

GEOTECHNICAL INTERPRETIVE REPORT

TKRE, Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating FEED

REFERENCE: 30003364-MSE-XX-XX-RP-Y-10118 _GEOTECHNICAL INTERPRETIVE REPORT

National Grid Number: PDD-100116-REP-073

Prepared for:

National Grid

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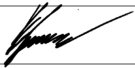
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1. Introduction

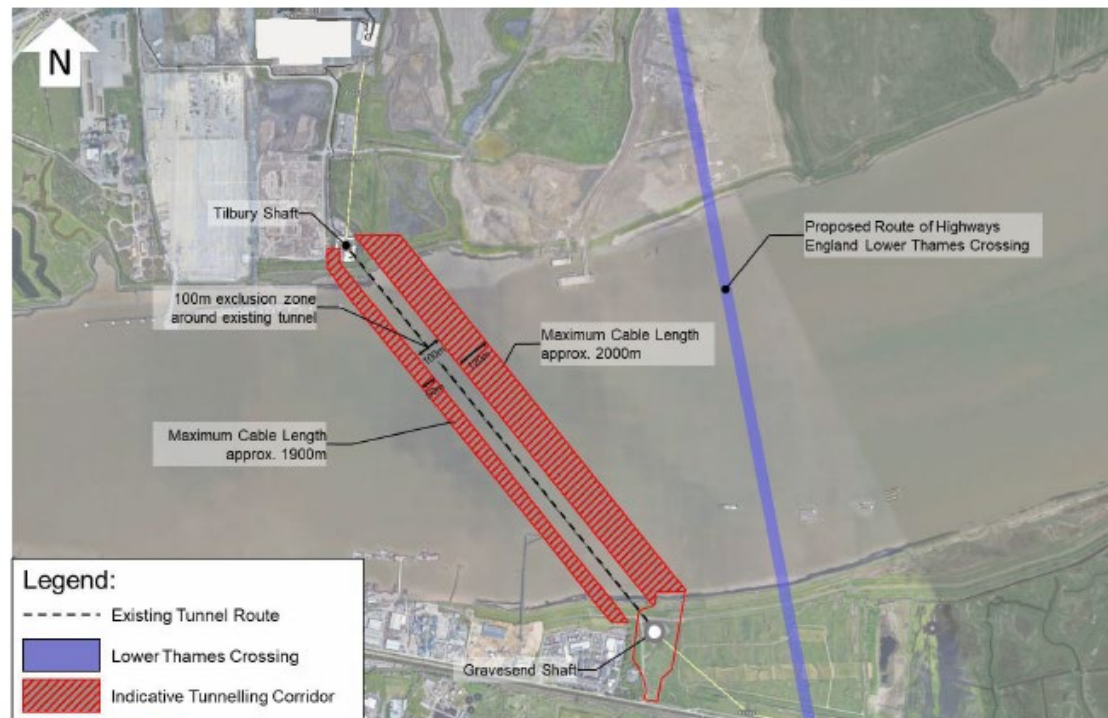
The existing National Grid Grain-Tilbury and Kingsnorth-Tilbury 400kV circuits are forecast to become significantly overloaded in their current capacity and therefore require uprating. The circuits are predominantly overhead line, with cabled sections installed within a deep tunnel crossing the River Thames.

BakerHicks has been appointed to undertake the Front-End Engineering Design (FEED) of the TKRE, Grain-Tilbury and Kingsnorth-Tilbury 400kV uprating scheme and associated works, which will support the development of the project at TP500 stage 4.3.

The Front-End Engineering design (FEED) study for uprating of the Grain-Tilbury and Kingsnorth-Tilbury 400kV circuits involves:

- Installation of 400kV cables within a new tunnel connection under the river Thames to match the required 3325MVA maximum rating
- Uprating of 400kV 4TK Grain-Tilbury and 4VG Kingsnorth-Tilbury overhead lines including downloads by reconductoring of the existing 4 x 400 ACSR (2780MVA) OHL sections of the Tilbury-Grain/Tilbury-Kingsnorth circuits (A784/A785) to make the entire route 3 x AAAC (3820MVA)
- Uprating of substation bays at Grain, Kingsnorth and Tilbury substations

Figure 1. Proposed Tunnel Location



2. Scope of Report

This report has been prepared as a Geotechnical Interpretative Report (GIR) to identify the project specific ground conditions that will be encountered during site establishment, shaft construction, tunnel excavation and the construction of the headhouses and sealing end compound.

This report is based on the land and over water intrusive investigations, on land topographic survey, bathymetric survey and bottom profiling within the river channel.

For this revision the land based investigations at Tilbury have been completed and are incorporated.

3. Sources of Information

3.1. *Ground Information*

- Geological Survey of England and Wales 1:50,000 geological map series. Sheet 271, South London. Solid & Drift Edition 1998.
- Cable tunnel section and boreholes March 1951
- F2/1423 Ground Engineering Limited 1962. Site Investigation at Tilbury Boreholes 40 and 43
- F2/1423 Ground Engineering Limited 1962. Site Investigation at Tilbury Boreholes 44 and 45
- DGSHSCC/F12534 Norwest Holst Soil Engineering Ltd 2002. Report on a Ground Investigation at Tilbury Coal Jetty Terminal
- P1223, 2004. CJA Associates Site Investigation No. P1223 Factual Report Tilbury Power Station Essex.
- BGS Report No: GR_035037_1 GeoReports Desktop, 2005, GeoReports Geological Assessment Detailed.
- ENV_085_2006, 2006. Environment Report Application Site Report - Tilbury B Power Station March 2006.
- LSTC/05/GI101, November 2007 LSTC. Ground Investigation - Geotechnical, Tilbury 400kV GIS.
- 2007. Halcrow Group Tilbury Geotechnical Desk Study Report Final.
- 2007. Halcrow April 2007 Tilbury C power station preliminary contamination appraisal.
- G7090, 2007. Soil Mechanics Report No G7090 Tilbury Power Station - HFO Tank Sampling Factual Report on Ground Investigation (see 2015 reports and permit surrender proposals)
- GMCX0140, May 2008. Factual Report on Ground Investigation for RWE Npower plc Tilbury Power Station.
- 2009. Tilbury Pond Ground Investigation Information.

- 560160 August 2011. Babcock. Interpretative Report on Ground Investigation at Tilbury Diversion PP4 and PAB2.
- 727189 September 2012. Halcrow & Structural Soils Factual Report on Ground Contamination Study at Tilbury Power Station.
- Halcrow September 2012. Phase 2 Geoenvironmental Interpretative Report Tilbury Power Station coal stock yard.
- 560926 2013 Structural Soils Interpretative Report on Ground Investigation at Tilbury Biomass Phase 2 Project June 2013
- P3744-13-R1-C, July 2013. Zetica GroundCheck survey.
- TIB-TAR-3601-DRT01 June 2014 Vertase FLI. Derivation of remedial targets. Tilbury Power Station, Tilbury A Remediation Works.
- TIB-TAR-3601-CCR01 December 2014 Vertase FLI. Contract Completion Report. Tilbury A Power Station.
- TIB-TAR-3601-CCR01 December 2014 EA acceptance letter
- 150922 R JER6376 Tilbury Land Sale Summary (Final).
- 150826 R JER6376 JG August 2015 Tilbury - Phase 1 CLA (FINAL). Phase 1 Contaminated Land Assessment.
- 150826 R JER6376 JE August 2015 Tilbury Factual GI Report (FINAL).
- 150826 JER6376 JG August 2015 Tilbury Ground Investigation Interpretative Report (FINAL).
- HE540039-PCI-GEN-GEN-REP-GEO-00047, November 2020, Lower Thames Crossing, Phase 2A Ground Investigation Package E – Factual Report
- F223717-REP-002 Fugro, June 2023, TKRE, Tilbury and Gravesend Over-Water Investigation, Report on Ground Investigation without Geotechnical Evaluation | Tilbury, UK
- D2064-22/B, SOCOTEC, June 2023, TKRE Grain-Tilbury and Kingsnorth Tilbury 400kv uprating feed, Ground Investigation Report (factual account of fieldwork, monitoring and laboratory testing)
- D2064-22/B, SOCOTEC, June 2023, TKRE Grain-Tilbury and Kingsnorth Gravesend 400kv uprating feed, Ground Investigation Report (factual account of fieldwork, monitoring and laboratory testing)

3.2. *Sources of data*

- BGS website – Historical boreholes, geology and hydrogeology information from the GeoIndex Onshore Online Maps: <http://www.bgs.ac.uk/>;
- Flood Map for Planning – Interactive Flood Map: <https://www.gov.uk/check-long-term-flood-risk>
- Zetica Limited (Ltd.) website – Unexploded Bomb Risk Information: <http://www.zetica.com/index.htm>;
- Unexploded Risk Map presented in Appendix B.
- National Library of Scotland – Historical Maps: <http://maps.nls.uk/>; – Refer to Envirocheck report for historic maps (Appendix D)
- Envirocheck Report (Appendix D)

- Thames Cable Tunnel, 7243, C.K. Haswell, Proceedings of the Institution of Civil Engineers, 1970

3.3. Drawings

- 400kV Sealing End Compound Tilbury Site Survey Tilbury Tunnel (002) by Centara
- Tilbury – Gravesend Cable Tunnel General Layout of Tunnel and Shafts (002) – by Centara
- Tilbury – Gravesend Cable Tunnel – Longitudinal Section of Tunnel and Geological Data (003)

3.4. References and Standards

- BS 5930: 2015 Code of Practice for Ground Investigations
- BS EN 14688-1: 2018 Identification and classification of soil. Identification and description
- BS EN 14688-2: 2018 Identification and classification of soil. Principles for a classification
- BS EN 14689: 2018 Identification, description and classification of rock. Identification and description
- BS EN 1997-1:2004+A1:2013 Eurocode 7 – Geotechnical Design – Part 1: General rules
- BS EN 1997-2:2007 Eurocode 7 – Geotechnical Design – Part 2: Ground investigation and testing
- CLR 11 Environmental Agency. (2004). Model Procedures for the management of land contamination - CLR 11. Environmental Agency.
- CIRIA C574 Engineering in Chalk
- CIRIA C681 Unexploded ordnance (UXO) A guide for the construction industry.
-

Supporting information is provided in the Appendices as listed in Table 1 below.

Table 1. List of Appendices

Information	Appendix
Geotechnical Charts	Appendix A
Drawings	Appendix B
Groundwater GQRA Screening	Appendix C

3.1. Limitations

No ground investigation can be completely exhaustive and there may be activities or events that have occurred at the site which have not been identified by this report. As the investigations are undertaken at discrete points, ground conditions between test locations can only be inferred and localised conditions may vary between point locations, therefore conditions may be encountered that were not identified during the investigations.

The data presented in this report is based on the ground conditions encountered during site work, fieldwork and laboratory testing conducted by others. MSES is responsible for selecting and summarising the data supplied by the client or other

parties but cannot be held responsible for any mistakes or inaccuracies or the completeness of third-party data on which it has relied.

4. Site Information

4.1. Site Location

The TKRE Tunnel Route is required between the proposed location for the New Tilbury Cable Sealing End Compound (CSEC) and Gravesend Cable Sealing End Compound (CSEC). Potential options for the shaft locations and tunnel route are shown in the following documents.

- PDD-100116-REP-011 / 30003364-MSE-XX-XX-RP-Y-10010 Options Appraisal and Sift Report
- PDD-100116-REP-036 / 30003364-MSE-XX-XX-RP-Y-10015 Conceptual Geotechnical Interpretative Report
- PDD-100116-LAY-145 / 30003364-MSE-XX-XX-DR-Y-10067 Plan and Profile – Tunnel Alignment

A summary of the general site information is presented in Table 2 below.

Table 2. Location Information

Location information	New Tilbury CSEC	Gravesend CSEC
Grid Reference, X (Easting) , Y (Northing)	566298, 175876	567436, 174136
Address (near):	RM18 8UL	DA12 2HN

A Geotechnical and Geoenvironmental Desk Study PDD-100116-REP-001/30003364-MSE-XX-XX-RP-Y-10000 was prepared by MSES on 06 October 2022 and should be read in conjunction with this report. The Desk Study includes a preliminary ground model, conceptual site model.

A summary of the Desk Study information is presented in Table 3.

Table 3. Desk Study Summary

Site Address	New Tilbury CSEC: RM18 8UL Gravesend CSEC: DA12 2HN
Site Area	New Tilbury CSEC: Land to the north and east of the current Tilbury sealing end compound. Gravesend CSEC: National Grid land to the south and Milton Rifle Range land to the east of the current Gravesend substation.
Coordinates X (Easting) , Y (Northing)	New Tilbury CSEC: 566334, 179140 566341, 175862 566298, 175876 Gravesend CSEC: 567436, 174136
Topography	Generally flat land, level ground. Located on the edge of a built-up urban environment.
Site Condition	The sites are the locations of the Tilbury and Gravesend sealing end compounds for the existing tunnel

Site History	New Tilbury CSEC: Agricultural historical land use until 1966 in the proposed area of the New Tilbury CSEC, then from 1966 to present day industrial activities in the form of the Tilbury Power Station and Tilbury shaft sealing end compound to present day. Gravesend CSEC: No historical land use until 1898 in the proposed area of the Gravesend CSEC, then from 1898 to 1975 use as part of the Milton Rifle Range. From 1975 to present day the location is then shown as the Gravesend sealing end compound and substation.
Published Geology	Topsoil The BGS borehole logs indicate the topsoil comprises topsoil and vegetation, marshland, stiff silty clayey topsoil, or soft clay. Tilbury power station disposes of ash from the boilers on the low-lying marshland area to the east of the current sealing end compound. There is potential for ash content in the topsoil around the New Tilbury CSEC. Made Ground Made ground encountered strata ranging in descriptions of the following materials: • Dark brown slightly sandy SILT. • Dark brown clayey gravelly SAND. • Brown sandy very clayey fine to coarse flint GRAVEL • Very soft to soft sandy gravelly SILT/CLAY. • Soft to firm dark grey to brown sandy gravelly to silty CLAY • Black ashy soils. • Firm dark grey slightly sandy SILT of ash • Grey and brown silty to gravelly SAND of ash and clinker • Light grey to white gravelly SAND of soft chalk • Light grey to white sandy fine to coarse GRAVEL of soft chalk Made ground was only encountered at the location of the New Tilbury CSEC. No made ground is reported at the Gravesend CSEC location however the Envirocheck report states there is potential for encountering made ground. Intertidal Deposits Intertidal deposits were only encountered as near surface deposits when drilling into the River Thames section therefore it expected these will only be encountered with any works interacting with the river bed. These deposits are described as very soft to soft CLAY or SILT or SAND. These will only be encountered during works that interact with the riverbed. Alluvium Alluvium was encountered in all published geology. Boreholes indicate the alluvium is variable and formed of silty organic CLAY and slightly sandy slightly gravelly CLAY ranging in stiffness between very soft and firm. Occasionally there is peaty content in the CLAY. Peat was encountered in 16 BGS boreholes and 2 report F2/1423, 1 report 727189, 1 report JER6376 and 2 report LSTC/05/GI101 boreholes located around the proposed New Tilbury CSEC location. No peat is indicated at the proposed Gravesend CSEC location.

River Terrace Deposits

It is not possible to identify the presence of river terrace deposits from BGS 1:50,000 mapping. Historical boreholes indicate the presence of these deposits across the entire proposed route. River terrace deposits up to 13.10m thickness is encountered in boreholes available from the BGS borehole database, report LSTC/05/GI101 and current Tilbury Tunnel long section. The Envirocheck report also indicates there are significant river terrace deposits present in both proposed areas for the sealing end compounds.

The river terrace deposits are mostly composed of sandy GRAVEL with some gravelly SAND layers. The GRAVEL is composed of subrounded to rounded flint. The river terrace deposits are described as greyish silty gravelly SAND or sandy silty GRAVELS with none or low to medium cobble content. Gravel is composed of subangular to rounded fine to coarse flint. Sand is fine to coarse, and cobbles are also composed of flint. The maximum cobble size recorded is 120mm x 120mm x 210mm. Occasional shell fragments are also recorded.

Chalk

Seaford Chalk Formation (SECK) and Lewes Nodular Chalk Formation (LECH) are recorded in the available information.

CHALK ranging from being recovered as sandy silty GRAVEL, gravelly sandy SILT and gravelly silty SAND, too weak to locally medium strong high-density CHALK. CIRIA grades range from B5 to A1.

Notable flint bands encountered recorded at 17.2mbgl and 38.07mbgl.

CIRIA Grade B1 Hardgrounds were also encountered.

