development works, or sourced from the Site and re-used, should be tested to confirm suitability, prior to, and once placed, in landscaped / garden areas;
- Additional, unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction phase;
- As with all development Sites, groundworkers who are required to perform sub-surface work at the Site should be made aware of the known contaminants in soil and groundwater and the possibility of encountering additional localised low levels of contamination. Therefore, good standards of personal hygiene should be observed, and appropriate levels of PPE utilised where necessary;

- Suitable dust suppression techniques will need to be implemented by the groundworkers during construction works; and
- Confirmation should be sought from the Local Water Authority as to whether they will require upgraded pipework to be installed for new service installations.

Enclosed:

Figures

Figure 1 Approximate Intrusive Location Plan

Appendices

Appendix A Limitations

Appendix B Borehole Logs and SPT Calibration Certificate

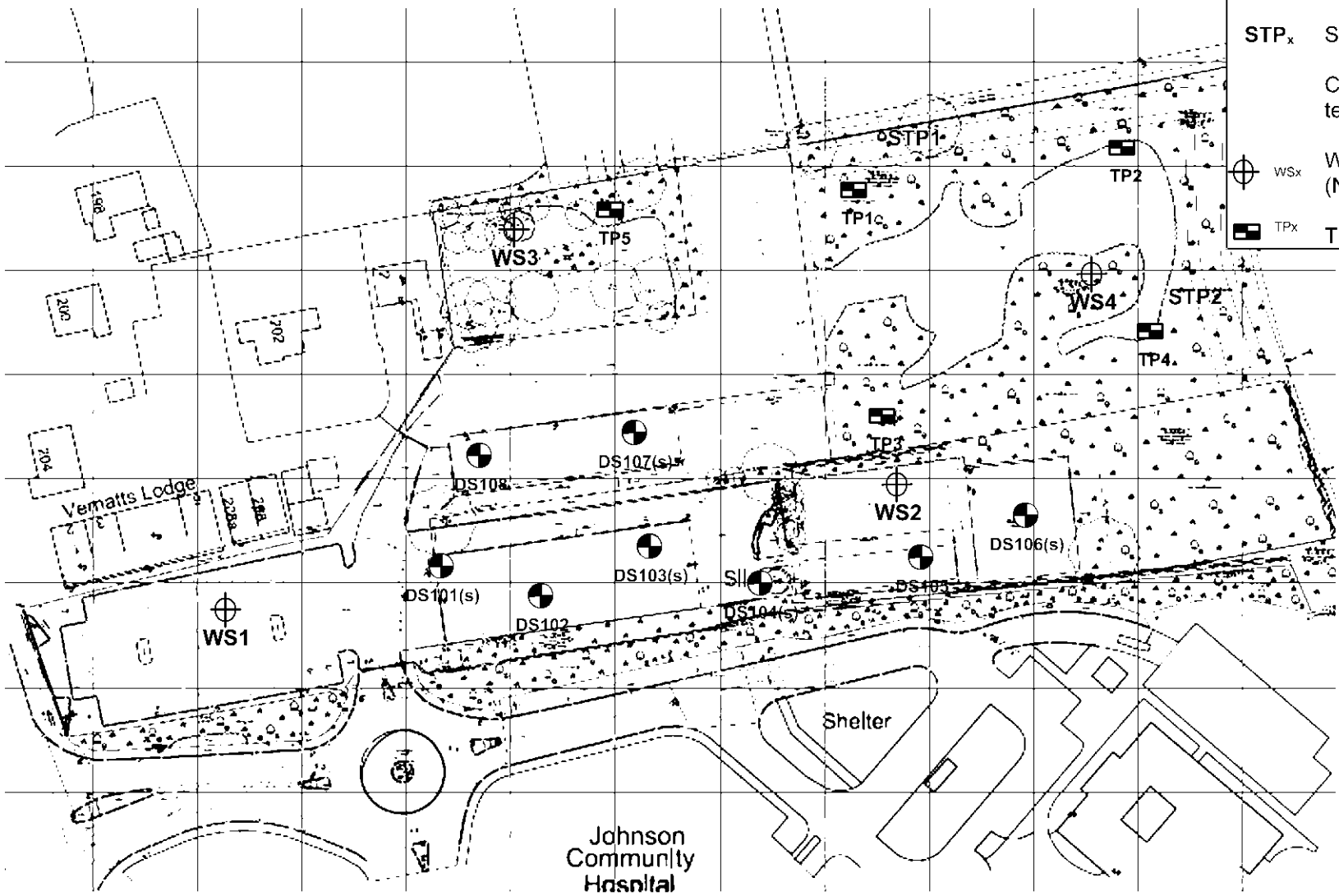
Appendix C Geotechnical Analysis Results

Appendix D Soil Chemical Analysis Results

Appendix E Groundwater Chemical Analysis Results

Appendix F Field Monitoring Data/Gas Monitoring Data

Figure 1 – Approximate Intrusive Location Plan



Baseplan provided by the Client

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TITLE:
Approximate Intrusive Location Plan
Spalding Road, Pinchbeck

DRAWN BY:	SCALE:	PROJECT NO:
AH	NTS	19-2129.01
CHECKED BY:	REVISION:	FIGURE NO:
TH	-	1
DATE:		
29th May 2020		

Appendix A – Limitations

Limitations

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

Due to the evolving regulatory climate specific to Per Fluoro Alkyl Substances (PFAS), the scope of works is not intended to be conclusive as it relates to the identification of any PFAS related issues. While Delta-Simons may advise its Client if Delta-Simons becomes aware of the use of PFAS at the subject property, Delta-Simons makes no representation nor accepts any liability that any or all PFAS issues have been identified and/or revealed to its client through its scope of work, as presented herein.

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

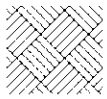
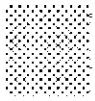
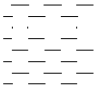
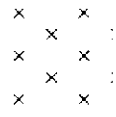
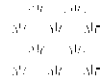
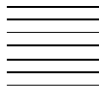
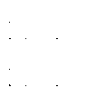
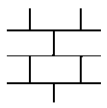
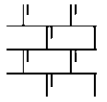
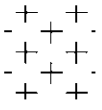
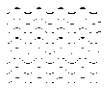
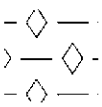
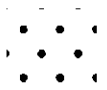
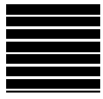
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Appendix B – Borehole Logs and SPT Calibration Certificate

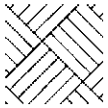
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KEY TO BOREHOLE AND TRIAL PIT LOGS

MATERIAL LEGENDS

	Topsoil		Made Ground		Bituminous Material
	Concrete		Clay		Silt
	Sand		Gravel		Peat
	Cobbles		Boulders		Mudstone
	Siltstone		Sandstone		Limestone
	Chalk		Coal		Breccia
	Conglomerate		Igneous		Metamorphic
	Pyroclastic (volcanic ash)		Gypsum		Shale
	Ironstone		Bedrock (Unidentified)		Void

INSTALLATION/BACKFILL LEGENDS

	Sand		Gravel		Bentonite/Grout
	Arisings		Concrete		Plain Pipe
	Slotted Pipe				

Legend symbols in general accordance with BS 5930:1999+A2:2010 and standard industry practice.

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KEY TO BOREHOLE AND TRIAL PIT LOGS

SAMPLE TYPES

ACM	Asbestos Containing Material Sample
B	Bulk Disturbed Sample
BLK	Block Sample
C	Core Sample
CBR	Undisturbed Sample for California Bearing Ratio Test – 154mm diameter
D	Disturbed Sample - Tub
ES	Soil Sample for Environmental Testing
EW	Water Sample for Environmental Testing
G	Gas Sample
U	Undisturbed Driven Tube Sample – 70/102mm diameter, 450mm long
W	Water Sample

TEST TYPES

CPT	Cone Penetrometer Test (kN/m^2)
FID	Flame Ionisation Detector Test (ppm)
HV	In-Situ Hand Sheer Vane Test (kN/m^2)
PID	Photoionisation Detector Test (ppm)
SPT (S)	Standard Penetration Test – Split Spoon Sampler
SPT (C)	Standard Penetration Test – Solid 60 Degree Cone

CORE DETAILS

If	Fracture Spacing (mm) – Minimum, Average, Maximum
NI	Non-Intact where >25 fracture spacings per metre
TCR	Total Core Recovery (%)
SCR	Solid Core Recovery (%)
RQD	Rock Quality Designation (%)
AF	Air Flush Return (%)
WF	Water Flush Return (%)

WATER COLUMN DETAILS

	Water Strike
	Water Level

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Project No: **19-2129.01**

Hole ID: **CBR3**

Project: **Spalding Road, Pinchbeck**

Hand Dug Trial Pit Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details			Test Details	
					Depth (m)	Type	Ref	Depth (m)	Results
MADE GROUND: Light grey gravelly fine to medium SAND. Gravel is fine to cobble sized angular to sub angular concrete and brick fragments.		0.27			0.60	B	1		
MADE GROUND: Dark brown slightly gravelly silty CLAY. Gravel is fine angular to sub angular brick.		0.50			0.60	ES	1		
Firm dark brown mottled light brown silty CLAY. (TIDAL FLAT DEPOSITS)		0.60			0.60	ES	WA C1		
Hand pit complete at 0.60 m bgl.									

Dimensions and Orientation:

Bearing:

Inclination:

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Excavation backfilled with arising.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Simons	**Hand Tools**	**AH**	**GT**	**PB**	**1:30**

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Project No:	Hole ID:	Page:
19-2129.01	CBR5	1 of 1

Project: **Spalding Road, Pinchbeck**

Hand Dug Trial Pit Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details: Depth (m)	Sample Details: Type Ref	Test Details: Depth (m)	Test Details: Results
MADE GROUND: Light grey slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub angular concrete.		0.21						
MADE GROUND: Dark brown silty CLAY.		0.62						
Soft to firm dark brown mottled grey silty CLAY. (TIDAL FLAT DEPOSITS)		0.70			0.70 0.70 0.70	B 1 ES 1 ES WA C1		
Hand pit complete at 0.70 m bgl.								

Dimensions and Orientation:

Bearing:

Inclination:

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Excavation backfilled with arising.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Simons	Hand Tools	AH	GT	PB	1:30

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Project No:	Hole ID:	Page:
19-2129.01	CBR7	1 of 1

Project: **Spalding Road, Pinchbeck**

Hand Dug Trial Pit Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results
MADE GROUND: Light grey slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub angular concrete.		0.31							
MADE GROUND: Dark brown slightly gravelly silty CLAY. Gravel is fine angular to sub angular brick fragments and glass.		0.58							
Firm dark grey silty CLAY. (TIDAL FLAT DEPOSITS)		0.70			0.70	B	1		
Firm dark grey silty CLAY. (RIVER TERRACE DEPOSITS)		0.75			0.70	ES	1		
Hand pit complete at 0.70 m bgl.					0.70	ES	WA C1		

Dimensions and Orientation:

Bearing:

Inclination:

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Excavation backfilled with arising.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Simons	Hand Tools	AH	GT	PB	1:30

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Project No: 19-2129.01 | Hole ID: DS101 | Page: 1 of 1

Project: Spalding Road, Pinchbeck

Dynamic Sampler Log

Date: 01/06/2020 | Client: GEDA Construction

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Light grey gravelly fine to medium SAND. Gravel is fine to cobble sized angular to sub angular concrete.		0.20	(0.20)									
MADE GROUND: Dark brown slightly gravelly clayey SILT. Gravel is fine sub anuglar to sub rounded brick fragments and coal.		0.40	(0.20)				0.30	ES	1			
Firm dark brown slightly silty CLAY. (TIDAL FLAT DEPOSITS)		1.00	(0.60)									
Soft dark brown mottled grey slightly clayey SILT. (RIVER TERRACE DEPOSITS)		1.99	(0.99)				1.50	ES	S1	1.20	SPT(S) N=5 (1,1/1,1,1,2)	
Soft dark brown mottled grey slightly clayey SILT. (TIDAL FLAT DEPOSITS)		2.00								2.00	SPT(S) N=5 (1,1/1,2,1,1)	
Soft dark grey SILT. (RIVER TERRACE DEPOSITS)		3.00	(1.00)			2.50 ▼	2.50	D	2			
Soft dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00								3.00	SPT(S) N=4 (1,1/1,1,1,1)	
Borehole complete at 3.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Borehole installed with 50mm diameter standpipe, gas bung and lockable traffic strength flush cover.3. Groundwater encountered at 2.50 m bgl.4. Borehole completed at 3.00 m bgl due to required depth being achieved.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		2.50 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No:	Hole ID:	Page:
19-2129.01	DS102	1 of 1

Project: **Spalding Road, Pinchbeck**

Dynamic Sampler Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details			Test Details		Backfill
							Depth (m)	Type	Ref	Depth (m)	Results	
MADE GROUND: Light grey gravelly fine to medium SAND. Gravel is fine to coarse angular to sub angular concrete.		0.21	(0.21)									
MADE GROUND: Dark brown slightly gravelly clayey SILT. Gravel is fine sub anuglar to sub rounded brick fragments and glass.		0.45	(0.24)									
Firm dark brown mottled grey silty CLAY. (TIDAL FLAT DEPOSITS)		1.10	(0.65)				0.80	ES	1			
Soft dark grey mottled brown slightly clayey SILT. (TIDAL FLAT DEPOSITS)		1.80	(0.70)				1.50	D	1	1.20	SPT(S) N=5 (1,1/1,2,1,1)	
Very soft dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(1.20)			2.60 ▼				2.00	SPT(S) N=4 (1,1/1,1,1,1)	
Borehole complete at 3.00 m bgl.							3.00	ES	S1	3.00	SPT(S) N=3 (1,1/1,0,1,1)	

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Groundwater encountered at 2.60 m bgl.3. Borehole completed at 3.00 m bgl due to required depth being achieved.4. Borehole backfilled with arising.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		2.60 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No: 19-2129.01 | Hole ID: DS103 | Page: 1 of 1

Project: Spalding Road, Pinchbeck

Dynamic Sampler Log

Date: 01/06/2020 | Client: GEDA Construction

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Light grey slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub rounded concrete.		0.19	(0.19)									
MADE GROUND: Dark brown slightly gravelly clayey SILT. Gravel is fine sub anuglar to sub rounded brick fragments.		0.30	(0.11)				0.25	ES	1			
Soft to firm dark brown mottled grey silty CLAY. (TIDAL FLAT DEPOSITS)		1.19	(0.89)							1.20	SPT(S) N=6 (1,1/2,1,1,2)	
Soft dark brown mottled light brown slightly sandy SILT. (TIDAL FLAT DEPOSITS)		2.04	(0.85)			2.00 ▼	1.30	D	1	2.00	SPT(S) N=5 (1,1/1,1,2,1)	
Soft dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(0.96)							3.00	SPT(S) N=3 (1,1/1,0,1,1)	
Borehole complete at 3.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Borehole installed with 50mm diameter standpipe, gas bung and lockable traffic strength flush cover.3. Groundwater encountered at 2.00 m bgl.4. Borehole completed at 3.00 m bgl due to required depth being achieved.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		2.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No: 19-2129.01 | Hole ID: DS104 | Page: 1 of 1

Project: Spalding Road, Pinchbeck

Dynamic Sampler Log

Date: 01/06/2020 | Client: GEDA Construction

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Light grey gravelly fine to medium SAND. Gravel is fine to cobble sized angular to sub angular concrete and brick.		0.23	(0.23)									
MADE GROUND: Dark brown slightly silty slightly gravelly CLAY. Gravel is fine sub angular brick fragments.		0.64	(0.41)				0.50	ES	1			
Firm dark brown mottled grey silty CLAY. (TIDAL FLAT DEPOSITS)		1.25	(0.61)				1.20	D	1	1.20	SPT(S) N=6 (1,1/1,1,2,2)	
Soft dark brown mottled grey slightly clayey SILT. (TIDAL FLAT DEPOSITS)		2.00	(0.76)			2.00 ▼				2.00	SPT(S) N=5 (1,2/1,1,1,2)	
Soft dark brown mottled grey slightly clayey SILT. (RIVER TERRACE DEPOSITS)		2.01										
Soft, becoming very soft at 3.0 m bgl, dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(0.99)							3.00	SPT(S) N=2 (1,1/0,1,0,1)	
Soft, becoming very soft at 3.0 m bgl, dark grey SILT. (RIVER TERRACE DEPOSITS)		3.00										
Borehole complete at 3.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Borehole installed with 50mm diameter standpipe, gas bung and lockable traffic strength flush cover.3. Groundwater encountered at 2.00 m bgl.4. Borehole completed at 3.00 m bgl due to required depth being achieved.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		2.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No: 19-2129.01 | Hole ID: DS105 | Page: 1 of 1