Mining	The site is not located in an area which may be affected by mining activity and 1 recorded mineral site is located near the site location.																													
Archaeology	No archaeology recorded on or near the site.																													
Hydrogeology	<table border="1"> <thead> <tr> <th colspan="2">Strata</th><th>Permeability classification</th><th>Importance of strata to hydrology</th></tr> </thead> <tbody> <tr> <td colspan="2">Topsoil</td><td>N/A</td><td>Not located within a source protection zone</td></tr> <tr> <td colspan="2">Made Ground (MDG)</td><td>Unproductive Strata</td><td>Not located within a source protection zone</td></tr> <tr> <td colspan="2">Alluvium (ALV)</td><td>Unproductive Strata</td><td>Not located within a source protection zone</td></tr> <tr> <td colspan="2">River Terrace Deposits (RTD)</td><td>Secondary Aquifer – High Vulnerability</td><td>Not located within a source protection zone</td></tr> <tr> <td rowspan="2">Chalk</td><td>New Tilbury CSEC</td><td>Principle Aquifer – Medium Vulnerability Pollutant Speed: High Bedrock Flow: Well Connected Fractures</td><td>Not located within a source protection zone</td></tr> <tr> <td>Gravesend CSEC</td><td>Principle Aquifer – Low Vulnerability Pollutant Speed: High Bedrock Flow: Well Connected Fractures</td><td>Not located within a source protection zone</td></tr> </tbody> </table>			Strata		Permeability classification	Importance of strata to hydrology	Topsoil		N/A	Not located within a source protection zone	Made Ground (MDG)		Unproductive Strata	Not located within a source protection zone	Alluvium (ALV)		Unproductive Strata	Not located within a source protection zone	River Terrace Deposits (RTD)		Secondary Aquifer – High Vulnerability	Not located within a source protection zone	Chalk	New Tilbury CSEC	Principle Aquifer – Medium Vulnerability Pollutant Speed: High Bedrock Flow: Well Connected Fractures	Not located within a source protection zone	Gravesend CSEC	Principle Aquifer – Low Vulnerability Pollutant Speed: High Bedrock Flow: Well Connected Fractures	Not located within a source protection zone
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	Gravesend CSEC	Principle Aquifer – Low Vulnerability Pollutant Speed: High Bedrock Flow: Well Connected Fractures	Not located within a source protection zone																											
Hydrology	32 surface water abstractions are recorded in the Envirocheck report.																													

A total of 482 separate watercourses are recorded within the Envirocheck report and run from 0 to 1000m away from the proposed tunnel route. The largest of these is the River Thames of which the proposed tunnel route runs beneath.

Flooding	The Envirocheck report indicates groundwater flooding and flooding from river and sea to both be low risk at both CSEC locations.
Ground Stability	There is risk of compressible ground and running in both proposed sealing end compound areas. All other none mining related ground stability hazards are low risk.
Radon	No potential radon identified. No radon protective measures are necessary.
Unexploded Ordnance (UXO)	Regional unexploded bomb risk information was obtained through Zetica Ltd and 6 Alpha Ltd. This information designates the New Tilbury CSEC as moderate risk and the Gravesend CSEC as high risk. The probability of UXO encounter is likely. The nearest recorded bomb damage recorded is 385m south-west.
Contaminated Land	There are currently 4 active local authority Pollution Prevention and Controls. 20 pollution incidents to controlled waters have been recorded near the site location. There is a history of Licensed Waste Management Facilities across the local area. A total of 10 are recorded with 3 recorded as on site meaning they fall in the area selected and are in the near vicinity of the proposed site location. The nearest facility south of the river is recorded as 510m from the area selected for the Envirocheck. Refer to the Envirocheck report for details of other waste management facilities. The site location is near to 8 historical landfill sites with 3 recorded as on site in the Envirocheck meaning they fall in the area selected and are in the near vicinity of the proposed site location.
Environmental Designations (e.g. SSSI's)	The proposed New Tilbury CSEC location is bordering an area of adopted green belt to the west. The proposed Gravesend CSEC location is within an area of adopted green belt and environmentally sensitive area. Located to the south within 250m is a site of specific scientific interest.

Geotechnical Considerations for Future Design

Soft/loose strata	BGS boreholes indicates the alluvium (ALV) and cohesive strata are likely to be variable in nature and may include soft silts, clays and peats. Adjacent to New Tilbury CSEC ash from the power station was deposited and the undertaken compaction is unknown.
Water bearing strata	Water bearing strata have been encountered in nearby BGS boreholes from 1.52m to 26.00m bgl with water level rising to up to 1.70m bgl. Water strikes are encountered in the alluvium (ALV), river terrace deposits (RTD) and chalk.
Hard strata encountered	Flint layers recorded within the chalk strata. Consideration should be given to these potential layers when selecting construction methods and alignment

Rock encountered	Chalkstone encountered in BGS boreholes located across the river Thames. Consideration should be given to these potential layers when selecting construction methods.
Contaminated ground	Potential contaminated ground at the proposed New Tilbury CSEC location due to the close proximity of the Tilbury power station works.
Groundwater	Methods of groundwater control should be considered across the full construction of the new tunnel. Large amounts of groundwater extraction and re-injection onto the ground was required during the construction of the current Tilbury shaft, although the power station is no longer present and settlement may not be an issue Ground water strikes in the river terrace deposits (RTD) and upper parts of the Chalk rose to as high as 1.70m bgl.

5. Historic Field & laboratory studies

5.1. Available Information

5.1.1. BGS Data

The nearest available historical boreholes from the BGS database and included in historical factual reports are offset at approximately 91m to 1259m from the proposed tunnel route. Eight BGS boreholes are relevant and give information on the depths of strata.

5.1.2. Ground Investigations

The following ground investigation reports have been made available by National Grid, and the land owners Port of Tilbury and are shown below in Table 4.

Table 4. Ground investigations

Dates Undertaken	Report Number
1962	F2/1423
2002	DGSHSCC/F12534
2004	P1223
2007	G7090
November 2007	LSTC/05/GI101
May 2008	GMCX0140
2009	Not provided
August 2011	560160
September 2012	727189
2013	560926
December 2014	TIB-TAR-3601-CCR01
27th April and 29th May 2015	JER6376
November 2020	HE540039-PCI-GEN-GEN-REP-GEO-00047

5.1.2.1. Exploratory Holes

Table 5 below summarises the exploratory holes undertaken in each investigation.

Table 5. Available factual Report Exploratory Hole Summary

Report	Exploratory Hole Type	Total Number of Holes	Maximum Depth (mbgl)
F1/1425 (1968)	Cable Percussive	6 provided of 13	33.53
DGSHTCC/F12534 (2002)	Cable Percussive & Rotary	6	40.5
	Cable Percussive	8	24.25
P12233 (2004)	Cable Percussive	3	10.5
G7090 (Sept 2007)	Windowless sample boreholes	22	1.00
LSTC/05/GI101 (2007)	Cable Percussive	4	32.20
GMCX0140 (2008)	Machine excavated trial pits;	88	2.60
	Hand excavated trial pits;	6	1.8
	Cable Percussive & Rotary	22	36
	Static cone penetrometer tests;	33	Missing from the factual report
560160 (2011)	Cable Percussive	2	25
	Machine excavated trial pits;	1	4.6
727189 (2012)	Cable Percussive	4	17
	Machine excavated trial pits;	5	3.5
	Windowless sample boreholes	25	5
560926 (2013)	Cable Percussive	8	23
	Windowless sample boreholes	26	7.75
TIB-TAR-3601-CCR01 (2014)	Drilling method not given.	8	15.7

Report	Exploratory Hole Type	Total Number of Holes	Maximum Depth (mbgl)
150826 R JER6376 JE (2015)	Cable Percussive	17	21
	Windowless sample boreholes	39	4
	Hand excavated trial pits;	4	0.4
	Machine excavated trial pits;	57	4.6
HE540039-PCI-GEN-GEN-REP-GEO- 00047 (2020)	Cable Percussive & Rotary	26	86.10

5.1.2.2. In-situ Tests

Table 6 below summarises in-sit testing undertaken in the ground investigation relevant boreholes.

Table 6. Available factual report in-situ testing

In-situ Test	LSTC/ 05/ GI101	HE540039- PCI-GEN- GEN-REP- GEO- 00047	560926 Structural Soils	RPS GI	F2/1423	DGSHS CC/F12 534
Standard Penetration Testing (SPTs)	98	199	16	3	-	
Photo Ionisation Detector Tests (PID)	-	425	-	-	-	
Packer Tests	-	40	-	-	-	
High Pressure Dilatometer (HPD)	-	74	-	-	-	
Static Cone Penetrometer Tests (CPTs)	1617	-	-	-	-	
Pocket Penetrometer	64	-	44	-	-	
Hand Shear Vane Test	64	-	-	9	108	

5.1.2.3. Wellpoint Installations

No wellpoints were installed as part of the 2020 LTC investigation, report number HE540039-PCI-GEN-GEN-REP-GEO- 00047. Table 7 below summarises all available wellpoint installations.

Table 7. Available factual report wellpoint installations

Report	Installation ID	Depth of Installation (m)	Response Zone (m)
LSTC/05/GI101	BH4VG44R-O	20.00	7.50 – 20.00
	BH4VG45R	22.20	6.00 – 22.20
	BHZJ5R-PEA4R	18.50	1.50 – 18.50
727189 Halcrow (2012)	BH4	16.50	15.00 – 17.00
RPS GI	BH-Z5-01	20.8	17.50 – 20.00
	BH-Z24-01	7.15	1.00 – 7.20

5.1.2.4. Laboratory Tests

Table 8 below summarises geotechnical laboratory testing undertaken on samples from relevant boreholes.

Table 8. Available factual report laboratory testing

Laboratory Test	HE540039-PCI-GEN-GEN-REP-GEO-00047	F2/1423	DGSHSCC /F12534
Moisture Content	42	-	5
Liquid limit, plastic limit, and plastic index (Atterberg limits)	13	-	5
Linear Shrinkage	2	-	-
Natural Density by immersion in water or water displacement	1	-	-
Dry Density and saturated moisture content for Chalk	311	-	-
Particle size distribution by wet sieving	112	4	34
Sedimentation by pipette	59	-	-
Chalk crushing value	15	-	-
Permeability in triaxial cell (4-day test period)	21	-	-

Laboratory Test	HE540039-PCI- GEN-GEN- REP-GEO- 00047	F2/1423	DGSHSCC /F12534
Unconsolidated undrained triaxial without the measurement of pore pressure	26	-	-
Isotopically consolidated undrained triaxial compression test, multistage test with measurement of pore water pressure	11	-	-
Porosity/density using saturation and buoyancy	36	-	-
Shore scleroscope	72	-	-
Uniaxial Compressive Strength	107	-	-
Uniaxial Compressive Strength with determination of Young's modulus and Poisson's ratio	44	-	-
Single measurement of point load strength on irregular rock lump or core sample (either axial or diametral test)	377	-	-
Cerchar abrasivity test	120	-	-
Petrographic analysis of sample by optical microscopy	11	-	-
Triaxial Compressive Strength Testing	-	27	14
Consolidation Testing	-	26	9

5.1.3. Current Tilbury Tunnel Long Section

A long section dated July 1966, showing the ground information used in the design of the current Tilbury Tunnel has been provided. The long section is formed of 15 boreholes completed to a maximum depth of 48.9m.

Lugeon testing results are presented on the long section alongside the boreholes. The accompanying paper to the long section gives results of both permeability testing in the form of lugeons and strength testing in the chalk.

5.1.4. *The investigation and characterisation of the Chalk and overlying Thames deposits at Tilbury, Essex, UK*

This paper gives results for testing in the chalk. Table 9 below summarises all parameters presented in the paper and the number of tests undertaken.

Table 9. The investigations and characterisation of the Chalk and overlying Thames deposits at Tilbury, Essex, UK, Soil Properties

Index Property	Number of Tests
Bulk Density (Mg/m ³)	55
Intact Dry Density (IDD) (Mg/m ³)	55
Saturation Moisture Content (SMC) (%)	55
Porosity (%)	55
UCS tests (saturated chalk)	5
Correlated point load index	79
From SPT N60	46
Drained Young's Modulus E' (MPa)	51*

*approximate based on charts.

6. TKRE Specific Ground Investigation and Laboratory Testing

6.1. On-land Ground Investigation

All land based intrusive ground investigations proposed at FEED stage have been completed and incorporated within this report

6.1.1. Exploratory Holes

Table 10 below summarises exploratory hole types and number completed during on-land ground investigation. The location of the investigation points are shown on drawing PDD-100116-DDR-002/30003364-MSE-XX-XX-DR-Y-10006 for Tilbury and drawing PDD-100116-DDR-003 / 30003364-MSE-XX-XX-DR-Y-10007 for Gravesend.

Table 10. On-land ground investigation exploratory holes.

Report	Exploratory Hole Type	Total Number of Holes	Maximum Depth (mbgl)
Tilbury	Cable Percussive & Rotary	6	80.40
	Trial Pit	17	3.10
	Cone Penetration Test	5	17.29
Gravesend	Cable Percussive & Rotary	3	72.00
	Trial Pit	10	4.00
	Cone Penetration Test	7	15.32

6.1.2. In-situ Testing

Table 11 below summarises the in-situ testing undertaken during the on-land ground investigation.

Table 11. On-land ground investigation in-situ testing.

In-situ Test	Tilbury	Gravesend
Standard Penetration Testing (SPTs)	44	40
Cone Penetration Tests	5	7
Dissipation Tests	5	5
Variable Head Permeability Test (Falling)	3	3

In-situ Test	Tilbury	Gravesend
Double Packer Permeability Test	6	4
Thermal Resistivity	18	15
Electrical Conductivity	-	3
Dynamic Cone Penetrometer Test	7	-
Volatiles PID	74	-

6.1.3. Monitoring

Table 12 below summarises monitoring completed for the on-land ground investigation. Monitoring comprised of a combination of continual monitoring of boreholes using divers and manual monitoring.

Table 12. On-land ground investigation monitoring.

Monitoring	Tilbury	Gravesend
Groundwater	5	6
Gas	2	3

6.1.4. Laboratory Testing

Table 13 below summarises the laboratory testing undertaken during the on-land ground investigation.

Table 13. On-land ground investigation laboratory testing.

Laboratory Test	Tilbury	Gravesend
Water/Moisture Content	57	35
Atterberg Limits	47	28
Particle Size Distribution	60	29
Unconsolidated Undrained Triaxial Compression	10	4
Consolidated Undrained Triaxial Compression	5	2
One-dimensional (Oedometer) Consolidation	9	4
pH and Sulphate Contents – BRE SD1 Suite A	27	9
Organic Matter	5	1
Chalk Carbonate Content	2	-
Saturation Moisture Content of Chalk	21	10
Cercher Abrasivity Index	18	6

Laboratory Test	Tilbury	Gravesend
Unconfined Compression	20	-
Point Load Index	54	22
Uniaxial Compressive Strength	-	6
Chalk Crushing Value	23	11

6.1.5. Environmental Testing

Table 14 below summarises the environmental testing undertaken during the on-land ground investigation.

Table 14. On-land ground investigation environmental testing.

Environmental Test	Tilbury	Gravesend
Soil/Leachate	51	12
Water	3	1
Suite B – Greenfield Site Pyrite Present Soil	1	-
Suite D – Brownfield Site Pyrite Present Soil	29	-
Suite E – Soil Sample	51	-
Suite F – Water Sample	3	-
Suite H – Inert WAC Single Stage Leachate	26	-
Suite I – SNR WAC Single Stage Leachate	4	-

6.2. Over-water Ground Investigation

The ground investigations over the River Thames comprised a series of rotary boreholes completed from a barge, bathymetry survey and sub bottom profiling. The location of the investigation points are shown on drawing PDD-100116-DDR-004 / 30003364-MSE-XX-XX-DR-Y-10068. Constraints from the Port of London Authority meant boreholes were not allowed to be completed within the main shipping channel. The borehole locations were also subject to a survey for Unexploded Ordnance.

6.2.1. *Exploratory Holes*

Table 15 below summarises exploratory hole types and number completed during over-water ground investigation.

Table 15. Over-water ground investigation exploratory holes.

Exploratory Hole Type	Total Number of Holes	Maximum Depth (mbgl)
Rotary Open-hole & Rotary Core	4	46.20

6.2.2. *In-situ Testing*

Table 16 below summarises the in-situ testing undertaken during the over-water ground investigation.

Table 16. Over-water ground investigation in-situ testing.

In-situ Test	Number of Test
Standard Penetration Testing (SPTs)	8
Water Pressure (Packer) Tests	8

6.2.3. *Laboratory Testing*

Table 17 below summarises the laboratory testing undertaken during the over-water ground investigation.

Table 17. Over-water ground investigation laboratory testing.

Laboratory Test	Number of Test
Water Content	34
Saturation Moisture content of Chalk	24
Uniaxial compressive strength	16
Measurement of point load strength index of rock specimen	52
Intact Dry Density of Chalk	11
Slake Durability	10
Cercher Abrasivity Index	10
Chalk Crushing Value	18
BRE SD1 Suite B	8

6.2.4. *Environmental Testing*

Table 18 below summarises the environmental testing undertaken during the over-water ground investigation.

Table 18. Over-water ground investigation environmental testing.

Environmental Test	Number of Test
Soil Suite E	8
Asbestos Quantification	6
Suite H – Inert WAC Suite Single Stage	8
BRE Suite B – Greenfield Site – Pyrite Present	8

6.2.5. *Geophysical Testing*

Geophysical testing comprising the following across the full route of the tunnel across the River Thames were undertaken during the investigation:

- Sub-Bottom Profiling;
- Bathymetry Survey;
- UXO Clearance.

The UXO clearance was undertaken on the areas around the proposed borehole locations. Objects identified in the river bed meant changes to the proposed borehole positions. The ground investigation location drawing shows the final positions.

The bathymetry survey was completed over the hatched area on ground investigation location drawing. A small area was not able to be surveyed on the north east section. A comparison of the bathymetry survey compared to the Port of London published data (113-337-141 Gravesend Reach (Lower)), and it indicates the current river bed level is between 1.5m and 2.0m higher than the published survey. Whilst reviewing the bathymetry and published data it should be noted they are to chart datum rather than ordnance datum and the levels need to be changed by subtracting 3.12m from the chart datum values to indicate the ordnance datum levels.

The sub bottom profiling was completed over the hatched area on the ground investigation plan. The results of the survey indicate the presence of the soft alluvial deposits over the River Terrace Deposits. The interface between the River Terrace Deposits and the chalk was not encountered.

7. Ground Summary

7.1. General Stratigraphy

The strata sequence encountered is consistent with the general sequence of strata as predicted from BGS and other records and as detailed in the Conceptual Geotechnical Interpretative Report. Layers of recent made ground, alluvium and river terrace deposits overlie White Chalk Subgroup formed of the Seaford Chalk Formation and Lewes Nodular Chalk Formation.

The superficial geology encountered comprises three principal strata:

- Made Ground (MDG)
- Alluvium (ALV)
- River terrace Deposits (RTD)

The bedrock encountered is chalk made up of two geological formations:

- Seaford Chalk Formation (SECK)
- Lewes Nodular Chalk Formation (LECH)

Table 19 below summarises the levels (mAOD) in which each strata was encountered during the on-land ground investigation at Tilbury and Gravesend. This is shown on drawings:

- PDD-100116-ELE-019/30003364-MSE-XX-XX-DR-Y-10120 – Gravesend Geological Sections
- PDD-100116-ELE-020/30003364-MSE-XX-XX-DR-Y-10126 – Tilbury Geological Sections
- PDD-100116-ELE-021/30003364-MSE-XX-XX-DR-Y-10127 – Over-water Geological Sections

Table 19. Gravesend ground investigation encountered strata levels and thicknesses

Strata	New Tilbury CSEC		Gravesend CSEC	
	Level Range Encountered (mAOD)	Max Thickness Encountered (m)	Level Range Encountered (mAOD)	Max Thickness Encountered (m)
Made Ground (MDG)	3.12 to -1.22	3.30	2.42 to -0.22	2.30
Alluvium (ALV)	1.82 to -17.69	18.09	2.10 to -14.40	15.00
River Terrace Deposits (RTD)	-14.24 to -17.13	3.70	-11.10 to -17.72	6.00

Strata	New Tilbury CSEC		Gravesend CSEC	
	Level Range Encountered (mAOD)	Max Thickness Encountered (m)	Level Range Encountered (mAOD)	Max Thickness Encountered (m)
Seaford Chalk Formation (SECK)	-17.04 to -52.53	33.35	-16.71 to -68.41	51.70
Lewes Nodular Chalk Formation (LECH)	-42.15, base unproven	Full thickness unproven	-53.93, base unproven	Full thickness unproven

7.2. *Superficial Deposits*

7.2.1. *New Tilbury CSEC*

7.2.1.1 Topsoil

No topsoil was encountered during the ground investigation for the New Tilbury CSEC.

If present it is expected all topsoil will be stripped prior to any construction taking place.

7.2.1.2 Made ground (MDG)

At Tilbury the made ground comprises a mixture of sand and gravel with rare layers of clay. All exploratory holes encountered made ground with a maximum recorded thickness of the made ground was recorded as 3.24m.

The near surface gravel is described as sandy angular to subangular formed of igneous rock. This is likely engineering granular material. Gravel recorded deeper in in exploratory holes is described as sandy gravel, gravel is formed of flint, brock and concrete.

Sand is described as dark grey slightly silty, slightly gravelly to gravelly medium to coarse.

Clay was recorded in 1 borehole and 3 trial pits. The clay is found at the base of the made ground and is described soft grey mottled greenish or light brown.

One SPT result was recorded in each borehole in which testing was undertaken. The results are 8, 8 and 10.

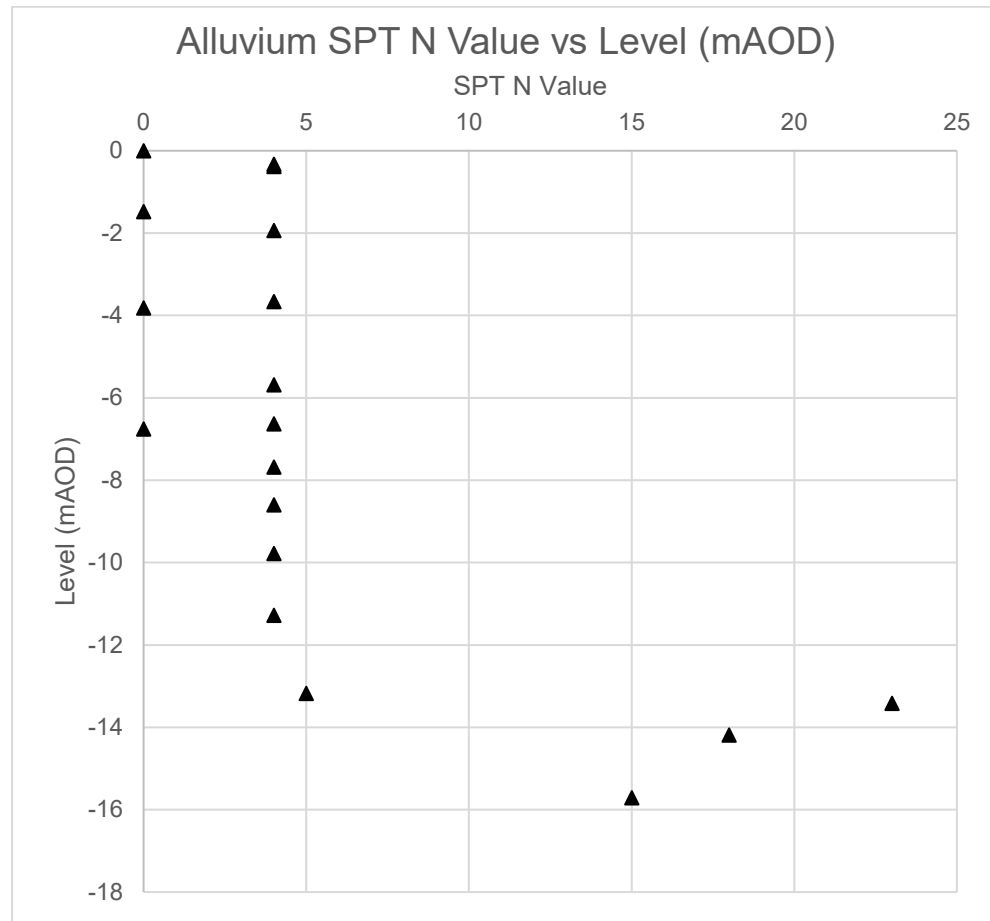
7.2.1.3 Alluvium (ALV)

The alluvial deposits encountered during the Tilbury ground investigation comprise of very soft to firm clays with layers of peat. The thickness of the alluvium deposits recorded at Tilbury range between 18.09m and 14.8m.

Clay layers are described as soft to firm, greenish, bluish or dark grey and occasionally slightly silty and slightly sandy. As shown in Figure 2 SPT N values recorded in the silt and clay layers range between 0 and 23.

Peat was encountered in maximum 2.1m thick layers and is described as firm dark brown spongy pseudofibrous. Only a single SPT N value of 4 was recorded in the alluvial peat layers.

A 3.5m thick layer of very soft slightly sandy clayey silt was recorded in BH07A. The SPT N value in this layer was recorded as 0.

Figure 2. Tilbury Alluvial Clay and Silt SPT N Value vs Depth (mBGL)

7.2.1.4 River Terrace Deposits

During the Tilbury ground investigation River Terrace Deposits are recorded in only boreholes BH01 and BH02A. Ranging in thickness between 3.3m and 3.7m, the River Terrace Deposits are described as grey loose to medium dense slightly sandy subangular to rounded fine to coarse gravel. In BH02A sand is the dominant lithology from 16.75 to 17.75 mBGL.

A 0.5m thick layer of soft slightly sandy gravelly clay is shown in BH01 at the top of the RTD.

SPT results in the River Terrace Deposits recorded N values of 8, 11, 11 and 12.

CHALK

7.2.2. Gravesend CSEC

7.2.2.1 Topsoil

Topsoil is described as grass over soft to firm slightly sandy slightly gravelly clay or silt with frequent rootlets. Thicknesses encountered range from 0.1m to 0.5m.

It is expected all topsoil will be stripped prior to any construction taking place.

7.2.2.2 Made ground (MDG)

At Gravesend the made ground comprises of soft to firm slightly sandy to sandy gravelly orangish and greyish brown, locally bluish, silt or clay ranging in thickness between 0.4m to 2.3m. The sand content is recorded as fine to medium and gravel as subangular to subrounded fine to medium of chalk and flint. Upper layers contain occasional to frequent rootlets.

All boreholes recorded made ground along with 5 of the 10 trial pits. It is likely the made ground is formed or reworked alluvial deposits.

One SPT result was recorded in each borehole in made ground strata. The results are 0, 2 and 4.

7.2.2.3 Alluvium (ALV)

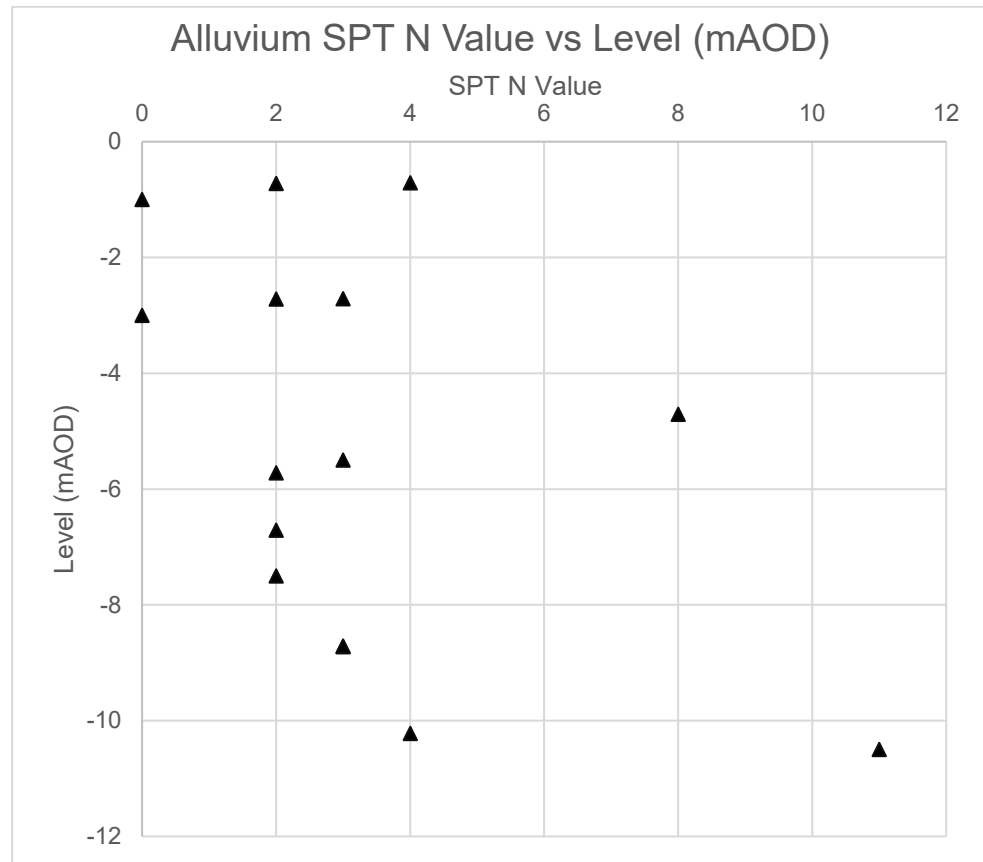
The alluvial deposits encountered during the ground investigation comprise of very soft to firm slightly sandy clayey silts with a layer of fine to medium sand at the base. All trial pits and boreholes encountered alluvial deposits.

Boreholes record majority silts with one layer of clay in BH04. Trial pits record only clays and not silts. As shown in Figure 3 SPT N values recorded in the silt and clay layers range between 0 and 11. The silts and clays are described as very soft to firm orangish brown or bluish grey silt or clay locally slightly sandy. Orangish brown layers are found in the upper layers encountered in trial pits.

Sand found at the base of the alluvial deposits comprise brownish grey silty and dark orangish brown gravelly fine to medium sand with rare to occasional pockets of sandy of silty clay. The thickness recorded is 3.1m in BH04 and 0.8m in BH06. SPT N values in the sands are recorded as 2, 9 and 11 indicating very loose to loose density.

A 0.9m thick layer of peat is recorded in BH04 and is described as Plastic dark brown amorphous peat. No SPT testing was undertaken in this layer.

Figure 3. Gravesend Alluvial Clay and Silt SPT N Value vs Depth (mAOD)



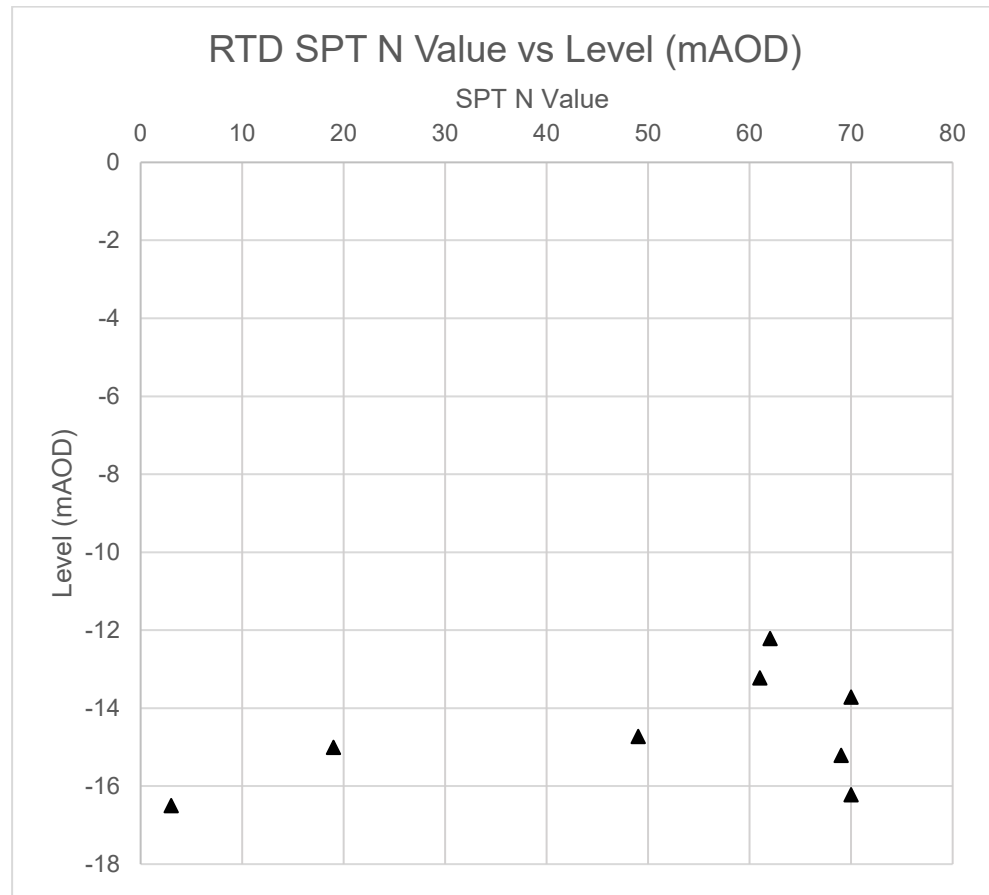
7.2.2.4 River Terrace Deposits

River Terrace Deposits are recorded in all boreholes completed at Gravesend as expected from analysis of BGS and historical information, encountered below the Alluvial deposits and above the chalk. Ranging in thickness between 2.7m and 6m the River Terrace Deposits are described as brown speckled black or brownish grey sandy subangular to subrounded fine to coarse gravel of flint. Sand is fine to coarse.

A 1.3m thick layer of soft to firm brownish grey slightly gravelly silts clay with occasional pockets of fine to medium sand is shown in BH05 as possible River Terrace Deposits. Rare pockets of sandy clay are shown in BH04.

SPT results in the River Terrace Deposits recorded N values ranging between 3 and 70 (corrected from 50 to represent full 450mm test). Figure 4 below shows the SPT results vs level in the RTD.

Figure 4. Gravesend RTD SPT N Value vs Depth (mAOD)



7.3. Solid Geology – New Tilbury CSEC and Gravesend

7.3.1. Seaford Chalk Formation

7.3.1.1 On-land Ground investigation

Seaford Chalk is found at the top of the solid geology. In the on-land Tilbury ground investigation these comprise 2.15m to 12.36m of structureless chalk recovered as soft sandy gravelly clay or sandy silty gravel, over 22.87m to 30.30m of CIRIA grade B5 to A1 structured chalk described as very weak medium density chalk.

In the on-land Gravesend ground investigation these comprise 1.3m to 3m of structureless chalk recovered as soft sandy gravelly clay or sandy silty gravel, over 27.9m to 48.7m of CIRIA grade B4 to A1 structured chalk (Figure 5 and Figure 6) described as extremely weak to weak medium density chalk.