Project: Spalding Road, Pinchbeck

Dynamic Sampler Log

Date: 01/06/2020 | Client: GEDA Construction

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Light grey slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub angular concrete.		0.15	(0.15)									
MADE GROUND: Dark brown slightly silty slightly gravelly CLAY. Gravel is fine sub angular brick fragments.		0.50	(0.35)				0.30	ES	1			
Firm dark brown mottled grey silty CLAY. (TIDAL FLAT DEPOSITS)		1.05	(0.55)				0.90	D	1			
Soft dark brown mottled light brown slightly clayey slightly sandy SILT. Sand is fine to medium. (TIDAL FLAT DEPOSITS)		1.80	(0.75)			1.70 ▼				1.20	SPT(S) N=5 (1,1/1,2,1,1)	
Soft, becoming very soft at 3.0 m bgl, dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(1.20)							2.00	SPT(S) N=6 (1,1/2,1,1,2)	
Borehole complete at 3.00 m bgl.										3.00	SPT(S) N=2 (1,1/0,1,1,0)	

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Groundwater encountered at 1.70 m bgl.3. Borehole completed at 3.00 m bgl due to required depth being achieved.4. Borehole backfilled with arising.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		1.70 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No:	Hole ID:	Page:
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Project: **Spalding Road, Pinchbeck**

Dynamic Sampler Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Light grey slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub angular concrete.		0.28	(0.28)									
MADE GROUND: Dark brown slightly gravelly silty CLAY. Gravel is fine angular to sub angular brick.		0.50	(0.22)				0.40	ES	1			
Soft to firm dark brown mottled grey silty CLAY. (TIDAL FLAT DEPOSITS)		1.20	(0.70)				0.60	ES	S1			
Soft dark brown mottled light brown clayey SILT. (TIDAL FLAT DEPOSITS)		1.80	(0.60)			1.80 ▼	1.50	D	2	1.20	SPT(S) N=6 (1,2/1,2,2,1)	
Very soft dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(1.20)							2.00	SPT(S) N=4 (1,1/1,1,1,1)	
Borehole complete at 3.00 m bgl.										3.00	SPT(S) N=2 (1,1/0,1,0,1)	

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Borehole installed with 50mm diameter standpipe, gas bung and lockable traffic strength flush cover.3. Groundwater encountered at 1.80 m bgl.4. Borehole completed at 3.00 m bgl due to required depth being achieved.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		1.80 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No: 19-2129.01 | Hole ID: DS107 | Page: 1 of 1

Project: Spalding Road, Pinchbeck

Dynamic Sampler Log

Date: 01/06/2020 | Client: GEDA Construction

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Yellowish brown gravelly fine to medium SAND. Gravel is fine to coarse sub angular sandstone and brick fragments.		0.40	(0.40)									
MADE GROUND: Dark brown slightly gravelly silty CLAY. Gravel is fine angular to sub angular brick.		0.60	(0.20)				0.50	ES	1			
Firm dark brown mottled light brown silty CLAY. (TIDAL FLAT DEPOSITS)		1.08	(0.48)									
Soft to firm dark brown mottled light brown clayey SILT. (TIDAL FLAT DEPOSITS)		2.71	(1.63)			2.00 ▼	2.20	D	2	1.20 2.00	SPT(S) N=7 (1,1/2,1,2,2) SPT(S) N=6 (1,1/2,1,1,2)	
Soft dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(0.29)							3.00	SPT(S) N=4 (1,1/1,1,1,1)	
Borehole complete at 3.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Borehole installed with 50mm diameter standpipe, gas bung and lockable traffic strength flush cover.3. Groundwater encountered at 2.00 m bgl.4. Borehole completed at 3.00 m bgl due to required depth being achieved.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		2.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No:	Hole ID:	Page:
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Project: **Spalding Road, Pinchbeck**

Dynamic Sampler Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Light grey gravelly fine to medium SAND. Gravel is fine to cobble sized angular to sub angular concrete and brick fragments.		0.22	(0.22)									
MADE GROUND: Dark brown slightly gravelly silty CLAY. Gravel is fine angular to sub angular brick.		0.70	(0.48)				0.30	ES	1			
Firm dark brown mottled light brown silty CLAY. (TIDAL FLAT DEPOSITS)		0.90	(0.20)									
Soft dark brown mottled grey slightly clayey SILT. (TIDAL FLAT DEPOSITS)		2.40	(1.50)			2.00 ▼	1.00	ES	S1	1.20	SPT(S) N=5 (1,2/1,2,1,1)	
										2.00	SPT(S) N=6 (1,1/2,1,1,2)	
Very soft dark grey SILT. (TIDAL FLAT DEPOSITS)		3.00	(0.60)				2.50	D	2			
Borehole complete at 3.00 m bgl.										3.00	SPT(S) N=4 (1,1/1,1,1,1)	

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Groundwater encountered at 2.00 m bgl.3. Borehole completed at 3.00 m bgl due to required depth being achieved.4. Borehole backfilled with arising.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration (min)	Depth Water	Depth Base	Diameter
		2.00 m				

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Drilling	Premier 110	AH	GT	PB	1:30

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Project No:	Hole ID:	Page:
19-2129.01	STP1	1 of 1

Project: **Spalding Road, Pinchbeck**

Hand Dug Trial Pit Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results
MADE GROUND: Light brown gravelly fine to medium SAND. Gravel is fine to coarse angular to sub rounded of mixed lithologies.		0.30			0.30	ES	1		
Hand pit complete at 0.30 m bgl.					0.30	ES	WA C1		

Dimensions and Orientation:

Bearing:

Inclination:

Remarks:
1. Logged in general accordance with BS 5930:2015.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Simons	Hand Tools	AH	GT	PB	1:30

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Project No:	Hole ID:	Page:
19-2129.01	STP2	1 of 1

Project: **Spalding Road, Pinchbeck**

Hand Dug Trial Pit Log

Date: **01/06/2020**

Client: **GEDA Construction**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details			Test Details	
					Depth (m)	Type	Ref	Depth (m)	Results
MADE GROUND: Dark greyish brown slightly gravelly fine to medium SAND. Gravel is fine to coarse sub angular to sub rounded of mixed lithologies.		0.50			0.30	ES	1		
MADE GROUND: Dark greyish brown slightly gravelly fine to medium SAND. Gravel is fine to coarse sub angular to sub rounded of mixed lithologies.		0.60							
Hand pit complete at 0.50 m bgl.									

Dimensions and Orientation:

Bearing:

Inclination:

Remarks:
1. Logged in general accordance with BS 5930:2015.

Coordinates:	Elevation (mAOD):	Excavated By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Delta-Simons	Hand Tools	AH	GT	PB	1:30

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	11099
Test Date:	25/02/2019
Report Date:	25/02/2019
File Name:	11099.spt
Test Operator:	SH

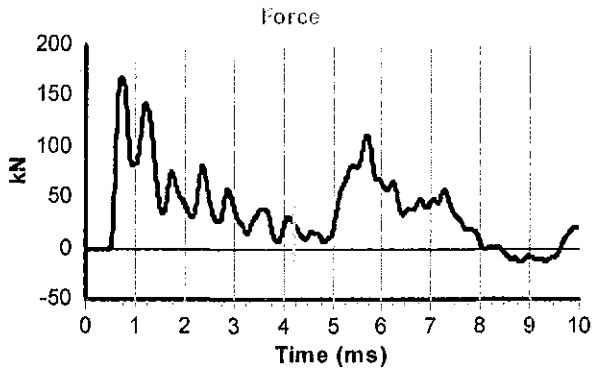
Instrumented Rod Data

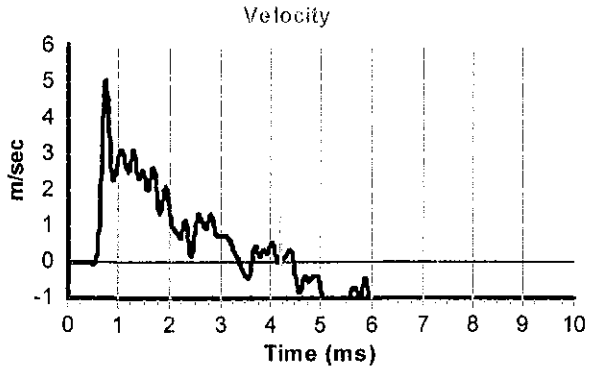
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	7080
Accelerometer No.2:	11609

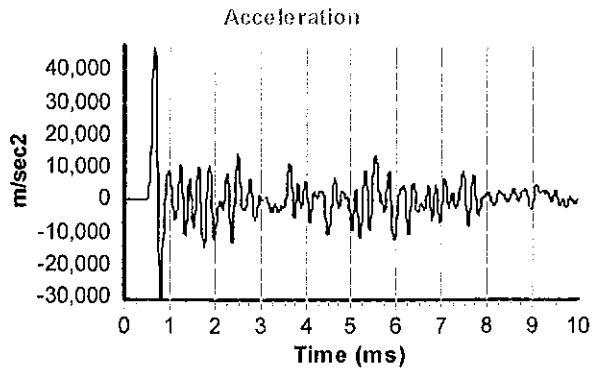
SPT Hammer Information

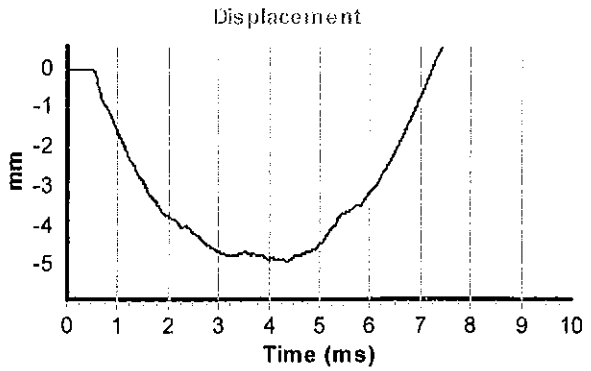
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

Comments / Location









Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	391

Energy Ratio E_r (%): **83**

Signed: C.MCCLUSKEY
Title: FITTER

The recommended calibration interval is 12 months

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Appendix C – Geotechnical Analysis Results

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 4.3 and 5

Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	08/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

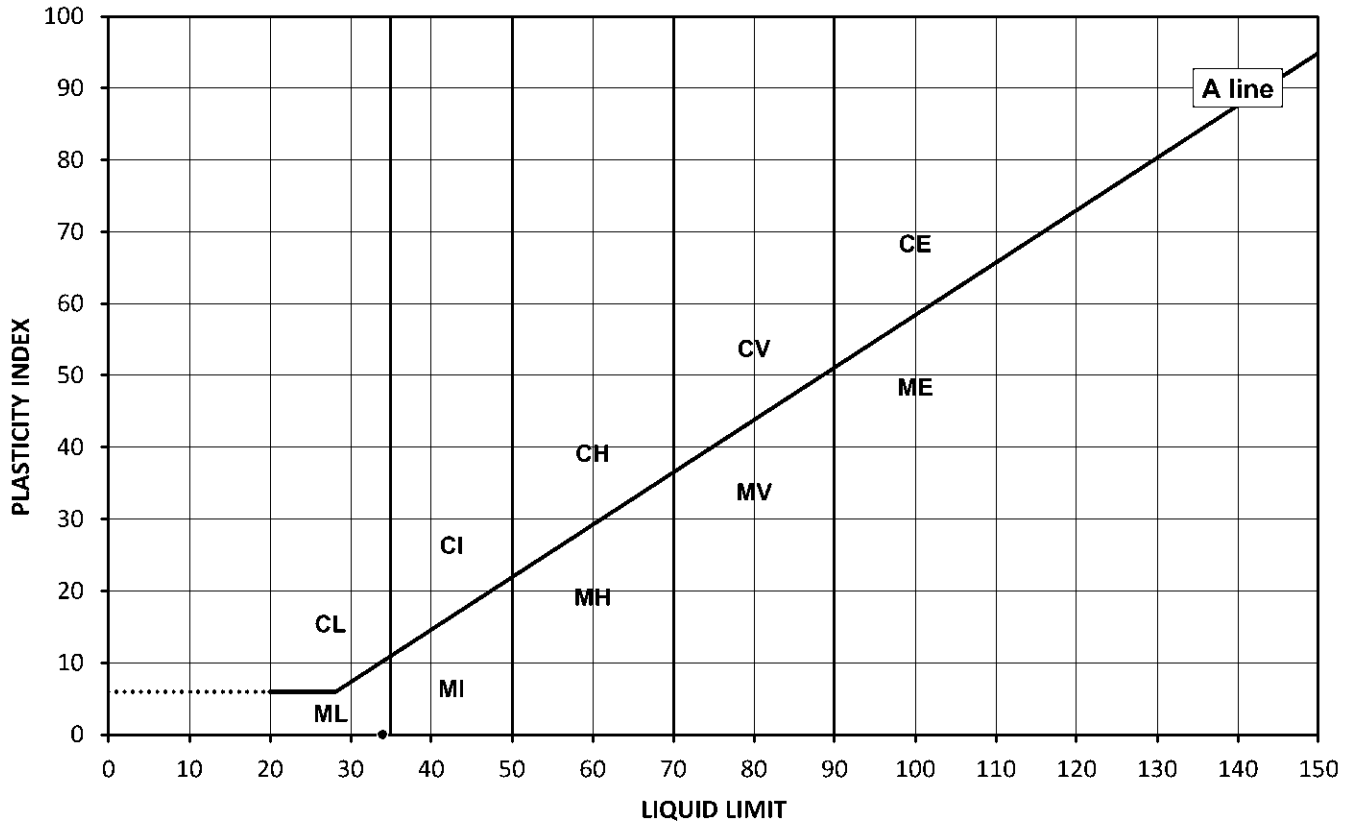
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523754	Depth Top [m]:	2.50
Hole No.:	DS101	Depth Base [m]:	Not Given
Sample Reference:	D2	Sample Type:	D
Soil Description:	Greyish brown slightly gravelly SILT		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	34	NP	NP	97



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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: NP - non plastic

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Signed:

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

Date Reported: 12/06/2020

GF 236.9

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 4.3 and 5

Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	08/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

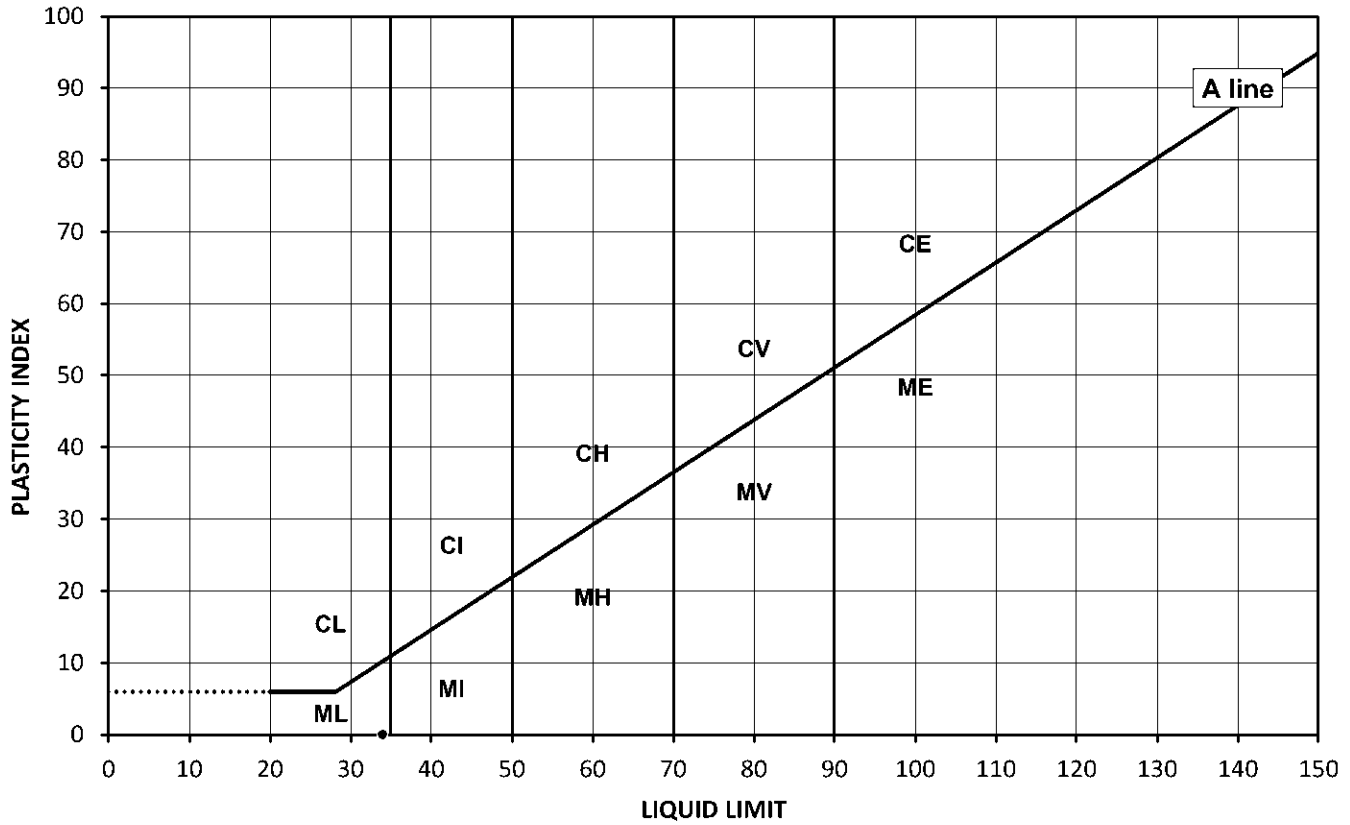
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523755	Depth Top [m]:	1.50
Hole No.:	DS102	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Soil Description:	Greyish brown SILT		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	34	NP	NP	100