Figure 5. BH04 22.80m to 25.80m core CIRIA Grade B4 Seaford Chalk Formation



Figure 6. BH05 51.50m to 54.50m core CIRIA Grade A1 Seaford Chalk Formation



The maximum flint size encountered was in BH04 110mm x 160mm x 50mm (Figure 7). Table 20 below summarises notable flint bands added.

Figure 7. BH04 110mm x 160mm x 50mm flint**Table 20. Seaford Chalk on-land ground investigation flints**

Borehole	Level (mAOD)		Remarks
	Top	Base	
BH01	-23.01	-23.2	Frequent inoceramid fossils (up to full core diameter, up to 7mm thick).
	-30.94	-31.01	Frequent nodular black flints.
	-39.37	-39.43	Partial diameter flint.
	-41.4	-41.52	Frequent nodular black flints.
	-41.64	2.26	Nodular flint.
	-42.94	-42.99	Sheet Flint 0 degrees.
BH02A	-20.25	-20.33	Partial diameter Flint
	-20.78	-20.88	Partial diameter flint
	-22.15	-22.25	Frequent black flints (up to 100x70x50mm)
	-23.09	-23.13	Nodular black flint (100x60x50mm)
	-25.13	-25.17	Black flint (100x70x50mm).
	-28.81	-28.85	frequent flints.
	-33.49	-33.58	Full core diameter black flint.
	-34.03	-34.1	Partial core diameter black flint.
	-35.97	-36.07	Full core diameter black flint.
	-36.93	-36.97	Partial core diameter black flint.

Borehole	Level (mAOD)		Remarks
	Top	Base	
BH02A	-40.2	-40.3	Partial core diameter black flint.
	-40.67	-40.72	Small flint.
	-41.42	-41.52	Full core diameter large Flint
BH03	-22.53	-22.68	Sheet flint 10 to 30mm thick inclined 50 degrees.
	-29.53	4.82	Nodular black flint 90x80x70mm.
	-31.03	4.82	Nodular black flint 70x50x50mm.
	-32.22	4.82	Nodular black flint 50x20x15mm.
	-33.74	4.82	Nodular black flint 40x30x20mm.
	-34.43	4.82	Nodular black flint 60x40x20mm.
	-34.88	4.82	Nodular black flint 80x40x30mm.
	-37.34	-37.5	Black flint full core diameter.
	-43.72	-43.74	Sheet flint inclined 0 degrees.
	-46.16	-46.21	Black flint partially full core diameter.
	-46.38	-46.48	Black flint full core diameter.
	-50.88	-50.94	Nodular black flint partially full core diameter.
BH04	-22.15	-22.3	Full core diameter black flint recovered as angular coarse gravel sized fragments.
	-34.9	-35.1	Full core diameter black flint recovered as angular gravel sized fragments (Possible Bedwell's Columnar Flint).
	-42.2	-42.3	Partial core diameter black flint.
	-45.8	-45.9	Partial core diameter black flint recovered as angular coarse gravel sized fragments.
BH05	-27.37	-27.47	Possible full core diameter black flint recovered as angular cobble sized fragments.
	-37.49	-37.67	Possibly Bedwells columnar flints
	-51.53	-51.53	2mm thick sheet flint inclined 0 degrees.
BH06	-26.31	-26.41	Partially full core diameter black flint

Borehole	Level (mAOD)		Remarks
	Top	Base	
BH06	-35.31	-37.61	Full core diameter black flint (possible Bedwells columnar flint).
	-39.01	-39.11	Partially full core diameter black flint
	-42.71	-42.81	Partially full core diameter black flint
	-51.31	-51.41	Partially full core diameter black flint (possible seven sisters flint)
	-54.41		Sheet flint 3mm thick inclined 5 degrees

Two main fracture sets recorded in BH04 and BH06. BH01, BH02A, BH03 and BH05 record 3 fracture sets. CIRIA grade increases with depth indicating decreasing effect of fractures on the chalk. The lowest grade recorded is B4 indicating fractures open or infilled less than 3mm and spaced between 20mm and 60mm apart. The grade then increases with depth to A1 indicating closed fractures spaced 600mm or greater apart. Table 21 below summarises the fracture sets and inclination.

Table 21. Summary of on-land ground investigation fractures

Borehole	Fracture Set	Inclination (°)
BH01	1	0 – 15
	2	45 – 55
	3	75 – 90
BH02A	1	0 – 5
	2	50 – 55
	3	75 – 90
BH03	1	0 – 10
	2	40 – 55
	3	75 – 90
BH04	1	5 – 35
	2	75 – 90
BH05	1	0 – 20
	2	30 – 60
	3	70 – 90
BH06	1	5 – 50
	2	60 – 90

Wispy marls are noted in BH02A at between levels -34.00mAOD and -36.10mAOD and BH06 at levels -52.11mAOD and -55.91 mAOD.

A conspicuous grey marl is noted in BH02A between -45.02mAOD and -45.06mAOD. This is noted as possibly Shoreham Marl 2.

Total core recovery (TCR) was recorded between 0 to 100. Out of the 114 cores 78 recorded a TCR of 100%. Solid core recovery (SCR) was recorded between 0 and 100 with 26 of the 114 core runs recorded 0%. Out of 114 runs 33 recorded 0% in rock quality designation (RQD).

The levels at which the TCR, SCR and RQD are shown in Figure 8, Figure 9 and Figure 10 below. TCR was recorded as 100% in core runs down the entire length of the boreholes. Both SCR and RQD increase with depth, recorded as 100% around -50mAOD and below. The lowest level at which SCR and RQD were recorded as 0% was -45mAOD.

Figure 8. On-land TCR% vs Level (mAOD)

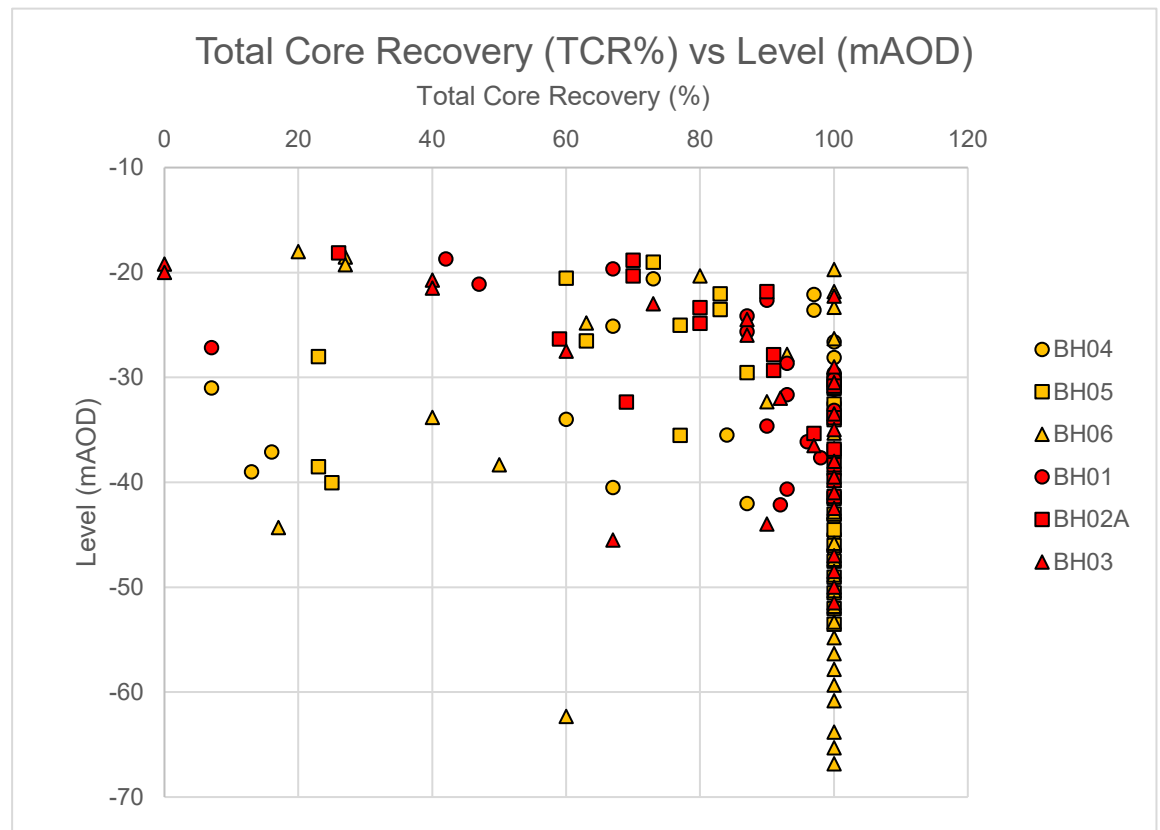
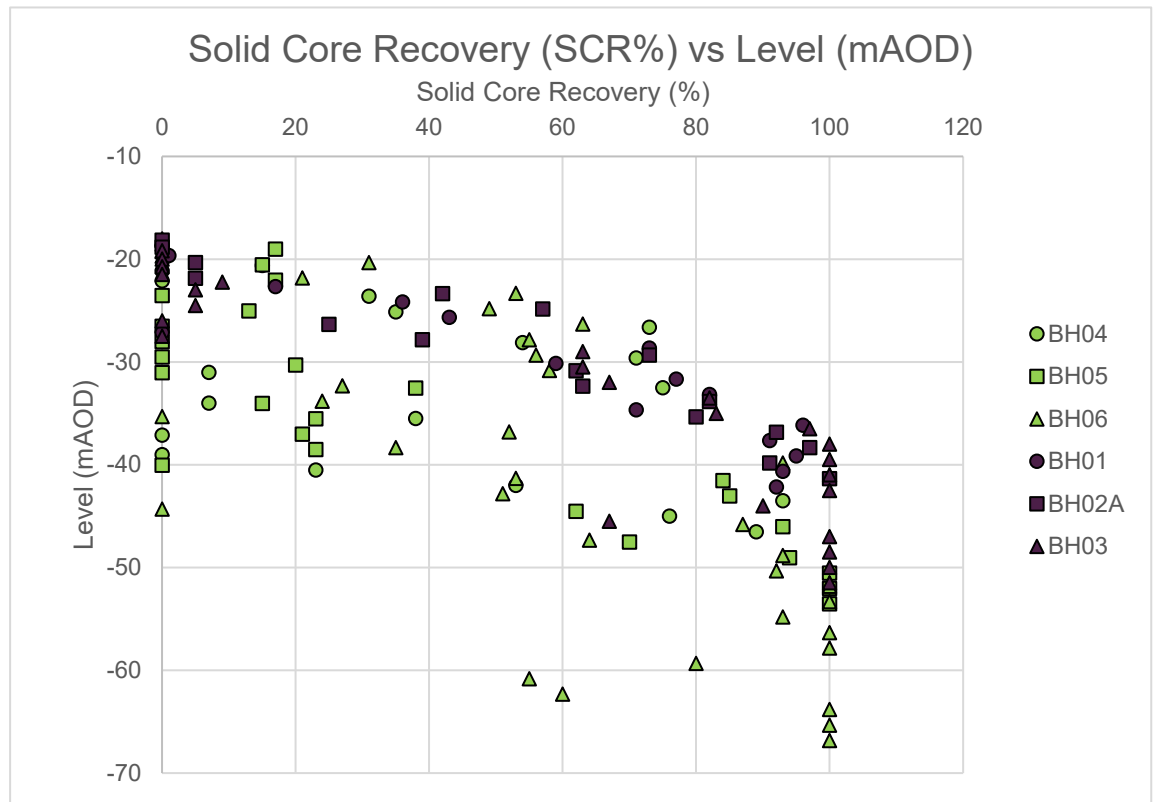
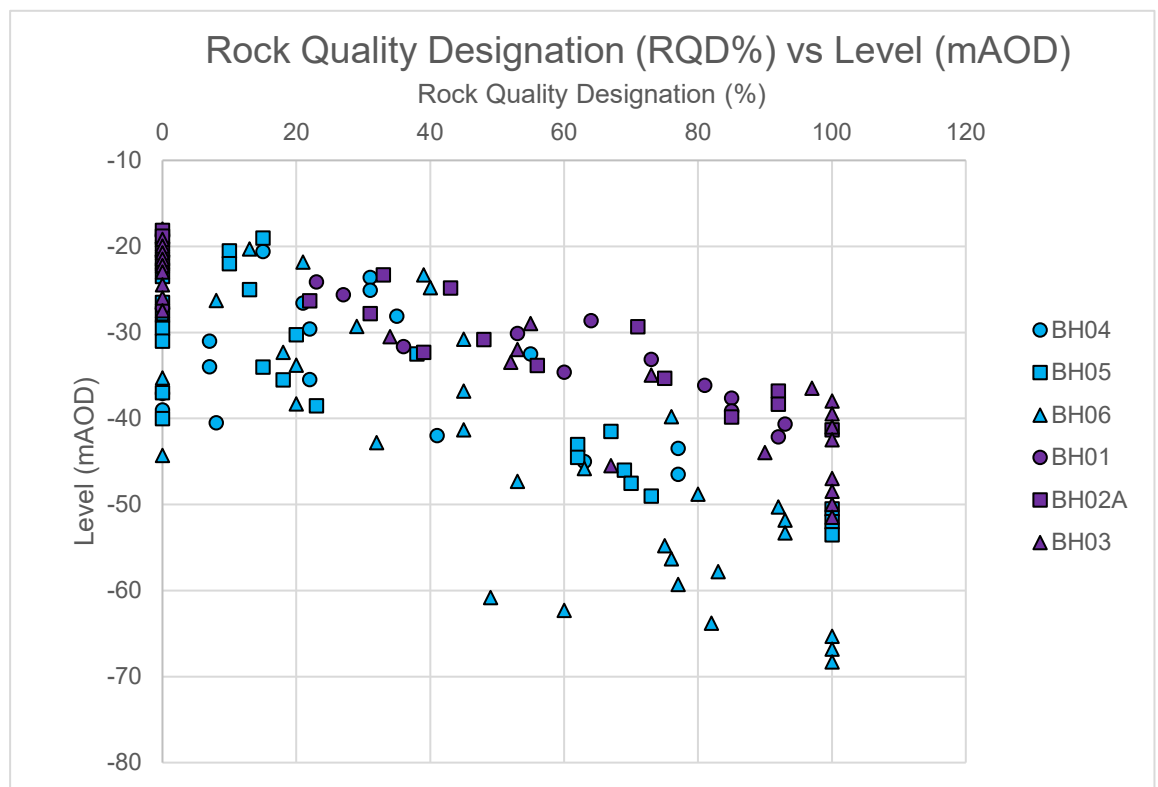


Figure 9. On-land SCR% vs Level (mAOD)**Figure 10. On-land RQD% vs Level (mAOD)**

7.3.1.2 Tunnel Route

As in the on-land ground investigation Seaford Chalk is found at the top of the solid geology in the over-water ground investigation. These comprise 3.5m to 8.29m of structureless CIRIA grade Dc (Figure 11) and Dm (Figure 12) chalk recovered as soft sandy gravelly clay or sandy silty gravel, over 30m to 35.9m (base unproven) of CIRIA grade C3 to B2 structured chalk (Figure 13 and Figure 14) described as very weak to weak medium to high density chalk. Flints encountered are summarised in table 22.