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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: NP - non plastic

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Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	08/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

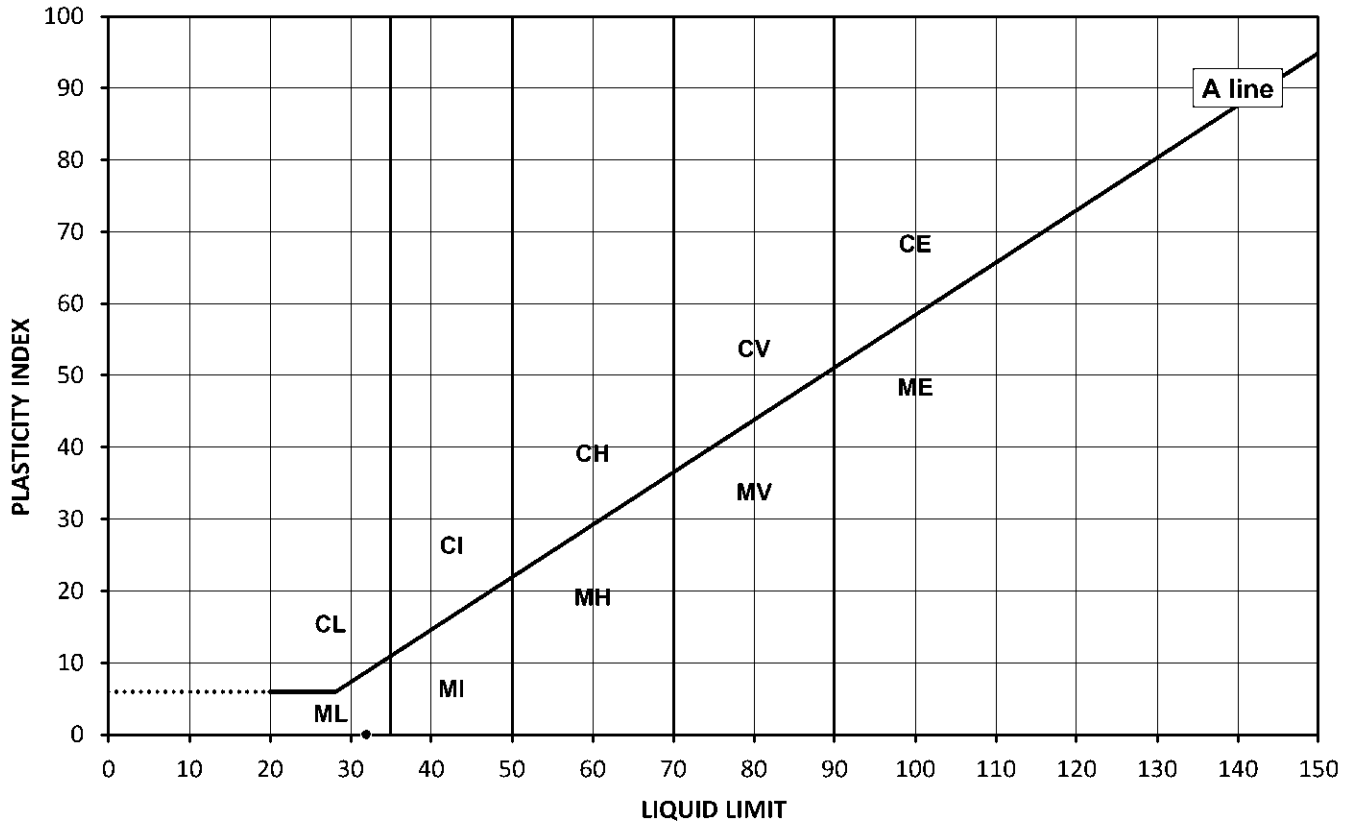
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523756	Depth Top [m]:	1.30
Hole No.:	DS103	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Soil Description:	Brown SILT		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	32	NP	NP	100



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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: NP - non plastic

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Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
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Contact:	Alex Hunter	Date Tested:	08/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

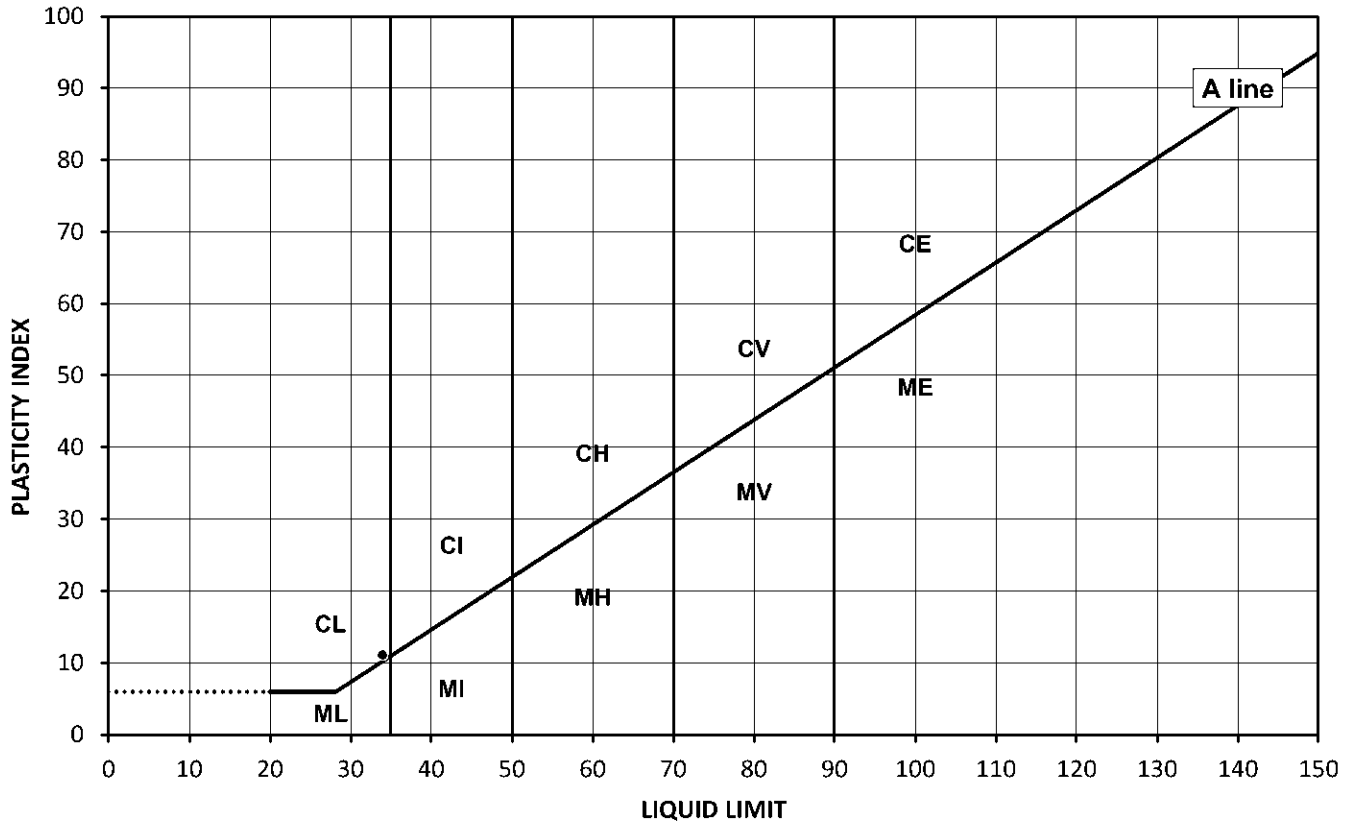
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523757	Depth Top [m]:	1.20
Hole No.:	DS104	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Soil Description:	Brown very sandy CLAY		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	34	23	11	100



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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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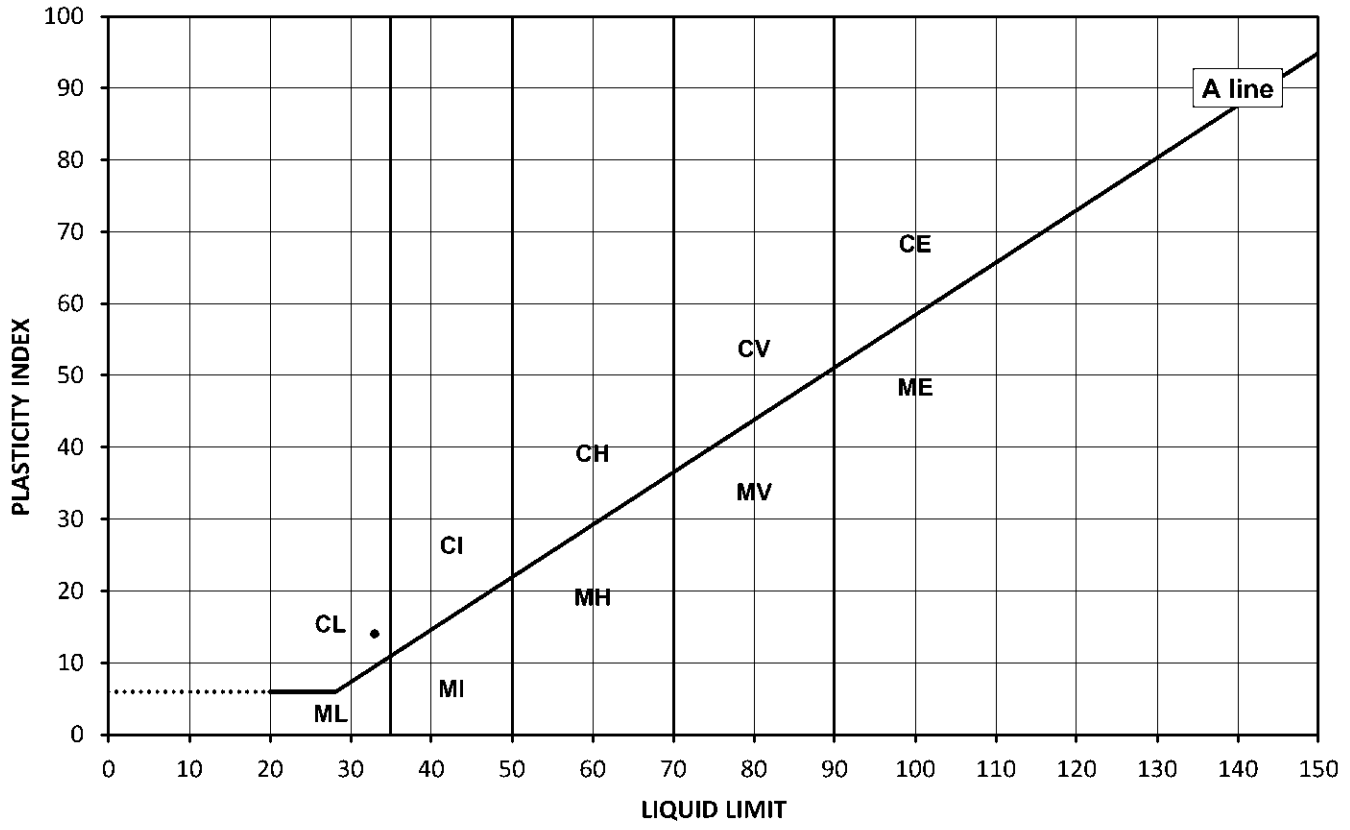
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523758	Depth Top [m]:	0.90
Hole No.:	DS105	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Soil Description:	Brown very sandy CLAY		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	33	19	14	100



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
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Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

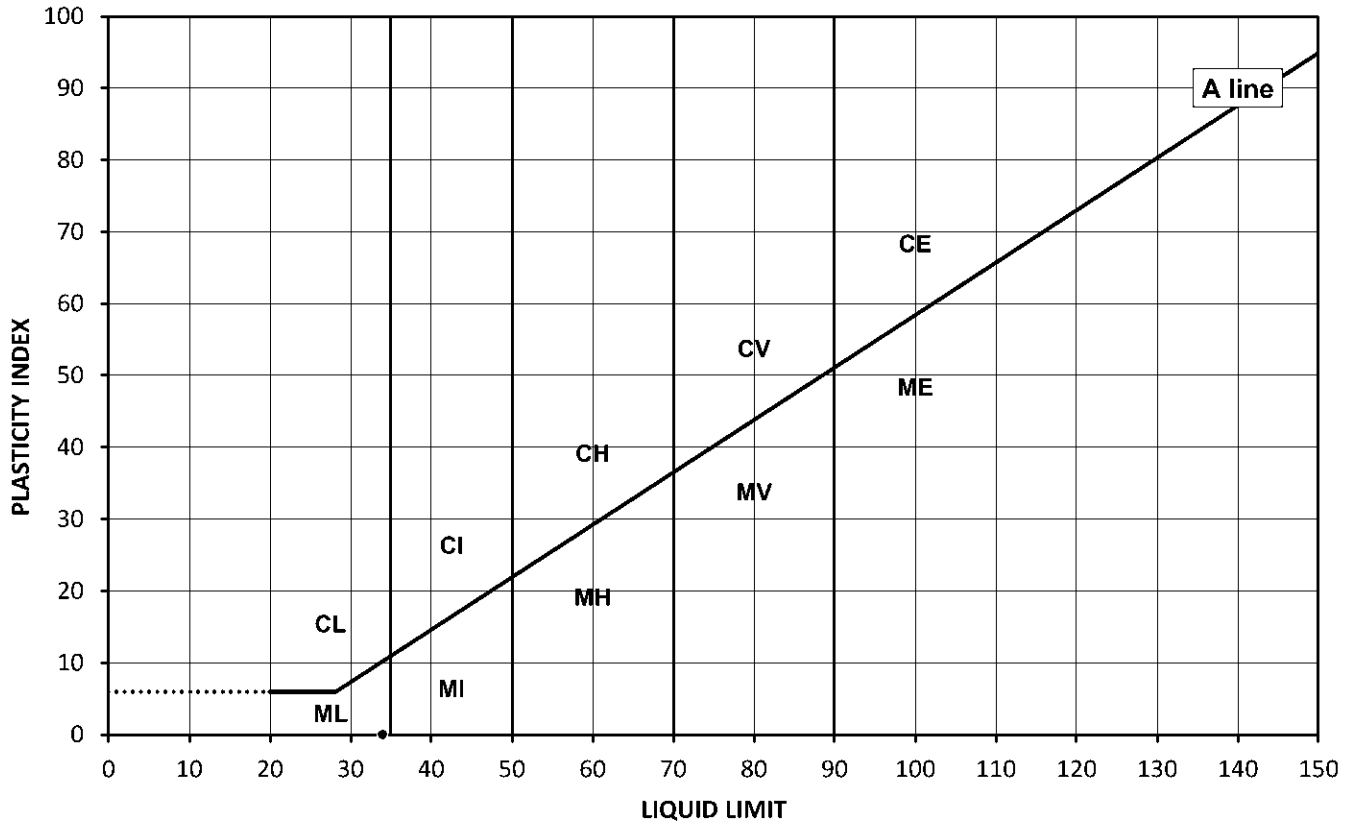
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523759	Depth Top [m]:	1.50
Hole No.:	DS106	Depth Base [m]:	Not Given
Sample Reference:	D2	Sample Type:	D
Soil Description:	Brown SILT		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	34	NP	NP	100



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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: NP - non plastic

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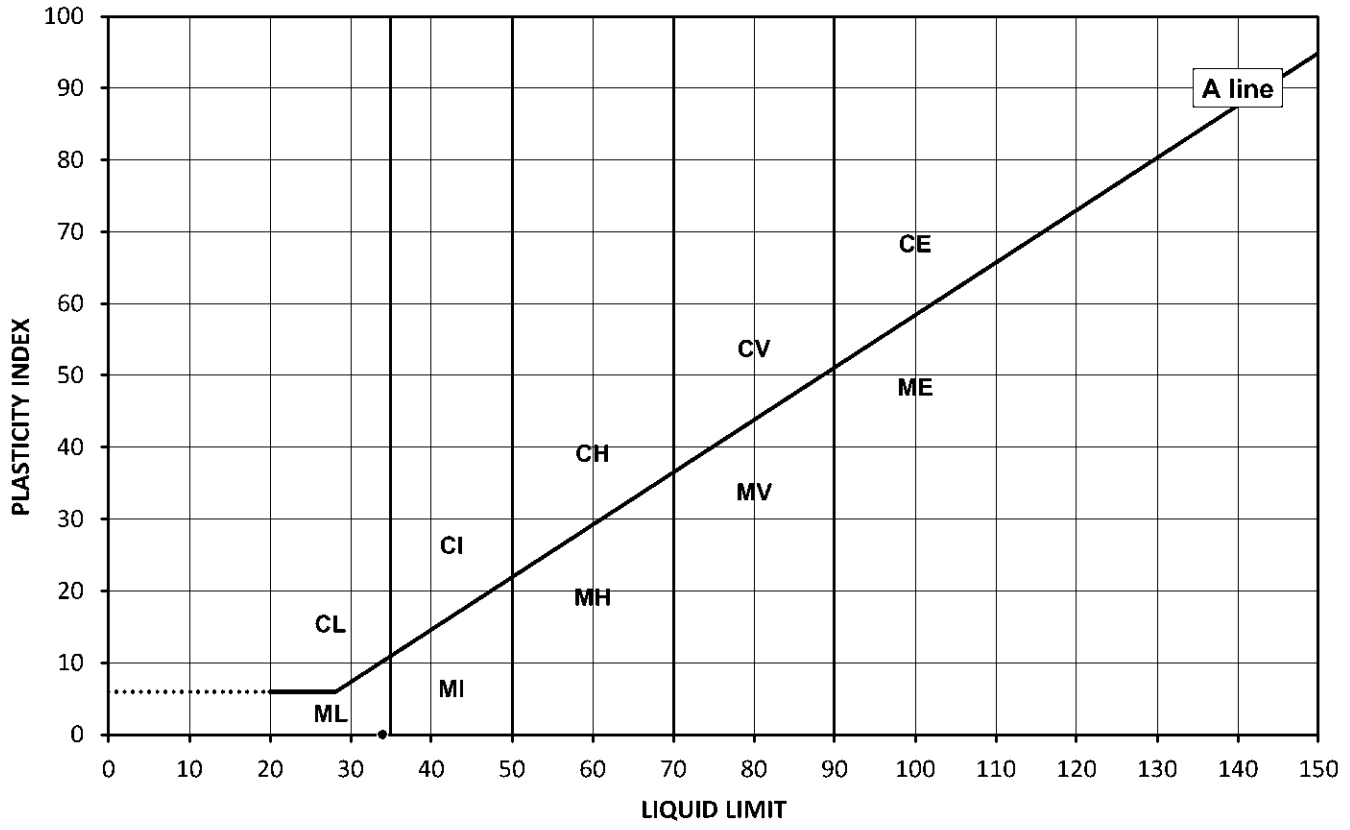
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523760	Depth Top [m]:	2.20
Hole No.:	DS107	Depth Base [m]:	Not Given
Sample Reference:	D2	Sample Type:	D
Soil Description:	Brown slightly gravelly SILT		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	34	NP	NP	95



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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: NP - non plastic

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Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	08/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

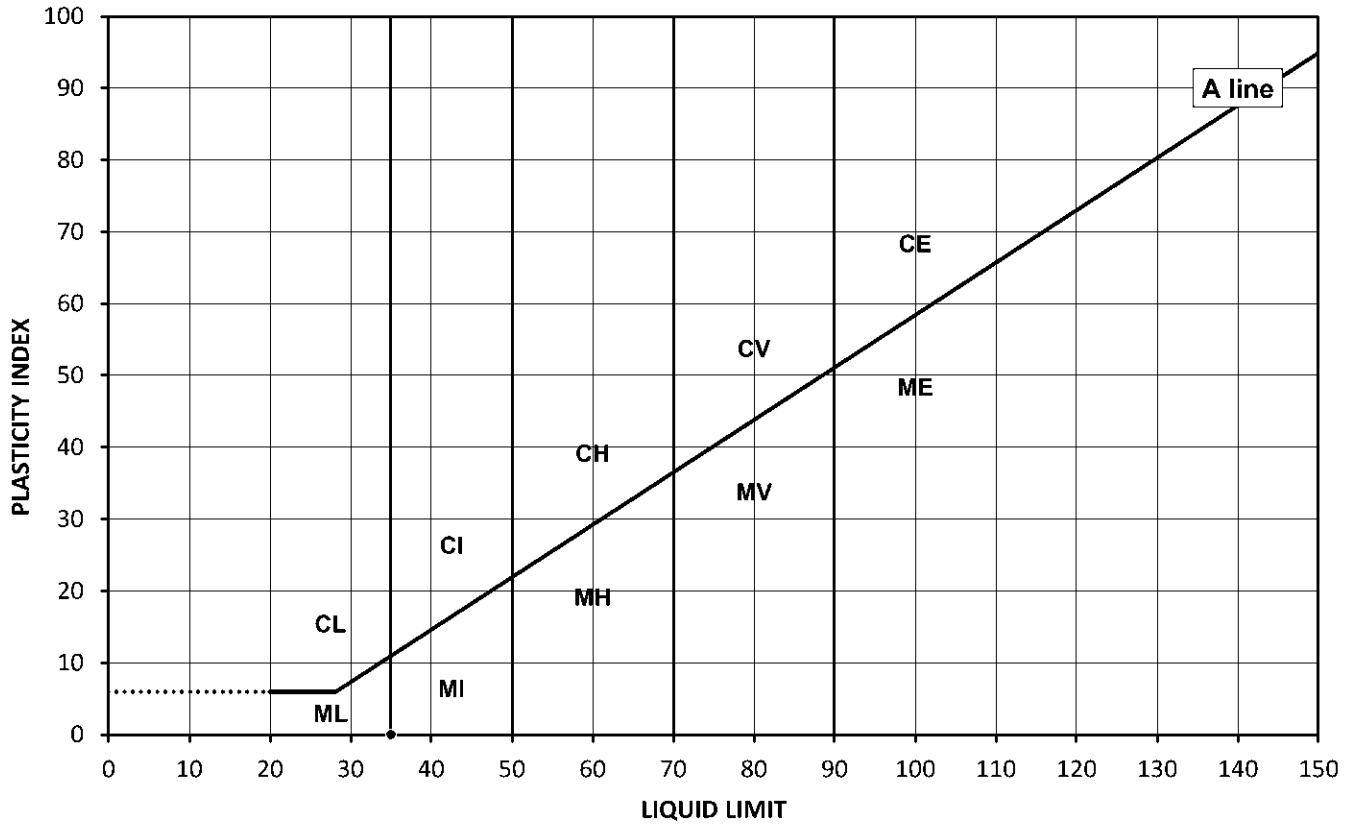
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1523761	Depth Top [m]:	2.50
Hole No.:	DS108	Depth Base [m]:	Not Given
Sample Reference:	D2	Sample Type:	D
Soil Description:	Brown SILT		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
31	35	NP	NP	100



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

		Plasticity		Liquid Limit
C	Clay	L	Low	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: NP - non plastic

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SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
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Northampton NN4 7EB

4041

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: Delta-Simons

Client Address: 3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR

Contact: Alex Hunter

Site Address: Spalding Road, Pinchbeck

Client Reference: 19-2129.01
Job Number: 20-12263
Date Sampled: 01/06/2020
Date Received: 02/06/2020
Date Tested: 08/06/2020
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1523754	DS101	D2	2.50	Not Given	D	Greyish brown slightly gravelly SILT	Atterberg 4 Point	27		97	34	NP	NP						
1523755	DS102	D1	1.50	Not Given	D	Greyish brown SILT	Atterberg 4 Point	29		100	34	NP	NP						
1523756	DS103	D1	1.30	Not Given	D	Brown SILT	Atterberg 4 Point	26		100	32	NP	NP						
1523757	DS104	D1	1.20	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	29		100	34	23	11						
1523758	DS105	D1	0.90	Not Given	D	Brown very sandy CLAY	Atterberg 4 Point	15		100	33	19	14						
1523759	DS106	D2	1.50	Not Given	D	Brown SILT	Atterberg 4 Point	26		100	34	NP	NP						
1523760	DS107	D2	2.20	Not Given	D	Brown slightly gravelly SILT	Atterberg 4 Point	27		95	34	NP	NP						
1523761	DS108	D2	2.50	Not Given	D	Brown SILT	Atterberg 4 Point	31		100	35	NP	NP						

Note: # Non accredited; NP - Non plastic

Comments:

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Date Reported: 12/06/2020

TEST CERTIFICATE

Determination of California Bearing Ratio

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

4041

Tested in Accordance with: BS 1377-4: 1990: Clause 7

Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	10/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

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

Test Results:

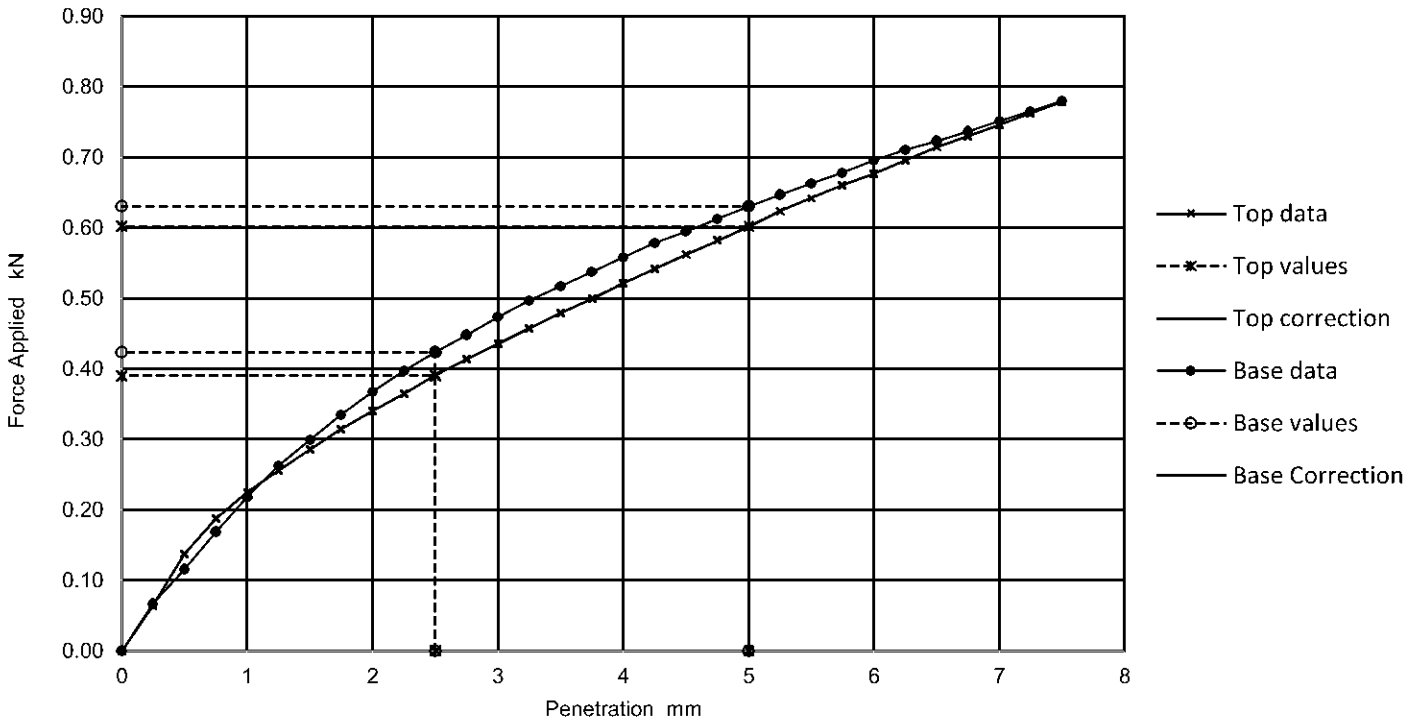
Laboratory Reference:	1523762	Depth Top [m]:	0.60
Hole No.:	CBR3	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown CLAY		

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	0 %	Dry density after soaking	Mg/m3

Initial Specimen details	Bulk density	1.96	Mg/m3	Surcharge applied	8 kg
	Dry density	1.54	Mg/m3		4.9 kPa
	Moisture content	27	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	3.0	3.0	3.0	3.1	26
BASE	No	3.2	3.2	3.2		26

Remarks:

Test/ Specimen specific remarks:

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Date Reported: 12/06/2020

GF 108.15

TEST CERTIFICATE

Determination of California Bearing Ratio

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Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-4: 1990: Clause 7

Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	10/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

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

Test Results:

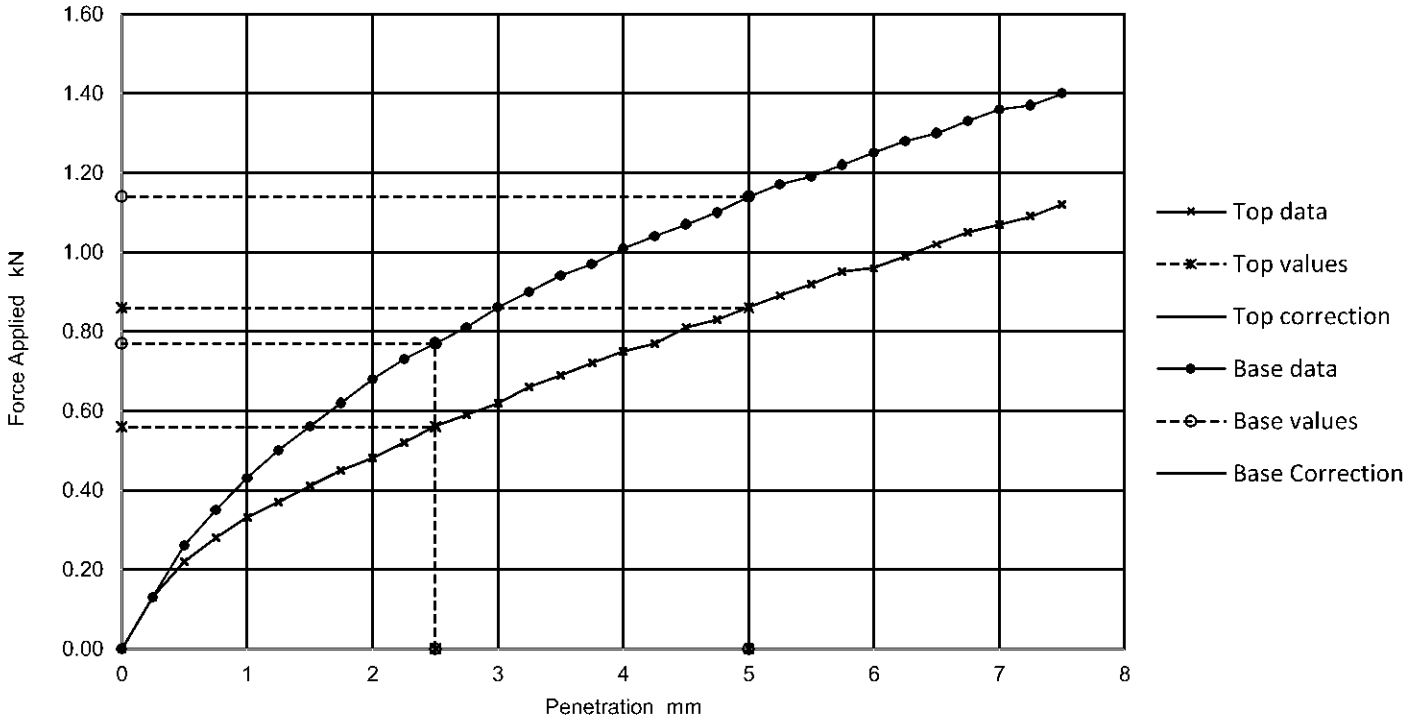
Laboratory Reference:	1523763	Depth Top [m]:	0.70
Hole No.:	CBR5	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Dark brown CLAY		

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	0 %	Dry density after soaking	Mg/m3

Initial Specimen details	Bulk density	1.98	Mg/m3	Surcharge applied	8 kg
	Dry density	1.61	Mg/m3		4.9 kPa
	Moisture content	23	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	4.2	4.3	4.3		23
BASE	No	5.8	5.7	5.8		22