Figure 11. MRC2 7.20m to 8.70m core CIRIA Grade Dc Seaford Chalk Formation

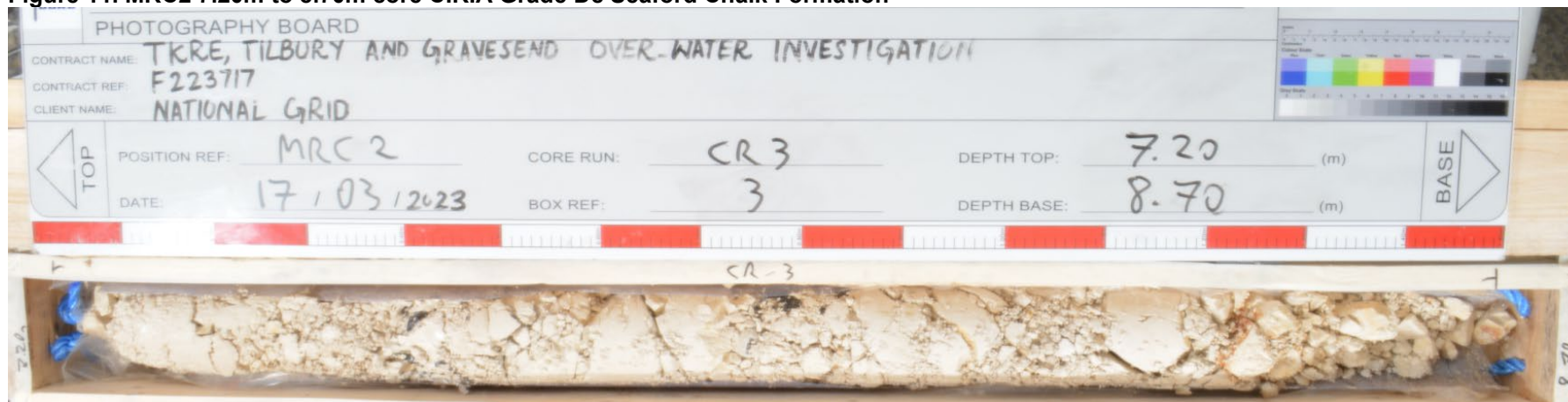


Figure 12. MRC2 5.70m to 7.20m core CIRIA Grade Dm Seaford Chalk Formation

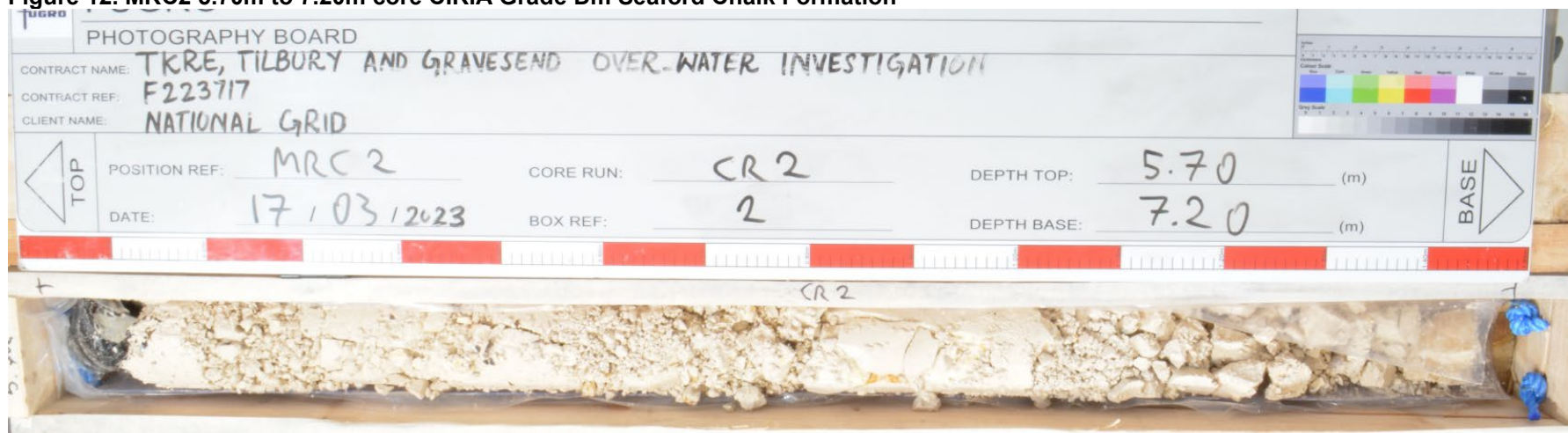


Figure 13. MRC4 31.50m to 33.00m core CIRIA Grade C3 Seaford Chalk Formation

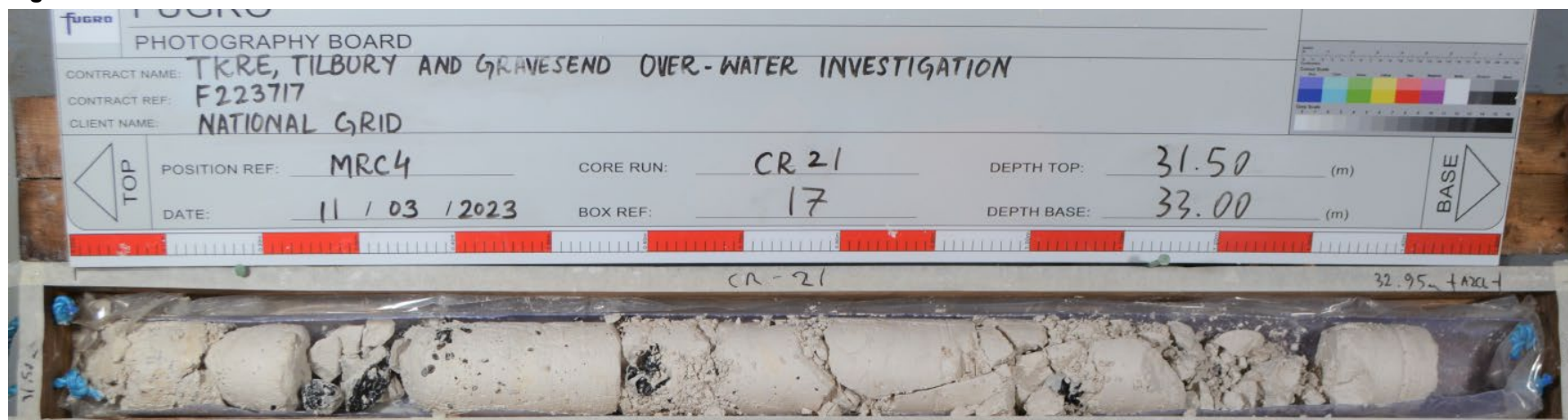


Figure 14. MRC4 31.50m to 33.00m core CIRIA Grade C3 Seaford Chalk Formation

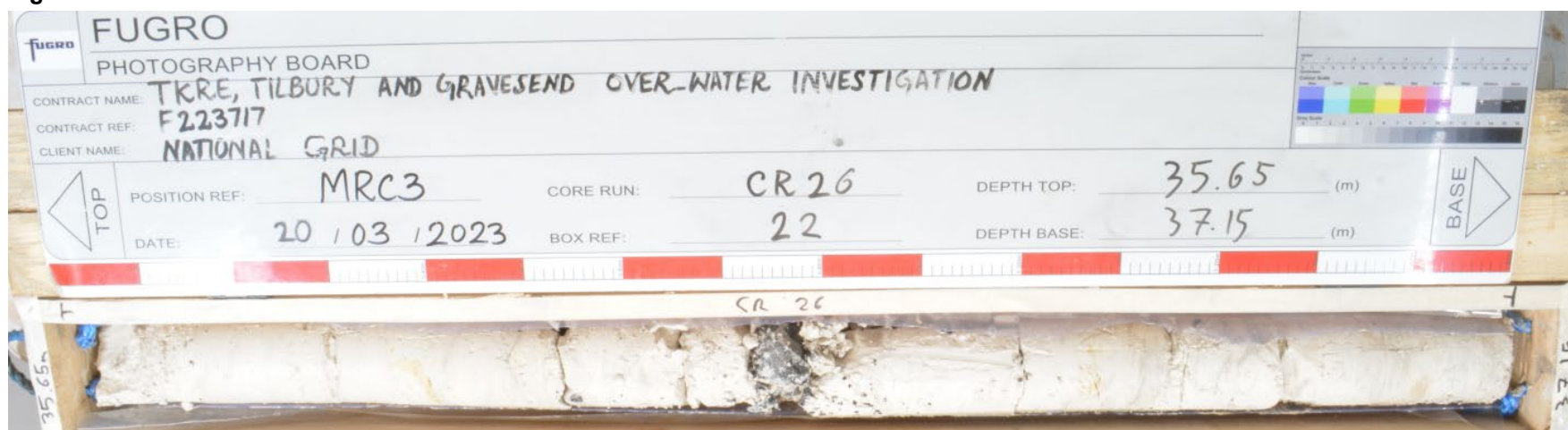


Table 22. Seaford Chalk on-land ground investigation flints

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC1	-22.8	-22.9	Medium nodular flint.
	-24.1	-24.27	Large nodular flint.
	-28.63	-28.79	Large nodular flint.
	-32.4	-32.52	Medium nodular flint.
	-34.91	-34.97	Medium nodular flint.
	-35.15	-35.23	Medium nodular flint.
	-37.73	-37.89	Large nodular flint.
	-38.97	-39.05	Medium tubular flint.
	-40.66	-40.74	Medium nodular flint.
	-41.12	-41.22	Medium nodular flint.
	-41.42	-41.49	Medium nodular flint.
	-41.97	-42.07	Medium nodular flint.
	-42.7	-42.79	Medium nodular flint.
	-43.77	-43.92	Large nodular flint.
	-44.9	-44.97	Medium nodular flint.
	-45.39	-45.5	Medium nodular flint.
	-45.64	-45.72	Medium nodular flint.
	-46.1	-46.19	Medium nodular flint.
	-52.14	-52.26	1 no. subrounded whole large flint (<100mm x 100mm x 120mm).
MRC2	-26.3	-26.39	Medium nodular flint.
	-27.21	-27.27	Medium nodular flint.
	-28.54	-28.61	Medium nodular flint.
	-29.5	-29.66	Large nodular flint.
	-31.01	-31.09	Medium nodular flint.
	-31.58	-31.78	Medium nodular flint.

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC2	-33.29	-33.51	Large nodular flint.
	-35.44	-35.52	Medium nodular flint.
	-41.92	-42.02	Medium nodular flint.
	-43.4	-43.56	Large nodular flint.
	-45.07	-45.18	Medium nodular flint.
	-45.66	-45.73	Medium nodular flint.
	-49.6	-49.65	1 no whole medium nodule of flint (<30mm x 40mm x 100mm).
	-52.45	-52.48	At 42.35m; 1 no. subangular whole medium nodule (<35mm x 40mm x 50mm) of flint.
	-52.9	-52.95	1 no. rounded whole medium nodule (<25mm x 25mm x 35mm) of flint.
MRC3	-18	-18.13	Medium nodular flint.
	-20	-20.06	Medium nodular flint.
	-21.14	-21.21	Medium nodular flint.
	-21.65	-21.8	Large nodular flint.
	-33.27	-33.35	Medium nodular flint.
	-37.85	-37.93	Non intact; natural. Recovered as subangular flint fragments (< 40mm x 60mm x 70mm)
	-38.4	-38.5	Medium nodular flint.
	-39.43	-39.55	Medium nodular flint.
	-40.07	-40.15	Medium nodular flint.
	-40.44	-40.52	Medium nodular flint.
	-41.8	-41.86	Medium nodular flint.
	-42.25	-42.35	Large nodular flint.
	-42.45	-42.5	Medium nodular flint.
	-43.38	-43.44	Medium nodular flint.
	-45.5	-45.55	Medium nodular flint.
	-46.05	-46.15	Large nodular flint.

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC3	-47.69	-47.85	Non intact; natural. Recovered as angular and subangular fragments (< 85mm x 75mm x 60mm) of strong flint.
	-51.6	-51.65	Medium nodular flint.
MRC4	-24.9	-25.05	Medium nodular flint.
	-27.79	-27.85	Medium nodular flint.
	-32.17	-32.27	Medium nodular flint.
	-34.17	-34.25	Medium nodular flint.
	-35.03	-35.14	Medium nodular flint.
	-37.13	-37.24	Medium nodular flint.
	-39	-39.1	Flint fragments (<60mm x 70mm x 90mm), possibly medium whole nodular flint.
	-41.68	-41.72	Non intact; natural. Recovered as angular flint fragments (<10mm x 20mm x 50mm), possibly whole medium flint nodule.
	-47.69	-47.76	Medium nodular flint.
	-48.68	-48.9	Large nodular flint.
	-49.14	-49.21	Medium nodular flint.

The over-water ground investigation indicates highly fractured zones within the Seaford Chalk. Fracture zones can indicate areas of higher permeability. The levels of highly fractured zones identified in boreholes are summarised in Table 23. Along with fracture zones marl bands can indicate zones of higher permeability. CIRIA C754 Engineering in Chalk states marl seams create perched water tables leading to more intensely weathered zones. Consequently, chalk immediately above marl seams is not only often higher permeability than elsewhere but also a reservoir for perched water. Marl bands are summarised in Table 24.

Table 23. Summary of over-water ground investigation fractures

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC1	-27.9	-28.26	Highly fractured
	-28.41	-28.63	Highly fractured
	-30.34	-30.62	Highly fractured.

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC1	-43.55	-43.58	Locally very closely spaced fractures.
	-53.7	-54	Highly fractured zone. Bedding fractures are 10-30 degrees extremely closely and very closely spaced undulating and stepped rough partly open and open with silt infill (<3mm) and grey staining.
	-54.36	-54.6	Highly fractured zone. Bedding fractures are 10-30 degrees extremely closely and very closely spaced undulating and stepped rough partly open and open with silt infill (<3mm) and grey and black staining. Joints are 40-60 degrees extremely closely and very closely spaced undulating rough partly open and open with silt infill (<3mm).
MRC2	-23.45	-24.72	Highly fractured zone.
	-25.68	-25.89	1 no. joint 80 degree planar smooth partly open with silt infill (<0.5mm).
	-27.27	-27.6	Highly fractured.
	-45.4	-45.66	Highly fractured.
	-54.35	-54.37	2 no. bedding fractures, 0-10 degrees extremely closely spaced planar smooth tight with grey staining.
MRC3	-24.94	-24.96	locally 2 no. extremely closely spaced fractures
	-34.26	-35.13	1 no joint 60 to 80 degree planar smooth partly open with silt infill (< 0.5mm) with blackish staining.
	-39.13	-39.38	Highly fractured zone. Bedding fractures are 0-5 and 25-30 degrees extremely closely and very closely spaced planar and stepped smooth open with silt infill (< 1mm). Joints are 60-65 and 85-90 degrees very closely spaced planar and undulating smooth partly open with silt infill (< 0.5mm).
	-42.19	-42.65	Highly fractured zone. Fractures are 0-5, 25-30, 80-90 degrees extremely closely and very closely spaced stepped and planar rough partly open with silt infill (< 0.5mm).
MRC4	-30.39	-30.59	Highly fractured zone. Bedding fractures are 0-10 degrees extremely closely and very closely spaced undulating and stepped smooth and rough partly open with silt infill (<0.5mm). Joints are 45, 60, 80-85 degrees extremely closely and very closely spaced stepped smooth and rough partly open with silt infill (<0.5mm).

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC4	-32.63	-32.86	Highly fractured zone. Bedding fractures are 0-10 degrees extremely closely spaced planar and stepped smooth open with silt infill (<1mm). Joints are 60 and 85 degrees extremely closely spaced stepped and planar smooth open with silt infill (<1mm).
	-33.46	-33.62	Highly fractured zone. Bedding fractures are 0-5 and 25-30 degrees extremely closely and very closely spaced planar and stepped smooth open with silt infill (<1mm). Joints are 60-65 and 85-90 degrees very closely spaced planar and undulating smooth partly open with silt infill (<0.5mm).
	-39.5	-39.57	1 no. joint 45 degrees spacing undetermined undulating smooth partly open with silt infill (<0.5mm).
	-39.54	-39.9	Highly fractured zone. Bedding fractures are 10-30 degrees extremely closely and very closely spaced planar and stepped smooth open with silt infill (<1mm). Joints are 60-70 and 85-90 degrees very closely spaced planar and undulating smooth partly open with silt infill (<0.5mm).
	-46.08	-46.2	1 no. joint 45 degrees spacing undetermined, undulating smooth tight with grey staining.
	-46.67	-46.76	2 no. joints running parallel 45 degrees, very closely spaced planar and undulating, tight clean and grey staining.

Table 24. Summary of over-water ground investigation fractures

Borehole	Level (mAOD)		Remarks
	Top	Base	
MRC2	-37.75	-38.3	Medium spaced wispy marls (<1mm).
	-41.35	-44.49	Medium spaced wispy marls (<1mm) and widely spaced marl bands (<5mm).
	-45.8	-47.98	Medium spaced wispy marls (<1mm) and widely spaced marl bands (<40mm).
MRC3	-39.81	-44.4	Medium spaced wispy marls (<1mm) and occasional orange staining.
	-45.65	-47.15	Medium spaced wispy marls (< 1mm).

The levels of recorded TCR, SCR and RQD for the over-water ground investigation are shown in Figure 15, Figure 16 and Figure 17 below. TCR was recorded as 100% in core runs down the entire length of the boreholes. Both SCR and RQD increase with depth. SCR of 100% is recorded at 27.5mAOD and below and RQD of 100% at -32mAOD and below. The lowest level at which SCR and RQD were recorded as 0% was -22.5mAOD.