Remarks:

Test/ Specimen specific remarks:

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Client:	Delta-Simons	Client Reference:	19-2129.01
Client Address:	3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR	Job Number:	20-12263
		Date Sampled:	01/06/2020
		Date Received:	02/06/2020
Contact:	Alex Hunter	Date Tested:	10/06/2020
Site Address:	Spalding Road, Pinchbeck	Sampled By:	Not Given

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

Test Results:

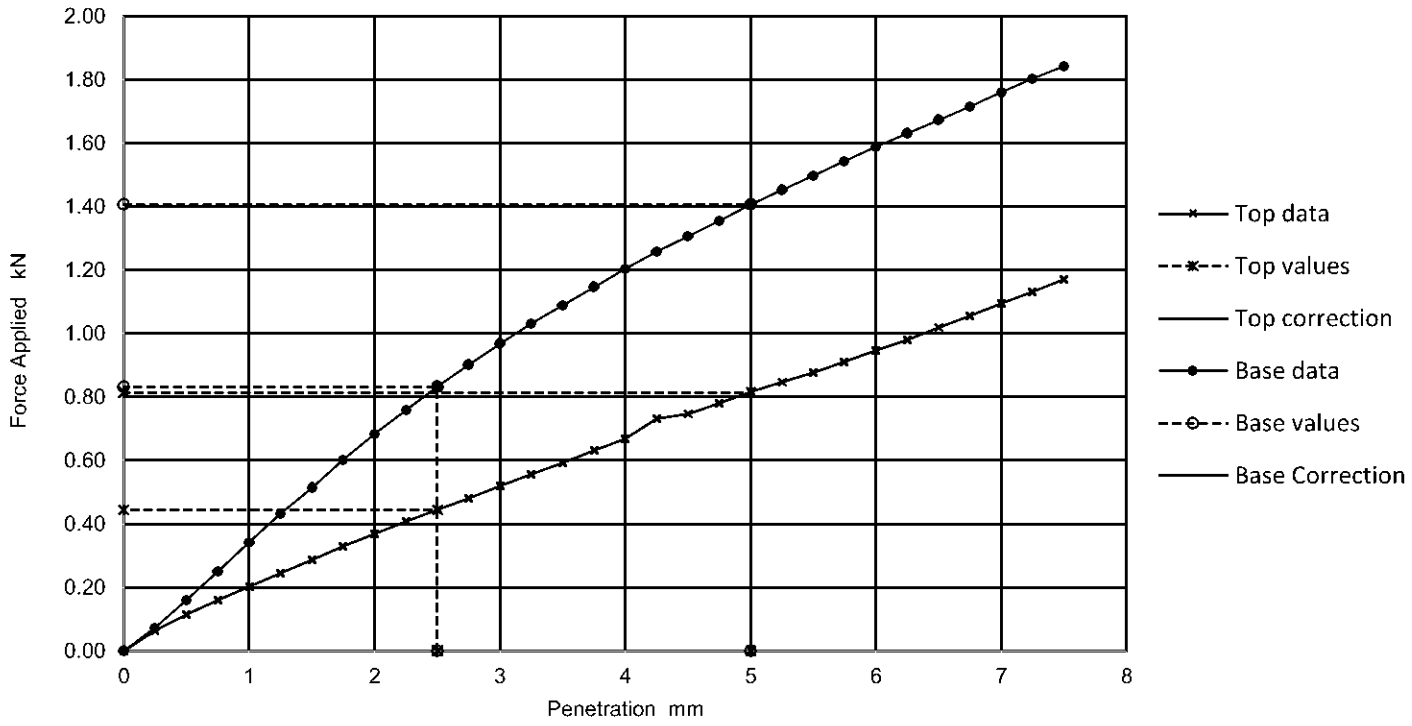
Laboratory Reference:	1523764	Depth Top [m]:	0.70
Hole No.:	CBR7	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Dark brown sandy CLAY		

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	0 %	Dry density after soaking	Mg/m3

Initial Specimen details	Bulk density	1.94	Mg/m3	Surcharge applied	8 kg
	Dry density	1.59	Mg/m3		4.8 kPa
	Moisture content	22	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	3.4	4.1	4.1		22
BASE	No	6.3	7.0	7.0		21

Remarks:

Test/ Specimen specific remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

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

Date Reported: 12/06/2020

GF 108.15

Appendix D – Soil Chemical Analysis Results

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Analytical Report Number : 20-12388

Project / Site name:	Spalding Road, Pinchbeck	**Samples received on:**	02/06/2020
Your job number:	19-2129.01	**Sample instructed/ Analysis started on:**	02/06/2020
Your order number:	DS54682	**Analysis completed by:**	09/06/2020
Report Issue Number:	1	**Report issued on:**	09/06/2020
Samples Analysed:	17 soil samples		

Signed:

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

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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.

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

Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524335	1524336	1524337	1524338	1524339
Sample Reference				DS101 (ES1)	DS102 (ES1)	DS103 (ES1)	DS104 (ES1)	DS105 (ES1)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.25	0.50	0.30
Date Sampled				01/06/2020	01/06/2020	01/06/2020	01/06/2020	01/06/2020
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	15	14	17	17
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	8.2	8.3	8.2	8.1
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	79	110	120	32	43
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.039	0.055	0.061	0.016	0.021
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	39.3	55.0	60.9	16.0	21.3
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	14	13	15	19
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	31	28	33	41
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	11	9.6	11	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	40	17	17	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	25	23	33	38
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57	59	51	65	71
Monoaromatics & Oxygenates								
Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524335	1524336	1524337	1524338	1524339
Sample Reference				DS101 (ES1)	DS102 (ES1)	DS103 (ES1)	DS104 (ES1)	DS105 (ES1)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.25	0.50	0.30
Date Sampled				01/06/2020	01/06/2020	01/06/2020	01/06/2020	01/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	2.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	9.9	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	82	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	< 10	62	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	95	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	66	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	61	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	74	< 10	< 10	< 10
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	120	< 10	< 10	< 10

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524340	1524341	1524342	1524343	1524344
Sample Reference				DS106 (ES1)	DS107 (ES1)	DS108 (ES1)	CBR3 (ES1)	CBR5 (ES1)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.30	0.60	0.70
Date Sampled				01/06/2020	01/06/2020	01/06/2020	01/06/2020	01/06/2020
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	10	14	16	19	14
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.3	8.2	8.0	7.6	7.9
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	21	230	65	30	74
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	0.11	0.033	0.015	0.037
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.7	113	32.5	14.9	37.0
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.25	1.3
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.24
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.44	1.9
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.40	1.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.28	0.88
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.21	0.63
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.63
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.55
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.70
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.33
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.45
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	1.58	9.25
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	13	13	15	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	27	30	29	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.2	13	11	16	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	20	22	39	51
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.6	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	24	25	22	21
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	53	60	66	65
Monoaromatics & Oxygenates								
Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524340	1524341	1524342	1524343	1524344
Sample Reference				DS106 (ES1)	DS107 (ES1)	DS108 (ES1)	CBR3 (ES1)	CBR5 (ES1)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.30	0.60	0.70
Date Sampled				01/06/2020	01/06/2020	01/06/2020	01/06/2020	01/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	2.2
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	22
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	31
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524345	1524346	1524347	1524348	1524349
Sample Reference				CBR7 (ES1)	STP1 (ES1)	STP1 (ES1)	DS101 (ESS1)	DS102 (ESS1)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	0.30	0.50	1.50	3.00
Date Sampled				01/06/2020	01/06/2020	01/06/2020	01/06/2020	01/06/2020
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	7.9	8.1	21	21
Total mass of sample received	kg	0.001	NONE	1.2	1.3	1.2	1.0	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9	8.1	8.1	8.7	8.7
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	-	0.038	0.058
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	45	1500	78	41	290
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023	0.74	0.039	0.021	0.14
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	22.5	737	39.1	20.7	144
Total Sulphur	%	0.005	MCERTS	-	-	-	0.013	0.107
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	0.30	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.75	4.2	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.17	1.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.7	15	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	1.5	14	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.3	9.6	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	1.0	7.3	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.9	9.7	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.66	6.0	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.1	9.3	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.71	4.9	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.22	1.2	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.82	5.1	-	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	11.8	87.4	-	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	14	15	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	< 0.2	-	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	20	22	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	11	26	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42	27	83	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.5	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	14	18	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	65	83	98	-	-
Monoaromatics & Oxygenates								
Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524345	1524346	1524347	1524348	1524349
Sample Reference				CBR7 (ES1)	STP1 (ES1)	STP1 (ES1)	DS101 (ESS1)	DS102 (ESS1)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	0.30	0.50	1.50	3.00
Date Sampled				01/06/2020	01/06/2020	01/06/2020	01/06/2020	01/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	-	-
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	5.4	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	65	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	29	180	-	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	18	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	36	250	-	-
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	18	-	-

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524350	1524351			
Sample Reference				DS106 (ESS1)	DS108 (ESS1)			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.60	1.00			
Date Sampled				01/06/2020	01/06/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	11	22			
Total mass of sample received	kg	0.001	NONE	1.0	1.0			
Asbestos in Soil	Type	N/A	ISO 17025	-	-			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.3	8.7			
Total Sulphate as SO_4	%	0.005	MCERTS	0.023	0.025			
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28	38			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.019			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.1	18.9			
Total Sulphur	%	0.005	MCERTS	0.011	0.011			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	-			
Acenaphthylene	mg/kg	0.05	MCERTS	-	-			
Acenaphthene	mg/kg	0.05	MCERTS	-	-			
Fluorene	mg/kg	0.05	MCERTS	-	-			
Phenanthrene	mg/kg	0.05	MCERTS	-	-			
Anthracene	mg/kg	0.05	MCERTS	-	-			
Fluoranthene	mg/kg	0.05	MCERTS	-	-			
Pyrene	mg/kg	0.05	MCERTS	-	-			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-			
Chrysene	mg/kg	0.05	MCERTS	-	-			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	-			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Monoaromatics & Oxygenates								
Benzene	mg/kg	0.001	MCERTS	-	-			
Toluene	mg/kg	0.001	MCERTS	-	-			
Ethylbenzene	mg/kg	0.001	MCERTS	-	-			
p & m-xylene	mg/kg	0.001	MCERTS	-	-			
o-xylene	mg/kg	0.001	MCERTS	-	-			
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	-	-			

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Analytical Report Number: 20-12388

Project / Site name: Spalding Road, Pinchbeck
Your Order No: DS54682

Lab Sample Number				1524350	1524351			
Sample Reference				DS106 (ESS1)	DS108 (ESS1)			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.60	1.00			
Date Sampled				01/06/2020	01/06/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-			
TPH-CWG - Aliphatic >EC35 - EC40	mg/kg	10	NONE	-	-			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-			
TPH (C35 - C40)	mg/kg	10	MCERTS	-	-			

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Analytical Report Number : 20-12388

Project / Site name: Spalding Road, Pinchbeck

* 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 *
1524335	DS101 (ES1)	None Supplied	0.30	Brown clay and loam with gravel and vegetation.
1524336	DS102 (ES1)	None Supplied	0.80	Brown clay and loam with gravel and vegetation.
1524337	DS103 (ES1)	None Supplied	0.25	Brown clay and loam with gravel and vegetation.
1524338	DS104 (ES1)	None Supplied	0.50	Brown clay and loam with gravel and vegetation.
1524339	DS105 (ES1)	None Supplied	0.30	Brown clay and loam with gravel and vegetation.
1524340	DS106 (ES1)	None Supplied	0.40	Brown clay and loam with gravel and vegetation.
1524341	DS107 (ES1)	None Supplied	0.50	Brown clay and loam with gravel and vegetation.
1524342	DS108 (ES1)	None Supplied	0.30	Brown clay and loam with gravel and vegetation.
1524343	CBR3 (ES1)	None Supplied	0.60	Brown clay and loam with gravel and vegetation.
1524344	CBR5 (ES1)	None Supplied	0.70	Brown clay and loam with gravel and vegetation.
1524345	CBR7 (ES1)	None Supplied	0.70	Brown clay and loam with gravel and vegetation.
1524346	STP1 (ES1)	None Supplied	0.30	Brown clay and loam with gravel and vegetation.
1524347	STP1 (ES1)	None Supplied	0.50	Brown clay and loam with gravel and vegetation.
1524348	DS101 (ESS1)	None Supplied	1.50	Brown clay and sand.
1524349	DS102 (ESS1)	None Supplied	3.00	Brown clay and sand.
1524350	DS106 (ESS1)	None Supplied	0.60	Brown clay and loam with gravel and vegetation.
1524351	DS108 (ESS1)	None Supplied	1.00	Brown clay and sand.

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Analytical Report Number : 20-12388

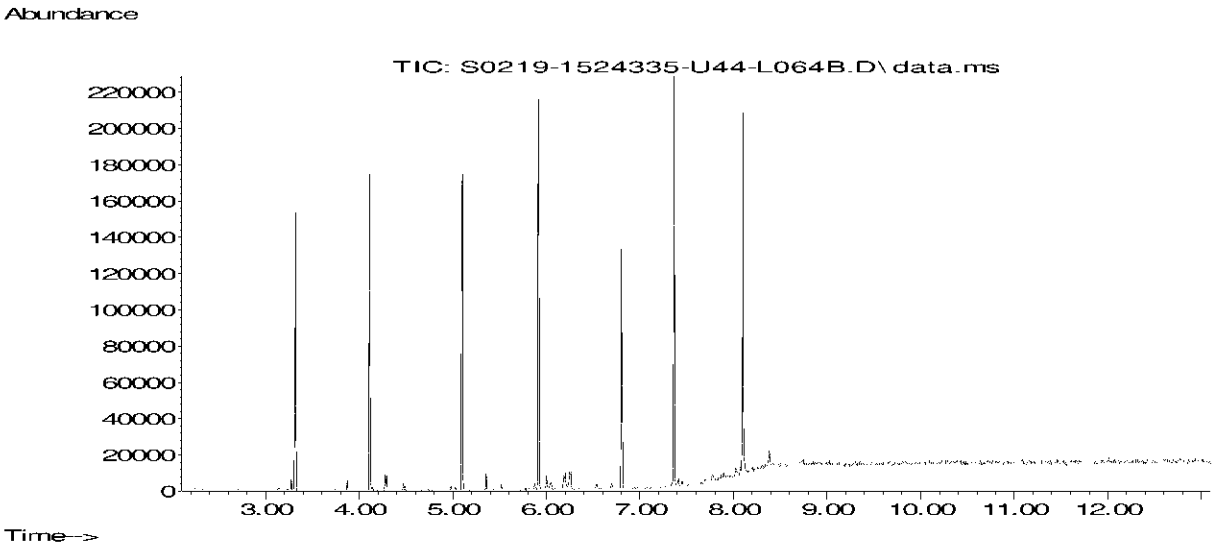
Project / Site name: Spalding Road, Pinchbeck

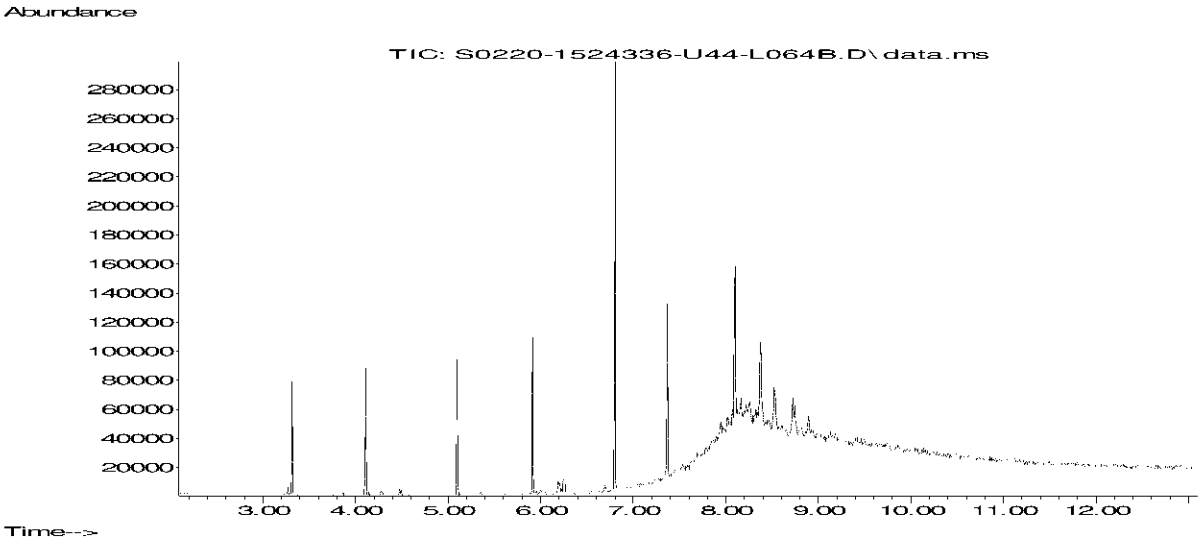
Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

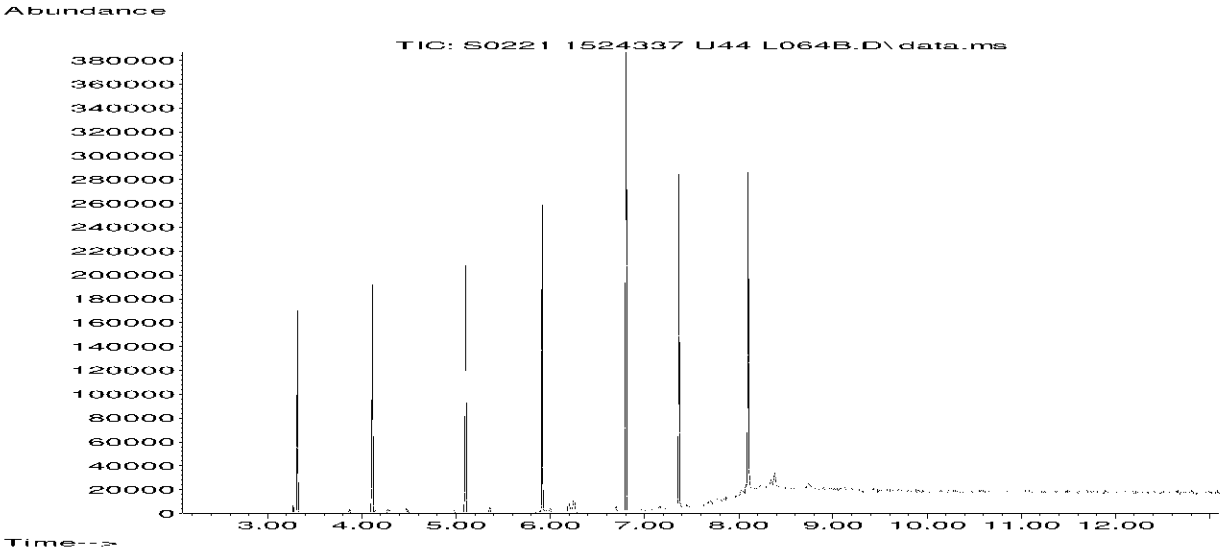
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	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 in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

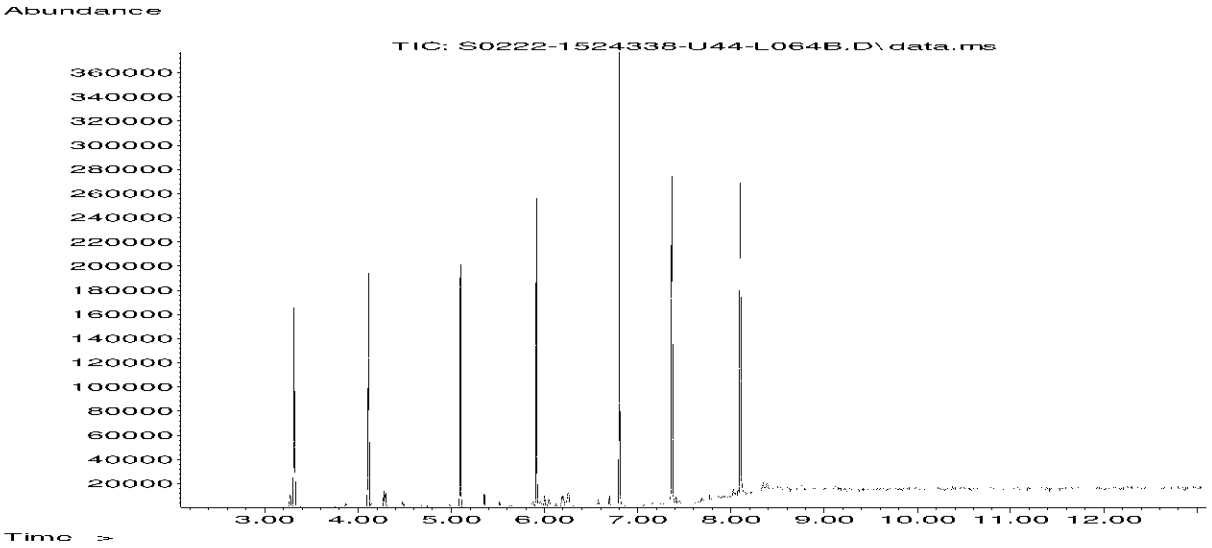
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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.

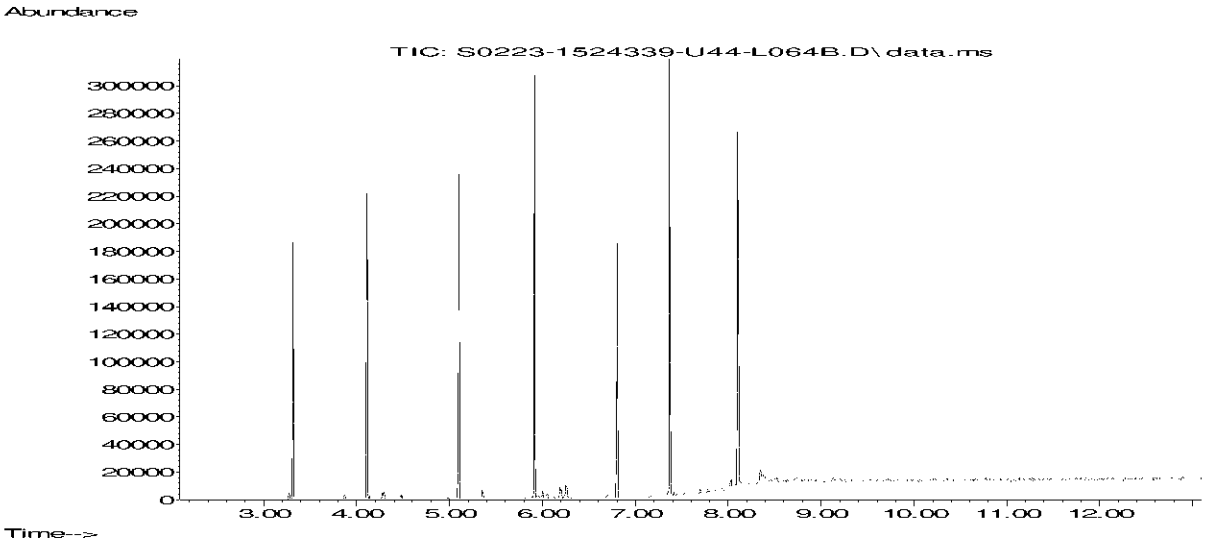
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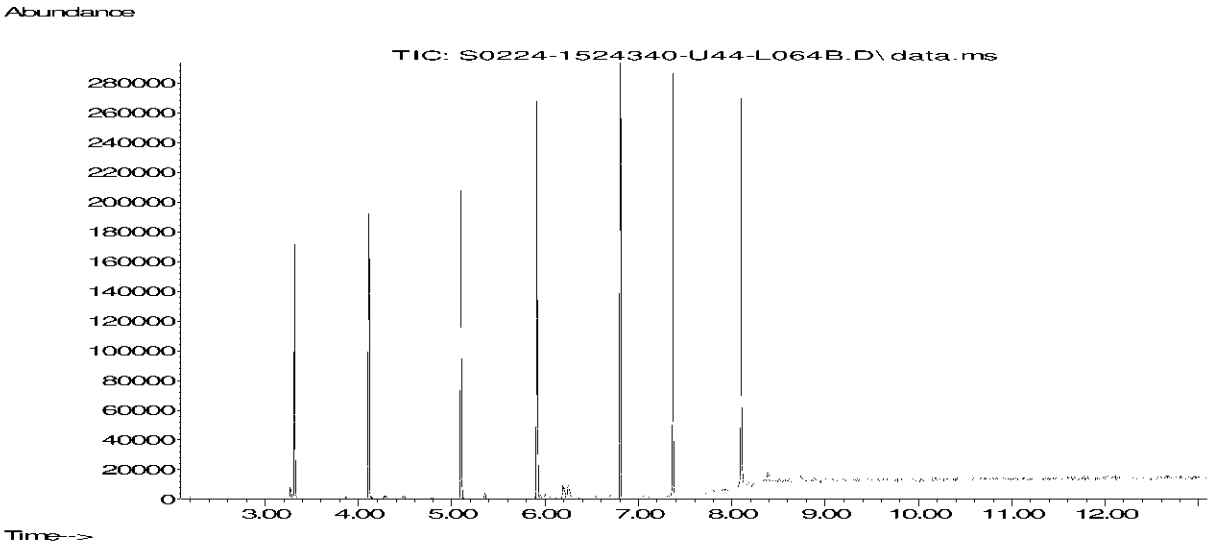

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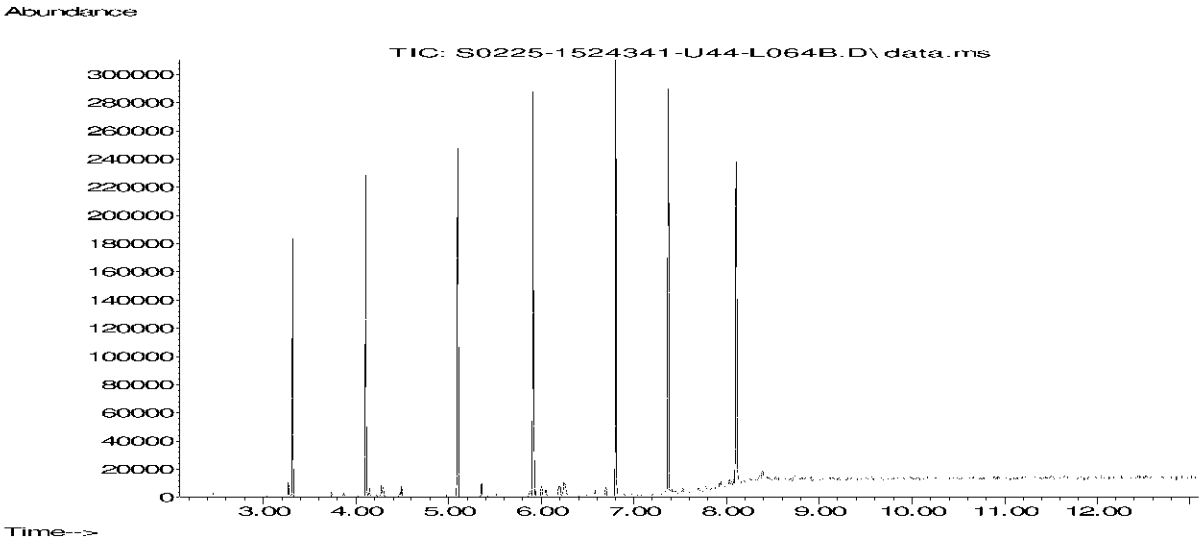

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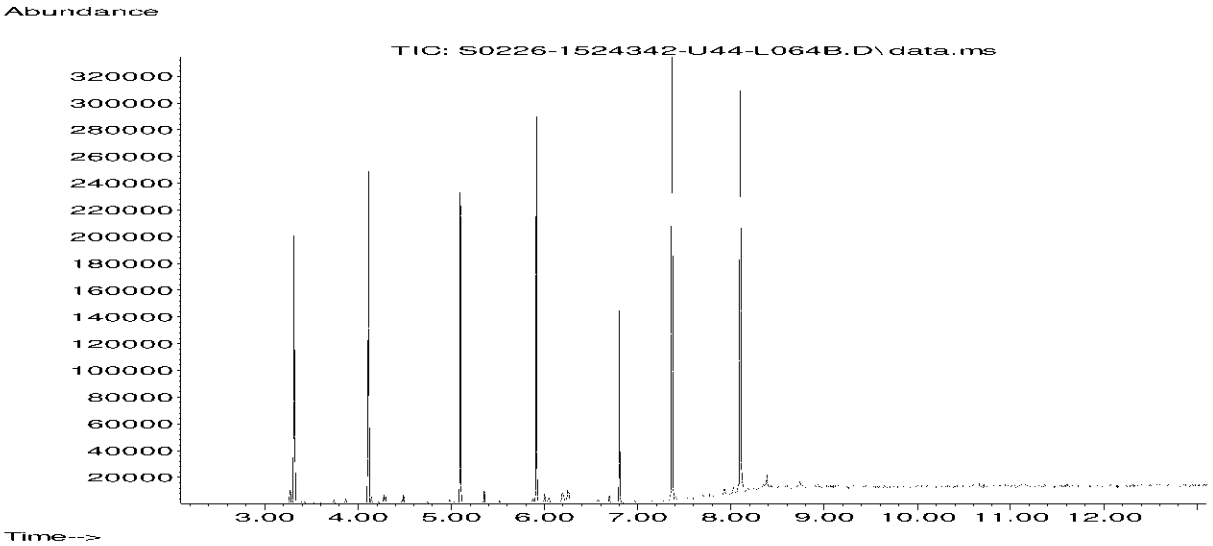

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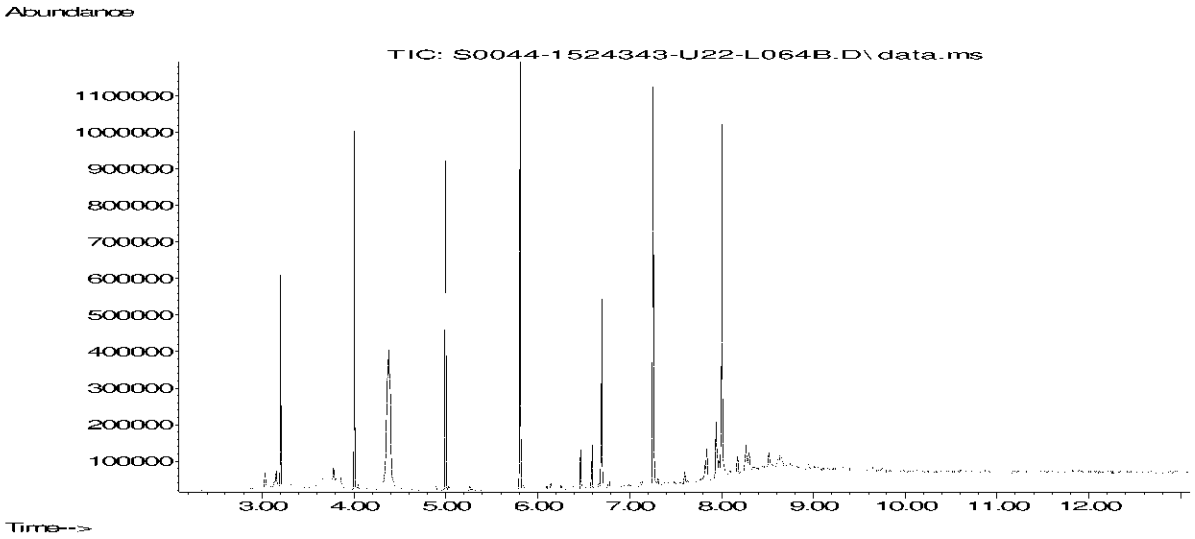

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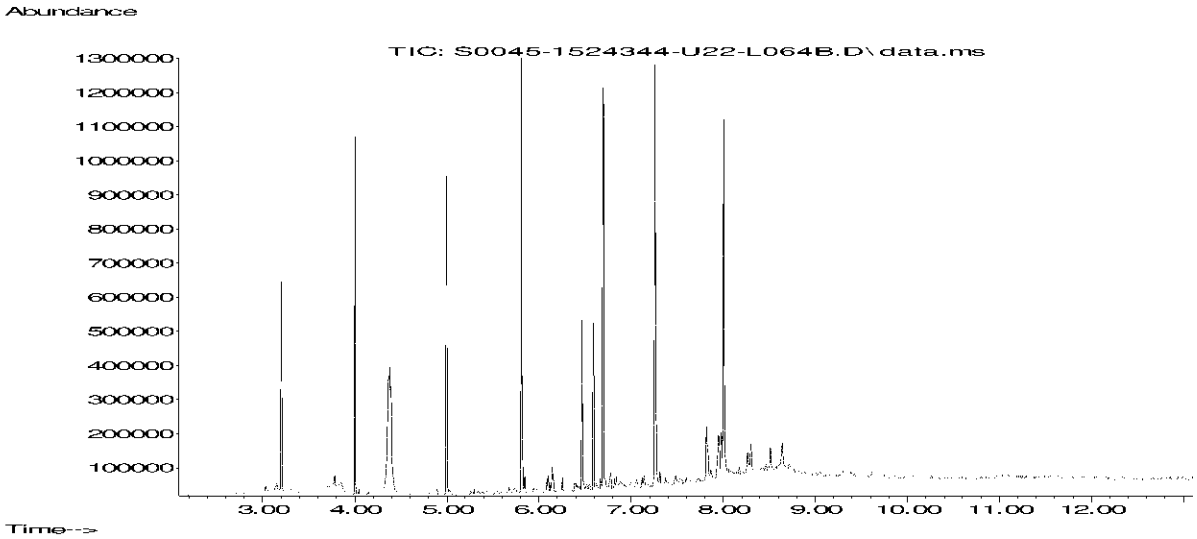