Figure 15. Over-water TCR% vs Level (mAOD)

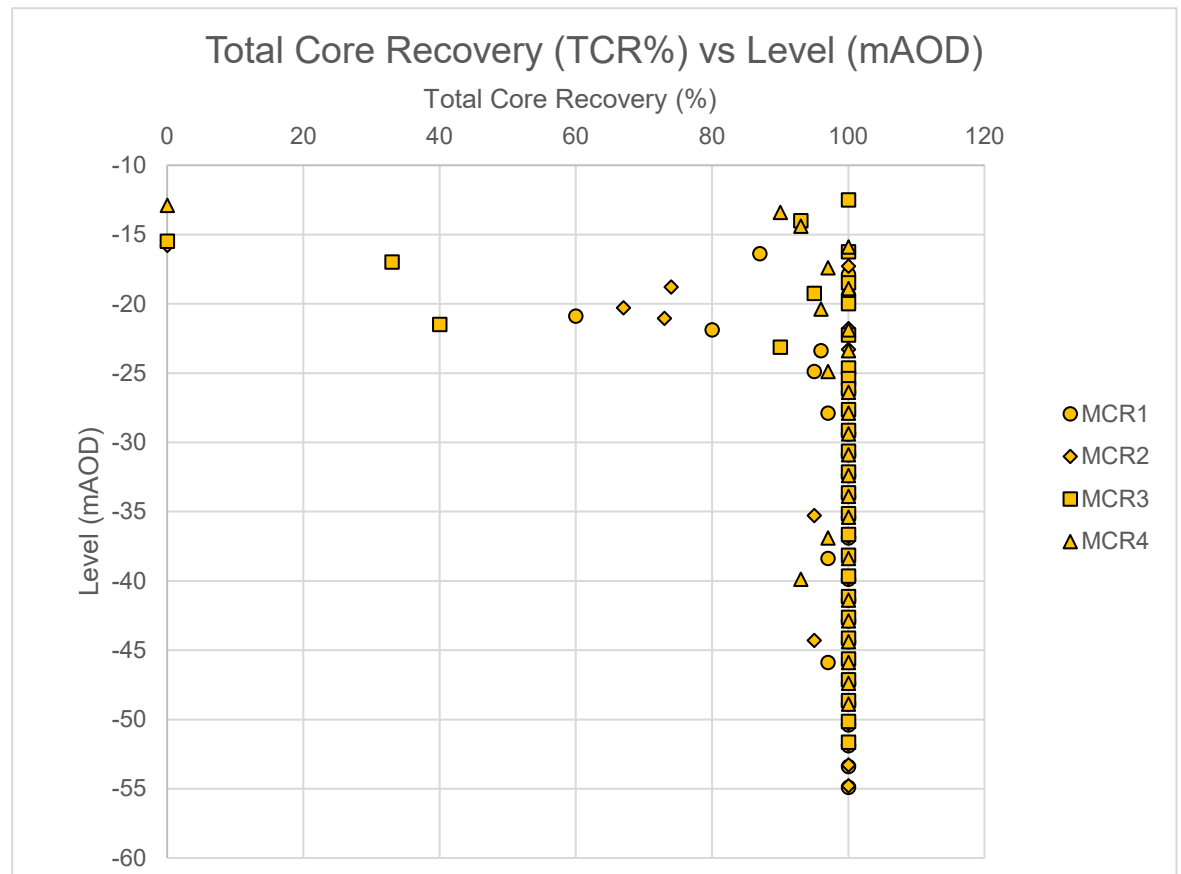
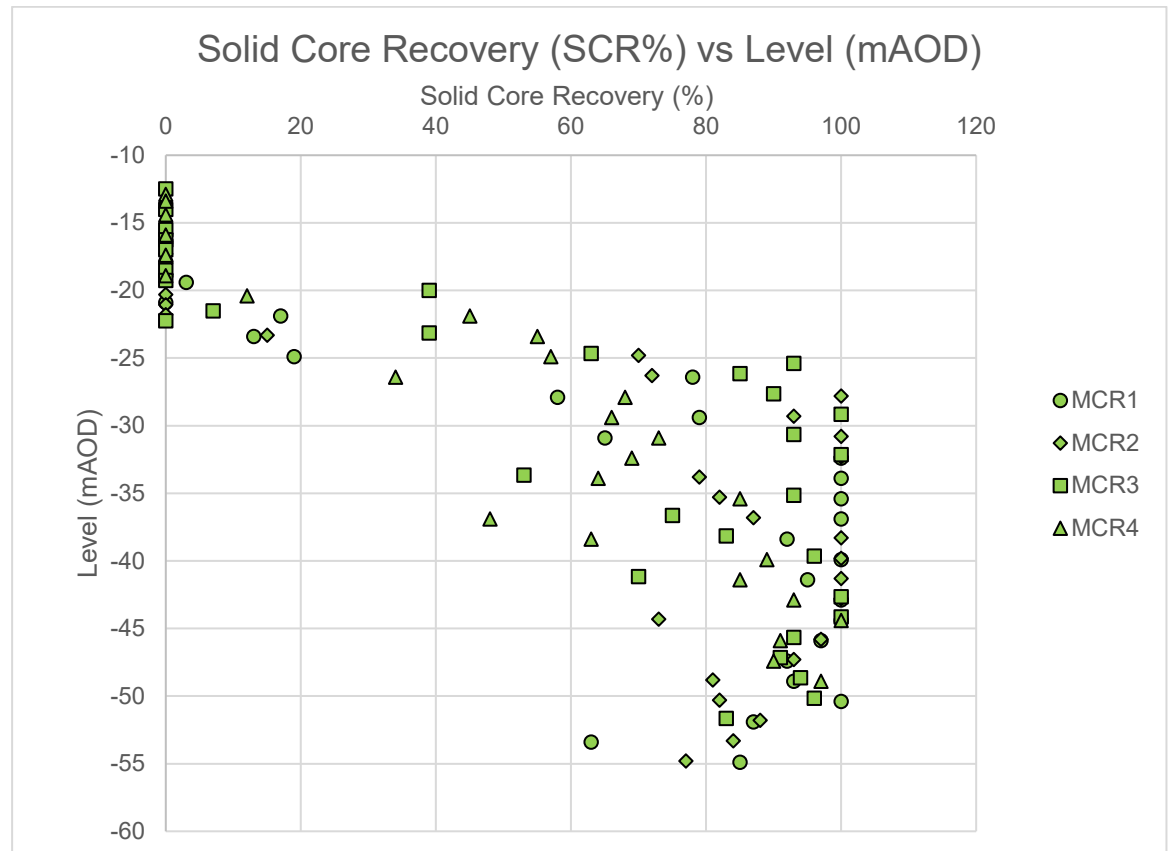
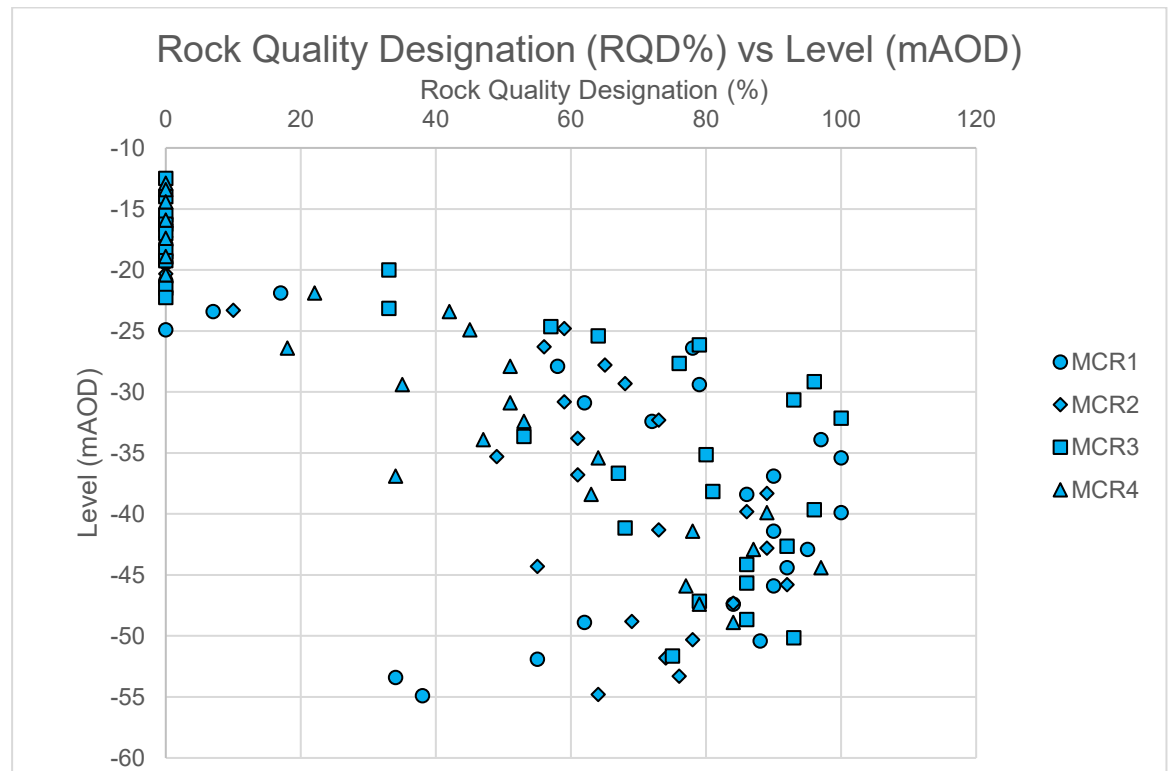
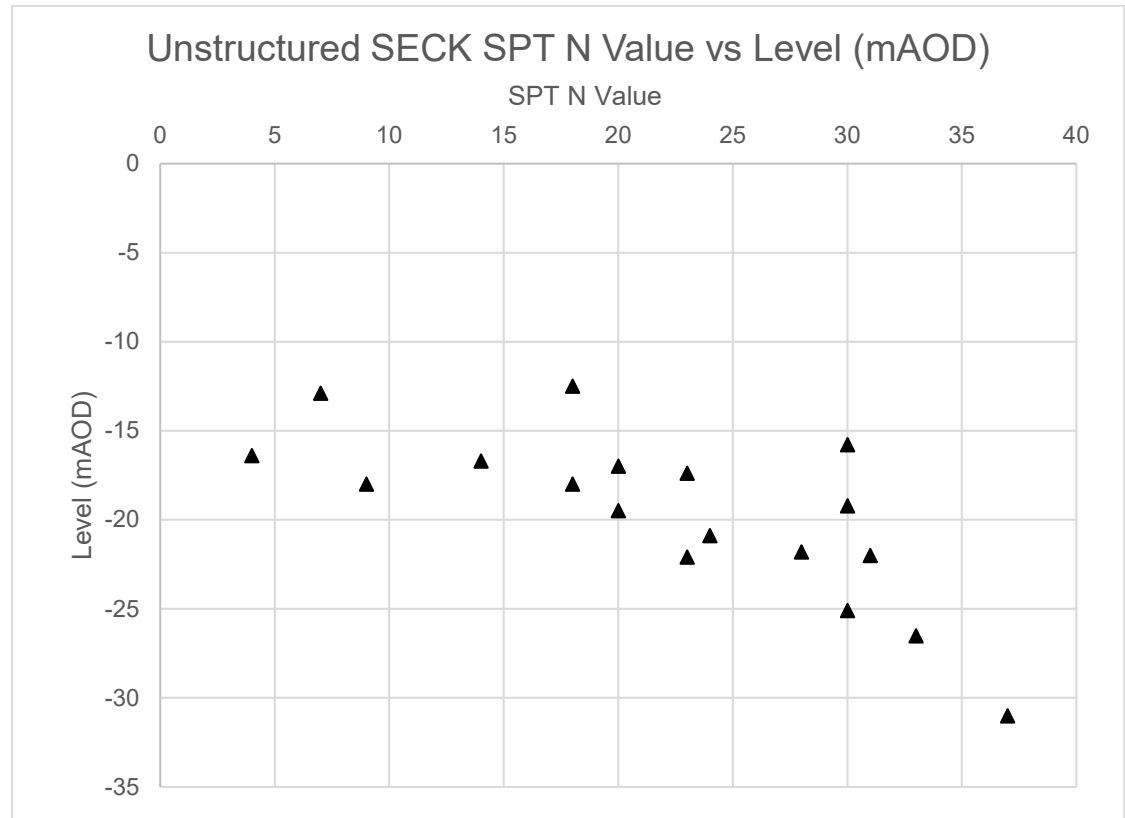


Figure 16. Over-water SCR% vs Level (mAOD)**Figure 17. Over-water SCR% vs Level (mAOD)**

7.3.1.3 Seaford Chalk Formation SPT Results

SPT results in the unstructured Seaford Chalk Formation recorded N values ranging between 4 and 37. Figure 18 below shows the SPT results vs level in the SECK.

Figure 18. RTD SPT N Value vs Depth (mBGL)



7.3.2. Lewes Nodular Chalk Formation (LECH)

7.3.1.4 On-Land Ground Investigation

Underlying the Seaford Chalk is the Lewes Nodular Chalk Formation and was encountered in BH01, BH02A, BH03, BH05 and BH06 completed as part of the on-land ground investigation. Descriptions in boreholes indicate this to be very weak to weak medium density white chalk, CIRIA grade A2 to fractureless. Frequent black nodular flint (up to 120x60x40mm). The encountered levels of LECH vary between the New Tilbury CSEC and Gravesend CSEC locations. The shallowest recorded LECH was encountered at Tilbury was -42.76mAOD and -53.93mAOD at Gravesend.

No notable layers of flint are recorded within the Lewes Nodular Chalk in the borehole logs.

Chalk hardground layers are noted in Table 25 below.

Table 25. Chalk Hardgrounds

Borehole	Level (mAOD)		Remarks
	Top	Base	
BH01	-51.32	-51.36	Medium strong high density chalk (hardground)
	-51.64	-51.79	Medium strong high density chalk (hardground)
	-56.94	2.26	Nodular hardground with frequent zoophycos trace fossils.
	-77.3	-77.38	Nodular hardground with medium strong very high density chalk intraclasts.
BH02A	-46.3	-46.56	Nodular chalk hardground.
	-47.01	-47.33	Becomes weak high density (probable hard ground).
	-48.36	-48.71	Weak high density chalk (hardground).
	-48.83	-49.05	Weak high density chalk (hardground).
	-50.95	-51.38	Weak high density chalk (hardground).
	-52.17	-52.53	Moderate weak high density chalk (hardground).
	-53.75	-53.89	Moderately weak high density chalk (hardground).
	-67.02	-67.19	Moderate weak high density white chalk (probable hardground).
	-67.74	-67.86	Moderate weak high density white chalk (probable hardground).
BH03	-52.73	-52.83	Chalk hardground comprising weak high density chalk.
BH05	-65.52	-68.02	Medium spaced thin beds of moderately weak very high density nodular chalk (nodular hardgrounds)
BH06	-68.41	-68.91	Nodular chalk hardground comprising very weak medium density white chalk with frequent intraclasts (up to 40x40x30mm) of weak medium to high density white chalk

In the Lewes Nodular Chalk out of the 42 cores TCR was recorded as 100 in 33, SCR as 100 in 32 and RQD as 100 in 30. The lowest value for all three was recorded as 73.

7.3.1.5 Over-water Section

The Lewes Nodular Chalk Formation was not encountered in the over-water ground investigation.

7.4. Methodology for Determination of Characteristic Properties

Characteristic values were determined for each geotechnical parameter in accordance with BS EN 1997-1 & 2, by correlation with values measured directly from available (in situ/laboratory) testing, or by correlation with values derived empirically and/or indirectly from available (in situ/laboratory) testing.

In instances where the above values for a material may be seen as unrepresentative or where values are not available, based on engineering judgment and experience, published guideline values were consulted to establish appropriate cautious characteristic values for the particular material.

The following sections provide a basis for the interpretative parameters for each strata in the following sections.

7.4.1. Unit Weight, γ (kN/m^3)

Where measured as part of laboratory tests these values will be used. If no measurements of unit weight were undertaken characteristic values based on literature will be used.

7.4.2. Undrained Shear Strength c_u (kPa)

Values for undrained shear strength can be determined from interpretation of borehole log strength descriptions of soil consistency.

Where appropriate, undrained shear strength values for fine-grained soils were also derived indirectly from SPT N-values by correlating the N-values to assess the strength of the cohesive material. Then characteristic undrained shear strength values will be selected.

The undrained angle of shearing resistance is assumed to be zero for all fine-grained soil.

Where no data was recorded historical data will be used.

7.4.3. Drained Shear Strength, Φ ($^\circ$)

Where testing has been completed the recommended values will be used.

For coarse-grained soils, characteristic values for the effective angles of shearing resistance were determined empirically using SPT N-values to determine the shear resistance based on recommended values in Tomlinson, Pile Design and Construction 5th edition.

Values for the effective angles of shearing resistance of natural fine-grained soils were determined empirically for each material type using laboratory plasticity index values and correlation between critical angle of shearing resistance and plasticity index, BS8004:2015 (Table 2).

7.4.4. *At Rest Earth Pressure, K_0*

The following relationship between Angle of Shear Resistance and K_0 has been used.

$$K_0 = 1 - \sin \Phi$$

7.4.5. *Elastic Modulus, E (MPa)*

An empirical relationship of $E=400c_u$ has been adopted for the cohesive strata based on work presented in Tomlinson, Foundation Design and Construction, after Butler 1974.

For non-cohesive guidance from Bowles 1997 Table 2-8 has been used.

For Chalk CIRIA C574 (Engineering in Chalk) has been used as guidance.

7.4.6. *Permeability, k (m/s)*

Where testing has been completed the recommended values will be used.

In absence of in-situ permeability tests, using Hazen's relationship, $k = (C/10^4) \times (D_{10})^2$ m/s, and PSD results for D_{10} and D_{60} values permeability can be estimated.

In the absence of these characteristic parameters will be used based on guidance from Das 2011.

7.4.7. *Uniaxial Compressive Strength, UCS (MPa)*

Uniaxial compressive strength has been assessed based on the measured values presented in the testing result data from both UCS and point load testing.

If no UCS values are available correlation from point load index will be used. The following relationship between point load index and uniaxial compressive strength has been used based on ASTM paper Standard Test Method for Determination of the Point Load Strength Index of Rock and Application to Rock Strength Classifications¹.

$$UCS = K * I_{s(D)}$$

K = index of strength conversion factor that depends on site-specific correlation between UCS and $I_{s(D)}$

As K is unknown a generalised conversion factor (K) of 24 has been selected from the ASTM paper table 1.