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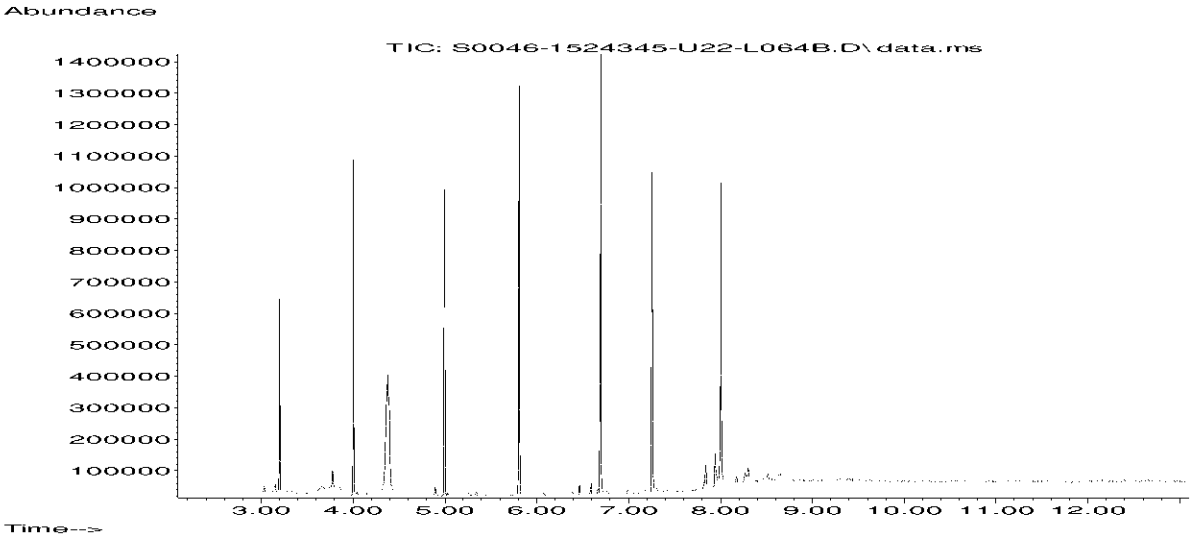

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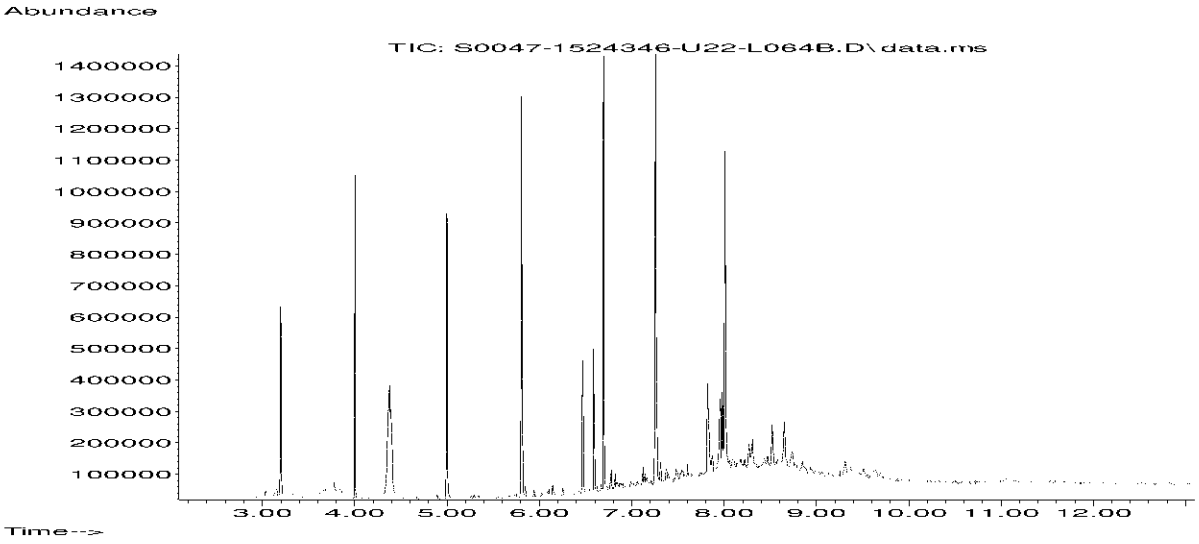

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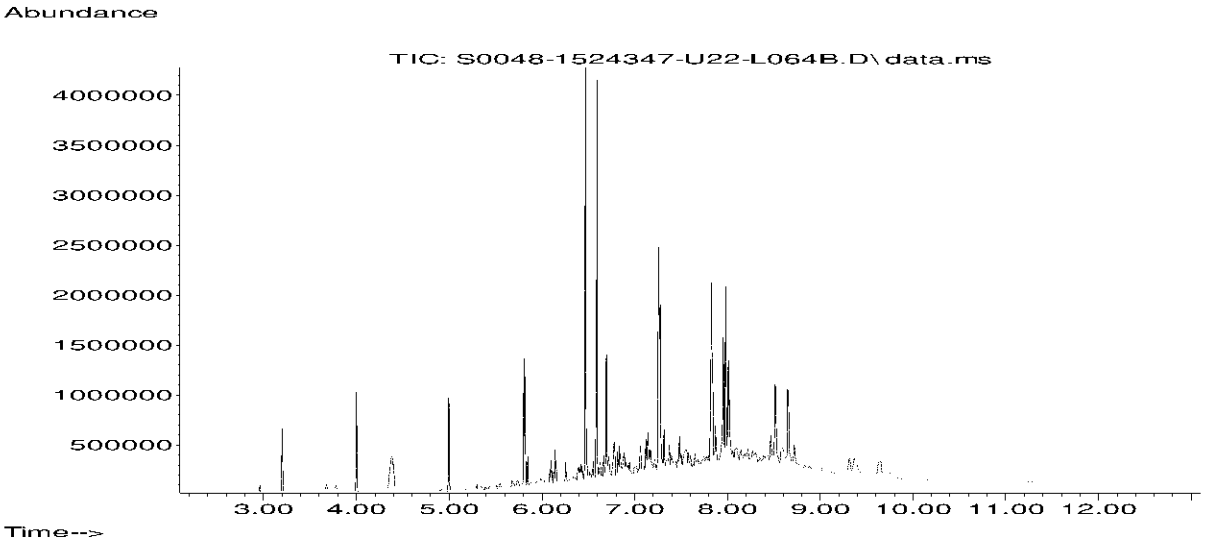

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12.00
Time-->

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Analytical Report Number : 20-12395

Project / Site name:	Spalding Road, Pinchbeck	**Samples received on:**	02/06/2020
Your job number:	19-2129.01	**Sample instructed/ Analysis started on:**	02/06/2020
Your order number:	DS54682	**Analysis completed by:**	09/06/2020
Report Issue Number:	1	**Report issued on:**	09/06/2020
Samples Analysed:	5 wac multi samples		

Signed:

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

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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.

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Waste Acceptance Criteria Analytical Results

Report No:	**20-12395**						
					Client:	**DELTASIM**	
Location	**Spalding Road, Pinchbeck**						
Lab Reference (Sample Number)	1524371				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	01/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	CBR3 (WAC1)						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	1.4				3%	5%	6%
Loss on Ignition (%) **	4.3				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.1				--	>6	--
Acid Neutralisation Capacity (mol / kg)	3.5				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		0.057	0.5	2	25
Barium *	0.023	0.019		0.19	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	0.0031		0.030	0.5	10	70
Copper *	0.015	0.049		0.47	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.0047	< 0.0030		0.027	0.5	10	30
Nickel *	0.0069	0.0051		0.052	0.4	10	40
Lead *	< 0.0050	0.0059		0.057	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0043	0.0151		0.14	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	15000	25000
Fluoride	5.0	3.6		37	10	150	500
Sulphate *	7.9	2.1		24	1000	20000	50000
TDS*	92	47		500	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	13	16		160	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	82						
Moisture (%)	18						
Stage 1							
Volume Eluate L2 (litres)	0.31						
Filtered Eluate VE1 (litres)	0.11						

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.
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Waste Acceptance Criteria Analytical Results

Report No:	**20-12395**						
					Client:	**DELTASIM**	
Location	**Spalding Road, Pinchbeck**						
Lab Reference (Sample Number)	1524372				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	01/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	CBR5 (WAC1)						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	1.4				3%	5%	6%
Loss on Ignition (%) **	4.0				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	3.8				100	--	--
pH (units)**	7.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.6				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.082	0.065		0.67	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	0.0020		0.018	0.5	10	70
Copper *	0.021	0.043		0.41	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.045	0.016		0.18	0.5	10	30
Nickel *	0.0071	0.0036		0.039	0.4	10	40
Lead *	< 0.0050	0.0062		0.060	0.5	10	50
Antimony *	< 0.0050	< 0.0050		0.024	0.06	0.7	5
Selenium *	< 0.010	< 0.010		0.062	0.1	0.5	7
Zinc *	0.0067	0.0220		0.21	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	15000	25000
Fluoride	4.3	3.1		33	10	150	500
Sulphate *	27	7.5		93	1000	20000	50000
TDS*	180	130		1300	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	48	20		230	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	84						
Moisture (%)	16						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.16						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**20-12395**						
					Client:	**DELTASIM**	
Location	**Spalding Road, Pinchbeck**						
Lab Reference (Sample Number)	1524373				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	01/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	CBR7 (WAC1)						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	1.5				3%	5%	6%
Loss on Ignition (%) **	3.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.2				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.92				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.040	0.023		0.25	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	0.0012		0.011	0.5	10	70
Copper *	0.014	0.045		0.41	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.011	0.0038		0.046	0.5	10	30
Nickel *	0.0053	0.0036		0.038	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.029	0.5	10	50
Antimony *	< 0.0050	< 0.0050		0.042	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0042	0.0175		0.16	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	15000	25000
Fluoride	2.8	1.8		19	10	150	500
Sulphate *	12	4.2		52	1000	20000	50000
TDS*	140	80		870	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	14	16		160	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	85						
Moisture (%)	15						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.21						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**20-12395**						
					Client:	**DELTASIM**	
Location	**Spalding Road, Pinchbeck**						
Lab Reference (Sample Number)	1524374				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	01/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	STP1 (WAC1)						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	1.7				3%	5%	6%
Loss on Ignition (%) **	4.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	4.6				100	--	--
pH (units)**	7.4				--	>6	--
Acid Neutralisation Capacity (mol / kg)	4.7				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.080	0.027		0.34	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	0.0011		0.010	0.5	10	70
Copper *	0.011	0.030		0.27	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.012	0.0062		0.070	0.5	10	30
Nickel *	0.0034	0.0024		0.025	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.038	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		0.045	0.1	0.5	7
Zinc *	0.015	0.0131		0.13	4	50	200
Chloride *	4.4	< 4.0		< 15	800	15000	25000
Fluoride	1.0	0.66		7.1	10	150	500
Sulphate *	400	32		810	1000	20000	50000
TDS*	560	150		2000	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	16	16		160	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.0						
Dry Matter (%)	94						
Moisture (%)	6.5						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.23						

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Waste Acceptance Criteria Analytical Results

Report No:	**20-12395**						
					Client:	**DELTASIM**	
Location	**Spalding Road, Pinchbeck**						
Lab Reference (Sample Number)	1524375				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	01/06/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	STP2 (WAC1)						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	1.4				3%	5%	6%
Loss on Ignition (%) **	3.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	66				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.2				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		0.061	0.5	2	25
Barium *	0.026	0.015		0.17	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0012	0.0013		0.013	0.5	10	70
Copper *	0.017	0.036		0.33	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.012	0.0040		0.052	0.5	10	30
Nickel *	0.0049	0.0026		0.030	0.4	10	40
Lead *	< 0.0050	0.0052		0.048	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0050	0.0146		0.13	4	50	200
Chloride *	4.9	< 4.0		18	800	15000	25000
Fluoride	3.1	2.1		23	10	150	500
Sulphate *	10	2.9		40	1000	20000	50000
TDS*	150	79		900	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	15	15		150	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.0						
Dry Matter (%)	94						
Moisture (%)	5.8						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.27						

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 discrepencies with current legislation ** = MCERTS accrediited

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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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 20-12395

Project / Site name: Spalding Road, Pinchbeck

* 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 *
1524371	CBR3 (WAC1)	None Supplied	0.60	Brown clay and loam with gravel and vegetation.
1524372	CBR5 (WAC1)	None Supplied	0.70	Brown clay and loam with gravel and vegetation.
1524373	CBR7 (WAC1)	None Supplied	0.70	Brown clay and loam with gravel and vegetation.
1524374	STP1 (WAC1)	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
1524375	STP2 (WAC1)	None Supplied	0.50	Brown loam and clay with gravel and vegetation.

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

Analytical Report Number : 20-12395

Project / Site name: Spalding Road, Pinchbeck

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 an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-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 WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
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 in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
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	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 in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS

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Analytical Report Number : 20-12395

Project / Site name: Spalding Road, Pinchbeck

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

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.

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

Appendix E – Groundwater Chemical Analysis Results

Sian Silcock
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Nottingham
NG1 6BJ

e: sian.silcock@deltasimons.com

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WD18 8YS

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e: reception@i2analytical.com

Analytical Report Number : 20-13708

Project / Site name:	Spalding Rd, Pinchbeck	**Samples received on:**	11/06/2020
Your job number:	19-2129.01	**Sample instructed/ Analysis started on:**	11/06/2020
Your order number:	DS54905	**Analysis completed by:**	Not complete
Report Issue Number:	1	**Report issued on:**	18/06/2020
Samples Analysed:	5 water samples		

Signed:

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.