In absence of UCS testing characteristic values will be used.

7.4.8. *Cercher Abrasivity Index*

Where testing has been completed the recommended values will be used.

In the absence of testing historical data or characteristic values will be used.

7.4.9. *Chalk Crushing Value*

Where testing has been completed the recommended values will be used.

7.4.10. Summary of Superficial Geology Parameters

Table 26. Tilbury Superficial Geology Parameters

Stratum	Made Ground (MDG)		Alluvium (ALV)		River Terrace Deposits (RTD)	Seaford Chalk Formation – Structureless (SECK)
	Silt/Clay	Sand/Gravel	Silt/Clay	Peat		
Clay/Silt/Sand/Gravel (%)	36/51/9/4	6/11/27/56	43/50/6/1	-	5/8/36/51	5/7/17/71
LL/PL/PI (%)	84/37/47	-	140/58/82	-	-	-
Unit Weight, γ (kN/m ³) min/ave/med/max (n)	16.0 - 17.0 @	16.0 - 17.0 @	14.40/15.65/15.35/18.30 (2)	11.0 *@	15.00 – 20.00 *@	18.00 – 19.00 *@
cu (kPa) min/ave/med/max (n)	20 – 40 @	-	0/25/18/103 (21) *	10/22/18/44 (4) **	-	-
Phi, Φ (°)	20 @	28 – 30 *@	23	30 @	28 - 43 *@	28 - 33 *@
At Rest Earth Pressure, K_0	$K_0 = 1 - \sin \Phi$					
Elastic Modulus, E (MPa)	0.8		6	10	10 – 50 @	10 – 50 @
Permeability, k (m/s) min/ave/med/max (n)	3.5×10^{-9} @	5×10^{-6} @	3.5×10^{-9} @	5.1×10^{-5}	3.1×10^{-5} / 5.0×10^{-5} / 6.9×10^{-5} (2)	10^{-5} – 10^{-6} @

Min = minimum, ave = average, med = median, max = maximum, n = number of results

= Historical data, * = SPT correlation values included, @ = Characteristic Parameter

Table 27. Gravesend Superficial Geology Parameters

Stratum	Made Ground (MDG)	Alluvium (ALV)			River Terrace Deposits (RTD)	Seaford Chalk Formation – Structureless (SECK)
		Silt/Clay	Peat	Sand		
Clay/Silt/Sand/Gravel (%)	46/52/2/0	43/50/6/1	-	11/18/43/28	0/0/25/75	-
LL/PL/PI (%)	67/30/37	96/38/58	-	-	-	-
Unit Weight, γ (kN/m ³) min/ave/med/max (n)	16.0 - 17.0 @	14.4/16.5/16.1/19.2 (6)	11.0 *@	15.00 – 18.00 *@	15.00 – 20.00 *@	18.00 – 19.00 *@
cu (kPa) min/ave/med/max (n)	0/13/13/26 (4) *	0/16/13/49 (17) *	10/25/24/44 (4) #	-	-	-
Phi, Φ (°)	23	20	30 @	28 – 30 *@	28 - 43 *@	28 - 33 *@
At Rest Earth Pressure, K_0	$K_0 = 1 - \sin \Phi$					
Elastic Modulus, E (MPa)	0.8	6	10	10 – 25 @	10 – 50 @	10 – 50 @
Permeability, k (m/s) min/ave/med/max (n)	3.5×10^{-9} @	3.5×10^{-9} @	$10^{-7} - 10^{-9}$ @	5×10^{-6} @	$5.0 \times 10^{-7} / 2.7 \times 10^{-6} / 4.9 \times 10^{-6}$ (2)	$10^{-5} - 10^{-6}$ @

Min = minimum, ave = average, med = median, max = maximum, n = number of results

= Historical data, * = SPT correlation values included, @ = Characteristic Parameter

7.4.11. Summary of Solid Geology Parameters

Table 28. Solid Geology Parameters

Stratum	Seaford Chalk Formation (SECK)		Lewes Nodular Chalk (LECH)
	Chalk	Flint	
Unit Weight, γ (kN/m³) min/ave/med/max (n)	18.8/19.3/19.4/20.0 (35)	-	18.7/19.8/19.8/21.1 (88) #
UCS (MPa) min/ave/med/max (n)	1.93/3.00/2.75/5.84 (32)	43.20/196.80/242.80/1082.40 (139) #%	1.70/254/2.80/3.20 (9) #
Cerchar Abrasivity Index min/ave/med/max (n)	0.05/0.70/1.02/1.30 (25)	-	1.1 (1)
Chalk Crushing Value min/ave/med/max (n)	3.4/3.9/3.8/4.5 (35)	-	3.8/4.1/4.1/4.2 (4)
Elastic Modulus, E (MPa)	50	-	14 #
Permeability, k (m/s) min/ave/med/max (n)	1.1x10 ⁻⁶ /4.8x10 ⁻⁵ /2.9x10 ⁻⁵ /3.2x10 ⁻⁴ (63)	-	2.7x10 ⁻⁶ /2.5x10 ⁻⁵ /2.7x10 ⁻⁵ /3.5x10 ⁻⁵ (7)

Min = minimum, ave = average, med = median, max = maximum, n = number of results

= Historical data, * = SPT correlation values included, @ = Characteristic Parameter, % = Point load index correlation.

7.5. Resistivity Testing

7.5.1. Thermal Resistivity

7.5.1.1 New Tilbury CSEC

Thermal resistivity testing was undertaken in TP01, TP02, TP04, TP05, TP05A and TP06. Tests were completed at depths of 0.5m and 1m, with three tests being completed in each trial pit.

Table 29 - Thermal Resistivity Results

Thermal Property	Results
Resistivity (m.K/W) min/ave/med/max (n)	0.63/2.15/2.47/3.80 (19)
Conductivity (w/m.k) min/ave/med/max (n)	0.26/0.61/0.4/1.59 (19)

Min = minimum, ave = average, med = median, max = maximum, n = number of results

7.5.1.2 Gravesend CSEC

Thermal resistivity testing was undertaken in CPT12, CPT13, CPT14, CPT15 and CPT16. Tests were completed at depths of 0.5m and 1m, with three tests being completed in each CPT.

Table 30 - Thermal Resistivity Results

Thermal Property	Results
Resistivity (m.K/W) min/ave/med/max (n)	0.65/0.89/0.90/1.08 (15)
Conductivity (W/m.K) min/ave/med/max (n)	0.92/1.12/1.11/1.40 (15)

Min = minimum, ave = average, med = median, max = maximum, n = number of results

7.5.2. Apparent Resistivity

Table 31 - Apparent Resistivity Results

IRES	Test No. (m)	Depth (m)	Penetration (mm)	Orientation	Reading, R, (Ohm)	Resistivity, r_s , (Ohm-m)	Mean, r_s , (Ohm-m)
IRES-1	1	1.00	20	N/NE-S/SW	7.11	45	45
				NE-SE	7.32	46	
	2	2.00	20	N/NE-S/SW	0.58	7	8
				NE-SE	0.65	8	
	3	3.00	20	N/NE-S/SW	0.15	3	3
				NE-SE	0.17	3	
	4	6.00	20-250	N/NE-S/SW	-0.04	-2	N/A
				NE-SE	0.06	2	
	5	9.00	20-250	N/NE-S/SW	-0.22	-13	N/A
				NE-SE	-0.03	-2	
	6	14.00	20-250	N/NE-S/SW	0.02	2	N/A
				NE-SE	-0.03	-3	
IRES-1	7	18.00	20-250	N/NE-S/SW	0.05	6	6
				NE-SE	0.05	6	
	8	30.00	20-250	N/NE-S/SW	0.03	5	N/A
	9	40.00	250	N/NE-S/SW	-0.06	-15	N/A
IRES-1	10	60.00	20-250	N/NE-S/SW	0.08	32	N/A
IRES-2	1	1.00	20	N/NE-S/SW	7.11	100	N/A
				E-W	1.46	9	
	2	2.00	20	N/NE-S/SW	0.58	7	N/A

IRES	Test No. (m)	Depth (m)	Penetration (mm)	Orientation	Reading, R, (Ohm)	Resistivity, r_s , (Ohm-m)	Mean, r_s , (Ohm-m)
				E-W	0.23	3	
	3	3.00	20	N/NE-S/SW	0.15	3	3
				E-W	0.17	3	
	4	6.00	20-250	N/NE-S/SW	-0.04	-2	N/A
				E-W	0.03	1	
	5	9.00	20-250	N/NE-S/SW	-0.22	-12	N/A
				E-W	0.03	2	
	6	14.00	20	N/NE-S/SW	0.02		N/A
				E-W	0.04		
	7	18.00	20	N/NE-S/SW	0.05		
				E-W	0.04		
	8	30.00	20	N/NE-S/SW	0.03		N/A
				E-W	N/A	N/A	
IRES-2	9	40.00	20-250	N/NE-S/SW	-0.06	-16	N/A
				NE-SE	N/A	N/A	
	10	60.00	20-250	N/NE-S/SW	0.08	30	N/A
				NE-SE	N/A	N/A	
IRES-3	1	1.00	250	W/NW-E/SE	0.75	5	N/A
	2	2.00	250	W/NW-E/SE	0.24	3	N/A
	3	3.00	250	W/NW-E/SE	0.35	7	N/A
	4	6.00	250	W/NW-E/SE	0.00	0	N/A

IRES	Test No. (m)	Depth (m)	Penetration (mm)	Orientation	Reading, R, (Ohm)	Resistivity, r_s , (Ohm-m)	Mean, r_s , (Ohm-m)
	5	9.00	250	W/NW-E/SE	0.29	17	N/A
	6	14.00	250	W/NW-E/SE	-0.85	-75	N/A
	7	18.00	250	W/NW-E/SE	0.05	6	N/A
	8	30.00	250	W/NW-E/SE	-0.01	-2	N/A
	9	40.00	250	W/NW-E/SE	N/A	N/A	N/A
	10	60.00	250	W/NW-E/SE	N/A	N/A	N/A

7.6. Groundwater Conditions

7.6.1. New Tilbury CSEC

During the Tilbury ground investigation recording of ground water levels was limited to monitoring of installations. During the ground investigation at Tilbury water flush was used to complete the drilling preventing the observation of groundwater strikes and rises. Standpipes were installed in boreholes BH01, BH02A and BH03. Table 32 below summarises the monitoring completed in these standpipes.

Table 32 - Groundwater Monitoring Results

Installation ID	Depth of Installation (mBGL)	Response Zone (mBGL)	Geological Stratum	Ground Water Levels (mBGL/mAOD)
BH01 (1)	27.00	25.00 – 27.00	SECK	1.34 – 2.15 / 0.92 – 0.11
BH01 (2)	10.00	8.00 – 10.00	ALV	0.67 – 0.83 / 1.59 – 1.43
BH02A (1)	44.00	42.00 – 44.00	SECK	2.12 – 2.67 / 0.75 – 0.20

Installation ID	Depth of Installation (mBGL)	Response Zone (mBGL)	Geological Stratum	Ground Water Levels (mBGL/mAOD)
BH02A (2)	18.50	16.50 – 18.50	RTD	2.33 – 2.67 / 0.54 – 0.20
BH03 (1)	38.00	34.50 – 27.50	SECK	4.30 – 5.10 / 0.52 – -0.28

At New Tilbury CSEC the groundwater level should be considered between 1.59mAOD and -0.28mAOD.

7.6.2. Gravesend CSEC

During the Gravesend ground investigation recording of ground water levels was limited to monitoring of installations. During the ground investigation at Gravesend water flush was used to complete the drilling preventing the observation of groundwater strikes and rises. Standpipes were installed in boreholes BH04, BH05 and BH06. Table 33 below summarises the monitoring completed in these standpipes.

Table 33 - Groundwater Monitoring Results

Installation ID	Depth of Installation (mBGL)	Response Zone (mBGL)	Geological Stratum	Ground Water Levels (mBGL/mAOD)
BH04 (1)	50.20	42.00 – 44.00	SECK	1.76 – 2.18 / 0.44 – 0.02
BH04 (2)	16.00	15.00 – 16.00	ALV	1.33 – 2.07 / 0.87 – 0.13
BH05 (1)	53.00	50.00 – 53.00	SECK	0.80 – 1.96 / 1.68 – 0.52
BH05 (2)	18.00	16.00 – 19.00	RTD	0.81 – 1.87 / 1.67 – 0.61
BH06 (1)	27.50	25.00 – 27.50	SECK	1.09 – 1.66 / 1.40 – 0.83
BH06 (2)	7.50	5.00 – 7.50	ALV	1.05 – 1.30 / 1.44 – 1.19

At Gravesend CSEC the groundwater level should be considered between 1.68mAOD and 0.02mAOD.

7.6.3. River Thames Section

Groundwater observations were not possible during the over-water ground investigation.

7.7. *Ground Aggressivity*

New Tilbury CSEC information is not available at the time of writing this report.

BRE Special Digest 1 analysis has been carried out to determine the concrete aggressivity class. Table 35 below summarises the results for Gravesend. Table 34 summarises results for Tilbury.

Table 34. Tilbury BRE Special Digest 1 ground aggressivity classes

Stratum	Design Sulfate Class	ACEC Class
Made Ground (MDG)	DS-3	AC-3
Alluvium (ALV)	DS-3	AC-3
River Terrace Deposits (RTD)	DS-3	AC-3
Seaford Chalk Formation (SECK)	DS-1	AC-1
Lewes Nodular Chalk Formation (LECH)	DS-1	AC-1

Table 35. Gravesend BRE Special Digest 1 ground aggressivity classes

Stratum	Design Sulfate Class	ACEC Class
Made Ground (MDG)	DS-1	AC-1
Alluvium (ALV)	DS-2	AC-2
River Terrace Deposits (RTD)	DS-1	AC-1
Seaford Chalk Formation (SECK)	DS-1	AC-1
Lewes Nodular Chalk Formation (LECH)	DS-1 (Assumed)	AC-1 (Assumed)

7.8. *Ground Gas Assessment*

Gas monitoring of the three installed monitoring boreholes was undertaken on four occasions - 28th April (R1), 12th (R2), 19th (R3) and 26th May (R4) 2023 on the southern side of the site (Gravesend CSEC). Gas monitoring of the three installed monitoring boreholes was undertaken on four occasions - 9th June (R1), 16th (R2), 23rd (R3) and 30th (R4) 2023 on the northern side of the site (New Tilbury CSEC).

The gas monitoring results are provided in the SOCOTEC reports and the suitability of the data is summarised in Table 36.

Table 36 Suitability of Gas Monitoring Data

Query	Comment – Gravesend CSEC	Comment – New Tilbury CSEC
Number and distribution of gas wells	Limited coverage across the site, a total of three wells have been installed in total. No wells are installed on the boundary of the site to allow for wider gas monitoring / ground migration to be assessed.	Limited coverage across the site, a total of three wells have been installed in total. The wells have been installed across the site – with two in the main compound, and one outside of the main compound.
Design of monitoring wells	All wells are installed as dual installation wells within the RTD/ALV and Chalk. Only the deep installation of each well was monitored (Chalk). Sufficient plain pipe is present in all wells to form an adequate seal. Confirmation if the contractor used an oil water interface probe to complete the monitoring is not known.	BH01 and BH02A are installed as dual installation wells within the RTD/ALV and Chalk. Only the shallow installation of each well was monitored (RTD/ALV). Sufficient plain pipe is present in all wells to form an adequate seal. Confirmation if the contractor used an oil water interface probe to complete the monitoring is not known.
Flooded Wells	All wells were flooded for the duration of the monitoring period, which may influence the gas readings. Gas monitoring data may not be representative of ground gas conditions and could represent vapour from groundwater	
Frequency and duration of Monitoring	BH04 was monitored on four occasions and BH05/BH06 were monitored on three occasions over a four week period. Atmospheric pressure ranged from 1009mb to 1033mb during the monitoring visits.	BH01 and BH02A were monitored on four occasions over a four week period. Atmospheric pressure ranged from 1016 to 1025mb during the monitoring visits.

7.8.1. Gravesend CSEC

Three boreholes (BH04, BH05, BH06) are installed with a dual installation within the ALV/RTD and Bedrock strata, of which the bedrock strata were monitored. BH04 was monitored on all four occasions, with BH05 and BH06 on three occasions due to access restrictions during one of the visits. The available gas monitoring results are summarised below.

- Methane was recorded up to a maximum peak concentration of 1.6%v/v peak and steady state (BH04 R2), noted to be greater than the lower explosive limit. A second maximum peak and steady methane of 0.3%v/v was recorded in BH04 R3 and BH06 R4.
- Carbon dioxide was recorded up to a maximum concentration of 2.4%v/v peak and steady (BH04 R2). A second maximum carbon dioxide concentration of 1.1%v/v peak and steady was record in BH04 R3.
- Carbon monoxide was recorded up to a maximum concentration of 323ppm peak and 321ppm steady (BH04 R2). A second maximum carbon monoxide peak of 112ppmand steady of <1ppm in BH06 R4. It is noted that the second highest carbon monoxide steady was recorded in BH04 R3 at 91ppm.