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

Analytical Report Number: 20-13708

Project / Site name: Spalding Rd, Pinchbeck

Your Order No: DS54905

Lab Sample Number				1531366	1531367	1531368	1531369	1531370
Sample Reference				DS101	DS103	DS107	DS104	DS106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/06/2020	10/06/2020	10/06/2020	10/06/2020	10/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.6	7.2	7.4	7.5	7.4
Sulphate as SO_4	µg/l	45	ISO 17025	110000	172000	246000	46500	29800
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.40	0.79	0.31	2.86	3.10
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	0.6	< 0.5	1.0	1.0	1.0
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	0.8	0.6	1.0	0.7	0.9
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.0	1.0	2.8	1.6	1.0

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

Analytical Report Number: 20-13708

Project / Site name: Spalding Rd, Pinchbeck

Your Order No: DS54905

Lab Sample Number				1531366	1531367	1531368	1531369	1531370
Sample Reference				DS101	DS103	DS107	DS104	DS106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/06/2020	10/06/2020	10/06/2020	10/06/2020	10/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C10 - C12	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C35	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aliphatic >C10 - C35	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C10 - C12	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C12 - C16	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C16 - C21	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C10 - C35	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 20-13708

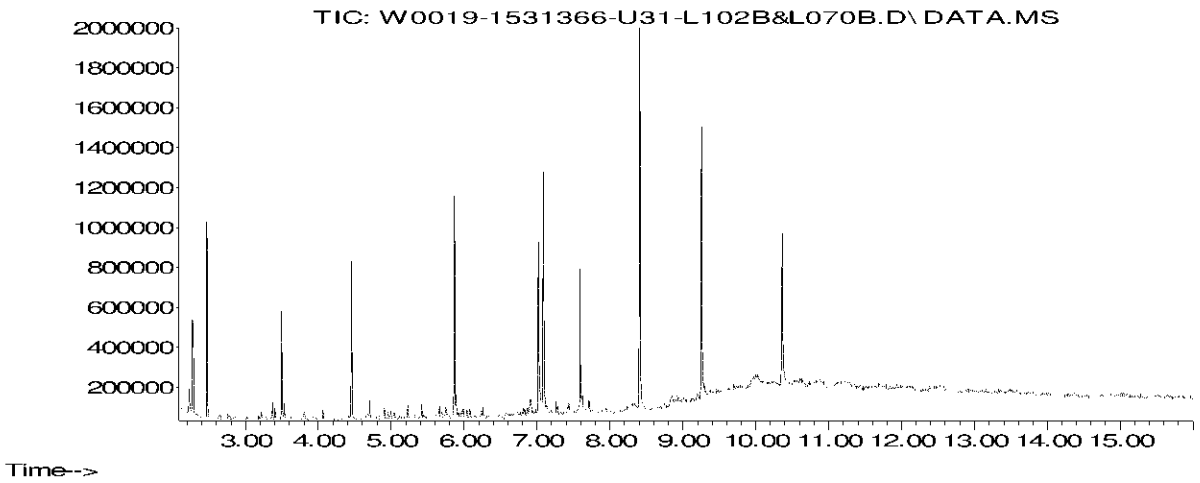
Project / Site name: Spalding Rd, Pinchbeck

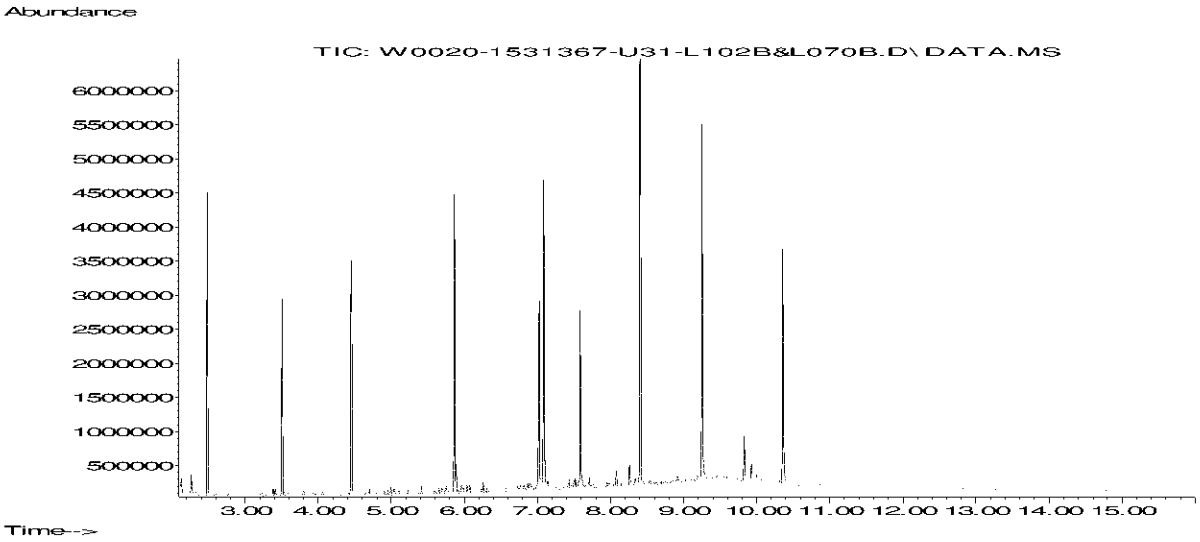
Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

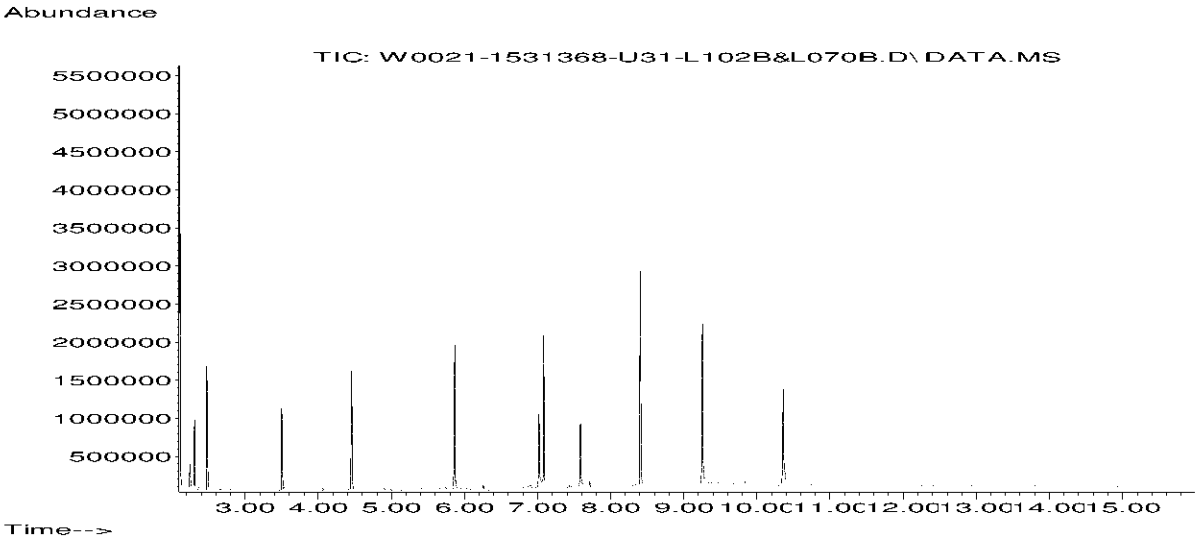
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TPH C10-C35 by GCxGC-FID	Determination of total petroleum hydrocarbons in water by GC x GC FID with carbon banding aliphatic and aromatic C10-C35. Accredited Matrices SW,GW,PW.	In-house method	L101B-PL	W	ISO 17025
TPH Chromatogram in Water	TPH Chromatogram in Water.	In-house method	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025

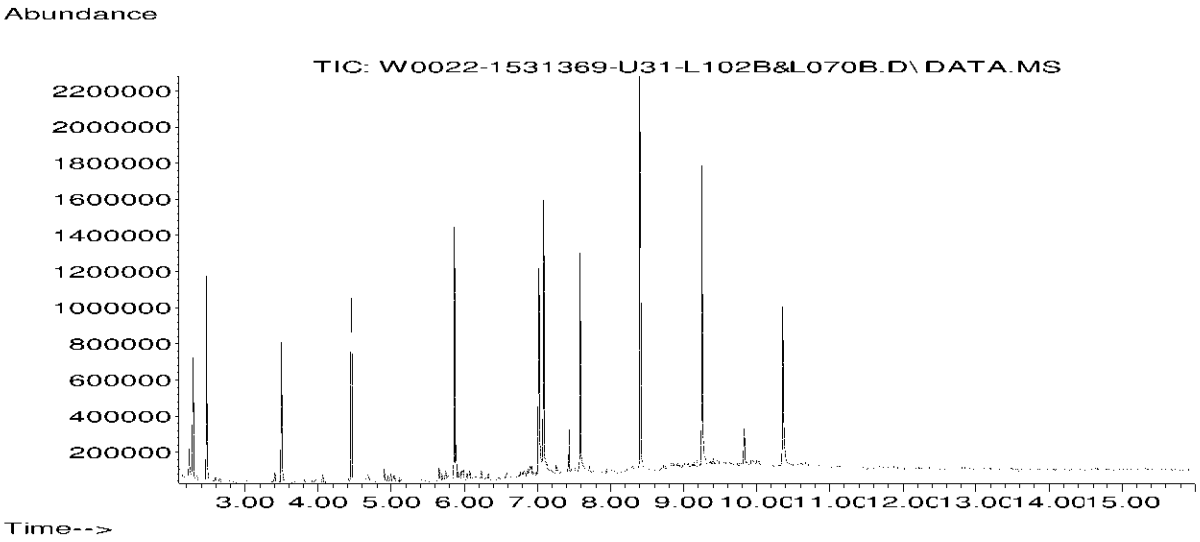
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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.

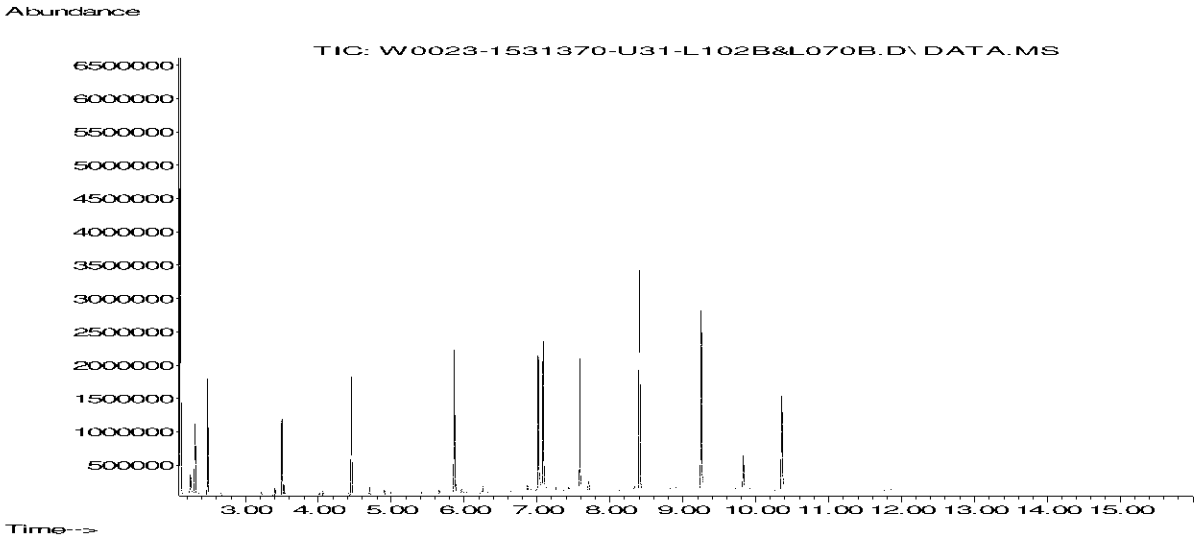
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Abundance
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1600000
1400000
1200000
1000000
800000
600000
400000
200000
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
Time-->


Abundance
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4000000
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3000000
2500000
2000000
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5.00
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9.00
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14.00
15.00
Time-->


Abundance
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Time-->


Abundance
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800000
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Time-->


Abundance
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4500000
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3000000
2500000
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3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
Time-->

Appendix F – Field Monitoring Data/Gas Monitoring Data

Site Name	Spalding Road, Pinchbeck	Job number	19-2129.01
Client	GEDA	Recorded by	SS
Date (DD/MM/YYYY)	10/06/2020		
Gas Analyser	GFM436 (Gas Kit 2-GSOU-NOT) - 12788	Visit Number	1
Readings at start	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	H_2S (ppm)
General comments				

WEATHER	Start	End
Time	10:49	13:01
Weather (dry/rain/snow/ice)	Rain	Rain
Pressure (mb)	1016.00	1015.00
Risking/Falling Trend	Rising	
Wind Speed (m/s)	2.00	7.00
Wind Dir. (From)	S	SSE
Temperature °C	12	14
SWL Measured from		

Ref	GROUND GAS													GROUNDWATER			Notes
	Flow		CH_4		CO_2		O_2		H_2S	CO	VOC	Differential (Relative) Pressure	Atmos. Pressure	Depth to free product	Depth to water	Depth to base	(e.g. water colour, sheen, odour, damage to well or gas tap, flooded ground etc.) $ For **Depth to water** state **Depth to water or Dry or NR (= Not Recorded - provide reason if monitoring was intended)** # For Depth to Product state **ND (= Not detected - product looked for but absent) or NR (= Not Recorded - instrument used unable to detect product)**
	l/hr		% v/v		% v/v		% v/v		ppm			mb	mb	m	m	m	
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max						
	The formulae require that only numbers, "<0.1" for ground gas and flow or "DRY" for groundwater are entered in the sheet																
DS101	<0.1	<0.1	<0.1	<0.1	0.3	0.3	20.3	20.3	0.0	0.0	67.1	0.0	1014	NR	1.62	2.52	
DS103	<0.1	<0.1	<0.1	<0.1	0.9	0.9	20.0	20.1	0.0	0.0	90.8	0.0	1014	NR	1.65	2.24	
DS104	<0.1	<0.1	<0.1	<0.1	0.5	0.5	20.4	20.4	0.0	0.0	18.5	0.0	1014	NR	1.62	2.33	
DS106	<0.1	<0.1	<0.1	<0.1	2.1	2.1	19.4	19.4	0.0	0.0	0.0	0.0	1014	NR	1.57	2.24	
DS107	<0.1	<0.1	<0.1	<0.1	1.0	1.0	19.7	19.7	0.0	0.0	0.0	0.0	1013	NR	1.76	2.45	

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Site Name	Spalding Road, Pinchbeck									Job number	19-2129.01	WEATHER	Start	End
												Time	10:15	11:00
Client	GEDA									Recorded by	GT	Weather (dry/rain/snow/ice)	Dry	Dry
												Pressure (mb)	1013.00	1012.00
Date (DD/MM/YYYY)	17/06/2020											Risking/Falling Trend	Rising	
Gas Analyser	GFM435 (Gas Kit 5-GCEN-LIN) - 12233									Visit Number	2	Wind Speed (m/s)	4.00	4.00
Readings at start	CH_4 (% v/v)	<0.1	CO_2 (% v/v)	<0.1	O_2 (% v/v)	20.0	H_2S (ppm)	0				Wind Dir. (From)	ENE	ENE
General comments												Temperature °C	14.00	
												SWL Measured from		

Ref	GROUND GAS													GROUNDWATER			Notes
	Flow		CH_4		CO_2		O_2		H_2S	CO	VOC	Differential (Relative) Pressure	Atmos. Pressure	Depth to free product	Depth to water	Depth to base	(e.g. water colour, sheen, odour, damage to well or gas tap, flooded ground etc.) $ For **Depth to water** state **Depth to water or Dry or NR (= Not Recorded - provide reason if monitoring was intended)** # For Depth to Product state **ND (= Not detected - product looked for but absent) or NR (= Not Recorded - instrument used unable to detect product)**
	l/hr		% v/v		% v/v		% v/v		ppm			mb	mb	m	m	m	
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max						
	The formulae require that only numbers, "<0.1" for ground gas and flow or "DRY" for groundwater are entered in the sheet																
DS101	<0.1	<0.1	<0.1	<0.1	0.4	0.4	17.2	17.2	0	0	NR	-2.0	1013	NR	NR	NR	Unable to remove bung.
DS103	0.1	<0.1	<0.1	<0.1	0.9	0.9	19.0	19.0	0	0	NR	-2.0	1012	NR	1.60	2.14	
DS104	<0.1	<0.1	<0.1	<0.1	0.5	0.5	19.5	19.5	0	0	NR	-2.0	1012	NR	1.55	2.36	
DS106	0.1	<0.1	<0.1	<0.1	0.6	0.4	19.6	19.6	0	0	NR	0.0	1012	NR	1.50	2.18	
DS107	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Well destroyed.

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Site Name	Spalding Road, Pinchbeck	Job number	19-2129.01	WEATHER	Start	End
				Time	11:10	
Client	GEDA	Recorded by	SS	Weather (dry/rain/snow/ice)	Dry	
				Pressure (mb)	1021.00	
Date (DD/MM/YYYY)	24/06/2020			Risking/Falling Trend	Rising	
Gas Analyser	GFM436 (Gas Kit 2-GSOU-NOT) - 12788	Visit Number	3	Wind Speed (m/s)	7.00	
Readings at start	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	H_2S (ppm)	Wind Dir. (From)	SE
General comments					Temperature °C	25.00
					SWL Measured from	

Ref	GROUND GAS													GROUNDWATER			Notes
	Flow		CH_4		CO_2		O_2		H_2S	CO	VOC	Differential (Relative) Pressure	Atmos. Pressure	Depth to free product	Depth to water	Depth to base	(e.g. water colour, sheen, odour, damage to well or gas tap, flooded ground etc.) $ For **Depth to water** state **Depth to water or Dry or NR (= Not Recorded - provide reason if monitoring was intended)** # For Depth to Product state **ND (= Not detected - product looked for but absent) or NR (= Not Recorded - instrument used unable to detect product)**
	l/hr		% v/v		% v/v		% v/v		ppm			mb	mb	m	m	m	
	Max	Steady	Max	Steady	Max	Steady	Min	Steady	Max	Max	Max						
	The formulae require that only numbers, "<0.1" for ground gas and flow or "DRY" for groundwater are entered in the sheet																
DS101	<0.1	<0.1	<0.1	<0.1	0.5	0.5	15.1	15.1	0.0	0.0	0.0	0.0	1020	NR	NR	NR	Unable to remove bung
DS103	<0.1	<0.1	<0.1	<0.1	0.9	0.9	19.0	19.0	0.0	0.0	0.0	0.0	1020	NR	1.46	2.17	
DS104	<0.1	<0.1	<0.1	<0.1	0.5	0.5	20.4	20.4	0.0	0.0	0.0	0.0	1021	NR	1.41	2.35	
DS106	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	1.41	2.20	Bung doesn't fit pipe
DS107	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Well destroyed

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