- Oxygen (steady) was recorded at concentrations between 12.5%v/v (BH04 R2) and 21.1%v/v (BH04 R1). The second lowest oxygen concentration is 19.4%v/v (BH04 R3).
- The highest flow rate of 7.8l/hr were recorded in BH04 R4. All other flows remained at or below 0.1l/hr.
- It is noted that all the maximum concentrations appeared in BH04 R2 where a pump error was noted.

7.8.2. *New Tilbury CSEC*

Two boreholes (BH01, BH02A) are installed with a dual installation within the ALV/RTD (superficial) and Chalk (Bedrock) strata, of which the ALV/RTD strata was monitored. BH01 and BH02A were monitored on all four occasions. The available gas monitoring results are summarised below.

- Methane was recorded up to a maximum peak concentration of 0.4%v/v peak (BH01 R3) and a maximum steady state of 0.1%v/v. All other concentrations were either 0.1%v/v or <0.1%v/v.
- Carbon dioxide was recorded up to a maximum concentration of 0.2%v/v peak and steady (BH02A R1). All other concentrations were either 0.1%v/v or <0.1%v/v.
- Carbon monoxide was recorded up to a maximum concentration of 3ppm peak (BH01 R3/R4) and 2ppm steady (BH02A R1). A second maximum carbon monoxide peak of 2ppm in BH02A R1/3. All other concentrations were 1ppm.
- Oxygen (steady) was recorded at concentrations between 19.4%v/v (BH02A R1) and 21.2%v/v (BH01 R4).
- The highest flow rate of 0.1l/hr were recorded in both BH on at least one occasion. The lowest flow rate of -0.4l/hr in BH02A R1.

8. Geo-environmental Assessment

Due to the nature of the site, which is split by the River Thames and the proposed development, this assessment has been split into three areas: The land parcel to the south of the River Thames referred to as Gravesend CSEC, the tunnel (beneath the River Thames) and the land parcel to the north of the River Thames referred to as New Tilbury CSEC.

8.1. Introduction

The methods used within this assessment follow a risk-based approach with the potential environmental risk assessed qualitatively using the 'source – pathway – receptor' concept introduced in the Environmental Protection Act 1990. For a site to be designated as Contaminated Land, a plausible linkage between the identified source, pathway, and receptor must be demonstrated (Pollutant Linkage). A summary of the preliminary conceptual site model including potential sources, pathways and receptors is presented in Section 7.11.2. The updated conceptual site model following the completion of ground investigation and risk assessment is presented in Section 7.11.7.5.

The Environment Agency (EA) Land Contamination: Risk Management (LCRM) guidance¹ provides three stages of land contamination risk management with each stage comprising three tiers as described in Table 37.

Table 37 Land Contamination Risk Management Stages

LCRM	Tier 1	Tier 2	Tier 3
Stage 1 Risk Assessment	Preliminary Risk Assessment (PRA)	Generic Quantitative Risk Assessment (GQRA)	Detailed Quantitative Risk Assessment (DQRA)
Stage 2 Options Appraisal	Identify reasonable remediation options	Detailed evaluation of options	Select final remediation options
Stage 3 Remediation	Develop Remediation Strategy	Remediation and Verification	Long term monitoring and maintenance, if required

The guidance and the associated risk management stages set out how to assess whether (or not) there are likely to be unacceptable land contamination risks associated with a site, then how to select the most suitable mitigation options to manage unacceptable risks and how to implement remediation if needed.

The Geo-environmental Assessment Section 7.11 of this report has been prepared in line with a Stage 1 Risk Assessment: **Tier 2 Generic Quantitative Risk Assessment (GQRA)**,

¹ Environment Agency (EA) Land Contamination: Risk Management (LCRM) guidance¹ [Land contamination risk management \(LCRM\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/61441/land-contamination-risk-management-lcrm.pdf)

as shown in **Bold** in Table 37. This section is based on the available information provided at the time of writing.

8.2. *Preliminary Conceptual Site Model*

Based on the information provided in the Geotechnical Desk Study, the following Preliminary Conceptual Site Model is presented below.

8.3. *Potential sources – On-site*

- Gravesend CSEC – Made Ground associated with the former use of the site as Milton Rifle Range (1898 to 1975), developed further in 1975 to present day layout as Eastcourt Marshes sealing end compound and substation. Contaminants of concern include; Metals, Total Petroleum Hydrocarbons (TPH) and Polychlorinated Biphenyls (PCBs).
- New Tilbury CSEC – Agricultural historical land use until 1966. Made Ground associated with Tilbury Power Station and Tilbury shaft sealing end compound (1966 to present day). Contaminants of concern include: Metals, Total Petroleum Hydrocarbons (TPH), Polyaromatic Hydrocarbons (PAHs), Volatile Organic Compound (VOCs) and Polychlorinated Biphenyls (PCBs). The site is an authorised landfill (RWE Npower plc) and a historical landfill (Tilbury B Power Station Fort Road) which accepted inert waste from 1978 as dates of filling are not known.
- Contaminated groundwater associated with the above sources.
- Ground gas and volatile vapour from filling activities associated with power station activities.
- Asbestos Containing Soils (ACSs) and Asbestos Containing Materials (ACMs) in MDG from demolitions materials which may be present associated with stages of development of the site.

8.3.1. *Potential Sources – Off-site*

- Wider power station area Contaminants of concern include; Metals, Total Petroleum Hydrocarbons (TPH), Polyaromatic Hydrocarbons (PAHs), Volatile Organic Compound (VOCs) and Polychlorinated Biphenyls (PCBs).
- East Tilbury Historic landfill – Known to have accepted household waste (1958) dates of last filling are not known.

8.3.2. *Potential Receptors*

Human Health

- Workers – Ground workers, Construction Workers, and Future Maintenance Workers. The conceptual site model assumes the on-site workers would adopt appropriate PPE and adopt safe working practices for the identified ground conditions.
- End Users – Commercial use of all three areas of the site.
- Potential Trespassers.
- Off-site Land Users in neighbouring properties (commercial) and public open space (South Thames Estuary and Marshes – Local Wildlife Site).

Controlled Waters

- Surface Water – River Thames flowing west to east across the site is classed as a main river. Under the Water Framework Directive River Basin Management Plan (WFD RBM, 2018)² the River Thames (Middle) in the vicinity of the site both up and down gradient is assessed as having an overall status of ‘moderate’, and ‘fail’ for chemical status. Elevated concentrations are recorded for PAHs, Mercury, PFOS, PDBE, and Tributyltin compounds.
- Groundwater – Superficial deposits are classified as: Secondary Undifferentiated Aquifer (RTD) and Unproductive Aquifer (ALV). The underlying bedrock is classified as: Principal Aquifer (Chalk). Groundwater is assessed under the WFD RBMP 2018 as having an overall status of ‘Good’.

Property Receptors

- Future structures – Assessed in Sections 7.9 and 7.10.1 and is not considered further in this section of the report.

8.3.3. *Potential Pathways*

Human Health

- Pathway 1 – Direct contact (dermal contact with soil and groundwater, ingestion of soil and dust) with potentially contaminated soils associated with on-site sources is possible by ground workers, construction workers and future below ground maintenance activities.
- Pathway 2 – Direct contact (dermal contact, ingestion of soil and dust) with potentially contaminated soils is possible by current and future end users (public open space users, neighbouring properties and trespassers).
- Pathway 3 – Inhalation of possible liberated fibres from ACSs and ACMs by ground workers, construction workers, future below ground maintenance workers, current and future end users (public open space users, neighbouring properties and trespassers).
- Pathway 4 – Inhalation of potentially volatile vapours (hydrocarbons / solvents) resulting from soil or groundwater sources by groundworker and construction workers and future below ground maintenance workers.
- Pathway 5 – Migration of ground gas (methane and carbon dioxide) from biodegradable matter / putrescible materials in MDG / landfilled areas (including off-site sources), followed by off-site via preferential pathways (pipeline / services) and / or accumulation with trenches / below ground excavations resulting in asphyxiation / explosion.

² <https://www.gov.uk/government/collections/river-basin-management-plans-2015> and <https://environment.data.gov.uk/catchment-planning/WaterBody/GB530603911402>

Controlled Waters

- Pathway 6 – Leaching of contaminants from potential source areas and vertical migration of contamination from shallow deposits / sources areas / perched groundwater (if any) into the underlying Aquifers.
- Pathway 7 – Leaching of contaminants from potential historical sources into groundwater followed by lateral migration to the River Thames.

8.4. Chemical Analysis and in situ Analysis

Chemical Analysis

Available geochemical testing information is provided in Appendix F of the SOCOTEC Factual Report ref. D2064-22/B and Appendix G of the Fugro Report ref. F223727-REP-002 02 and summarized in Appendix C of this report. Some testing information is outstanding from the draft factual report available at the time of writing the report and has been provided separately.

During the Gravesend testing it is noted that Anions 2:1, pH and conductivity analysis were sub-contacted by SOCOTEC to DETS with a batch of 10 samples recorded as deviating for this analysis. This was due to sample dates not being supplied and holding times are not considered to have been exceeded.

Organic Matter testing was sub-contracted by SOCOTEC to DETS with a single sample from BH04 12.00 – 12.50m was recorded to be deviating based on holding times.

During the New Tilbury CSEC testing it is noted that Anions 2:1, total Sulphur, total sulphate, pH, organic matter and conductivity analysis were sub-contacted by SOCOTEC to DETS with 3 batches of 9, 12 and 1 samples recorded as deviating for this analysis. Three of the samples were due to sample dates not being supplied and holding times are not considered to have been exceeded.

Samples recorded as deviating by SOCOTEC are summarised:

Sample Depth	Affected analysis	Reason for deviation
Gravesend CSEC		
BH06 46.04 – 46.27m	VOC	Holding time
BH05 54.5m	pH	Holding time
New Tilbury CSEC		
BH02A 0.10m BH02A 0.65m BH02A 1.6m	BTEX / pH / Cyanide / Phenol / VOC /	Holding Time
BH02A 7.5m	Cyanide / Phenol / VOC	Holding Time
BH02A 10m BH07A 21.10m	VOC	Holding Time
BH02A 16.5m	Chloride / Cyanide / Phenol / Leached Organic Carbon (LOC) / VOC	Holding Time
TP01 0.20m	Chloride / pH / Cyanide / Phenol / LOC / VOC	Holding Time

Sample Depth	Affected analysis	Reason for deviation
TP01 0.60m TP01 2.80m TP02 1.65m BH07A 2.1m BH07A 8.10m BH07A 15.90m	pH	Holding Time
TP02 0.20m	pH / VOC	Holding Time
TP02 0.75m	Chloride / pH / Cyanide / Phenol / LOC	Holding Time
BH07 0.30m BH07A 1.1m	BTEX / Chloride / pH / Cyanide / Phenol / VOC / LOC	Holding Time
BH01 16.20m	BTEX / Boron / Sulphate / Cyanide / Phenol / PAH / pH / Chloride / LOC / TPH / VOC / Soil Organic Matter (SOM) / Total Organic Carbon (TOC)	Holding Time
BH01 16.70m	Sulphate / pH	Holding Time
RTP02 0.35m	BTEX / Boron / Sulphate / Chloride / Cyanide / Phenol / pH / PAH / LOC / TPH / VOC	Holding Time
RTP02A 1.2m	BTEX / Boron / Sulphate / Chloride / PAH / pH / Cyanide / Phenol / LOC / TPH / VOC / SOM	Holding Time
BH01 19.30m	BTEX / Boron / Sulphate / Chloride / pH / Cyanide / Phenol / LOC / VOC / Sulphur	Holding Time
RTP01 0.80m RTP01B 0.45m BH07A 6.80m BH07A 16.40m	BTEX / Chloride / pH / Cyanide / Phenol / LOC / VOC / Sulphate	Holding Time
BH03 26m BOH3 31.3m	GRO / VOC	Holding Time
BH01 27.12m BH01 37.35m	BTEX / GRO	Holding Time
BH01 42.30m	BTEX / Basic Solid Description / GRO / Boron / Sulphate / pH / Cyanide / Phenol / VOC / TPH / SOM	Holding Time
BH01 5m BH02A 5m BH03 - 7m	BTEX / GRO / pH	Holding Time

In situ analysis

PID headspace testing was undertaken on 64no. samples across the Gravesend area of the site. Recorded values ranged from the instrument detection limit 0.1ppm to 0.3ppm. No chemical odour or observations of contamination were made.

PID headspace testing was undertaken on 74no. samples across the New Tilbury CSEC area of the site. Recorded values remained at 0ppm. No chemical odour or observations of contamination were made.

8.5. *Assessment of Risk to Human Health*

8.5.1. *Introduction*

This section represents a Generic Quantitative Risk Assessment (GQRA) of specific potentially active contaminant linkages and comprises a direct screen of the chemical concentrations against generic assessment criteria (GAC), derived from conservative assumptions. The CL: AIRE GAC³ have been adopted where no other criteria is available. For compounds where no GAC is available a comparison to the laboratory Limit of Detection (LOD) has been completed where appropriate.

The conceptual site model assumes the on-site workers would adopt appropriate PPE and safe working practices appropriate for the identified ground conditions.

Gravesend CSEC

The soil GACs adopted are LQM/CIEH S4UL, C4SL and CL: AIRE GAC criteria and based on a Commercial scenario. Laboratory testing for soil organic matter (SOM) was carried out on 34No. samples in total. The average SOM from MDG samples in Gravesend CSEC was 3.6% (6No. samples); 3.4% in ALV (14No. samples); 0.37% in RTD (4No. samples); 0.47% in Chalk (10No. samples). Therefore, a 2.5% SOM has been assumed for MDG and ALV, whilst a 1% SOM has been assumed for RTD and Chalk. The exposure assumptions are provided in the guidance and are considered relevant to the use of this area of the site as a Commercial end use.

Tunnel

The soil GACs adopted are LQM/CIEH S4UL, C4SL and CL: AIRE GAC criteria and based on Commercial land use. Laboratory testing for SOM was carried out on 8No. samples in total from chalk, with an average SOM of 0.16%, therefore a 1% SOM has been assumed. The exposure assumptions are provided in the guidance and are considered relevant to the use of this area of the site as Commercial end use.

New Tilbury CSEC

The soil GACs adopted are LQM/CIEH S4UL, C4SL and CL: AIRE GAC criteria and based on a Commercial scenario. Laboratory testing for soil organic matter (SOM) was carried out on 48No. samples in total. The average SOM from MDG samples in New Tilbury CSEC was 3.4% (21 No. samples); 11% in ALV (11No. samples); 2.6% in RTD (2No. samples); 0.9% in Chalk (14No. samples). Therefore, a 2.5% SOM has been assumed for MDG and RTD, ALV is 6%, whilst a 1% SOM has been assumed for Chalk.

³ <https://www.claire.co.uk/projects-and-initiatives/39-generic-assessment-criteria-gac/108-generic-assessment-criteria-gac>

The exposure assumptions are provided in the guidance and are considered relevant to the use of this area of the site as a Commercial end use.

Groundwater Vapour

To assess the potential chronic vapour risks to human health from volatile contaminants in groundwater. The GACs (GACgwvap) are adopted from the Society of Brownfield Risk Assessment, Development of Generic Assessment Criteria for Assessing Risks to Human Health from Volatile Contaminants in Groundwater, 2017⁴.

Assessment, Development of Generic Assessment Criteria for Assessing Risks to Human Health from Volatile Contaminants in Groundwater, 2017⁵.

8.5.2. Human Health GQRA Screening

The results of the GQRA screening exercise are included in Appendix C. The screening is subdivided into the following site areas, split by material type/strata where appropriate:

- Gravesend CSEC.
- Tunnel.
- New Tilbury CSEC.

No concentrations were in excess of the applied criteria for soils and groundwater vapours for Gravesend CSEC and Tunnel. There were only two exceedances for New Tilbury CSEC, which were asbestos identified in BH01 at 2.1m (0.02%), and RTP01B at 0.45m (0.001%). These were both found in the MDG samples.

⁴ Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater, SoBRA, 2017

⁵ Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater, SoBRA, 2017

8.6. *Assessment of Risk to Controlled Waters*

8.6.1. *Introduction*

A Tier 2 Generic Quantitative Risk Assessment (GQRA) for controlled waters has been undertaken to assess the risks posed to the identified controlled water receptors from the contaminant levels recorded on-site using the leachate and groundwater chemical data. A direct comparison of groundwater contaminant concentrations against appropriate quality standards (screening levels) has been undertaken.

Based on the conceptual understanding of the site, the River Thames and the underlying Aquifers are both considered valid controlled water receptors. Therefore, a screen against both of the following standards is used as a conservative screening criteria:

- Environmental Quality Standards (EQS) obtained from the Environment Agency (EA, 2018) have been used, in respect to Transitional and Coastal Waters. These regulations are considered the most appropriate screening criteria as the primary receptor is surface water.
- A selection of Drinking Water Standards (DWS) obtained from the Water Supply (Water Quality) Regulations (2010) have been applied on the basis that the site is underlain by Secondary Undifferentiated and Principal Aquifer which are considered a groundwater resource.

Should the laboratory limit of detection exceed the EQS or DWS criteria, only recordable concentrations will be considered further.

Gravesend CSEC

A total of three groundwater samples were collected on one occasion (12th May 2023). Samples were collected from the Chalk.

New Tilbury CSEC

A total of three groundwater samples were collected on one occasion (16th June 2023). Samples were collected from Chalk, RTD and ALV.

8.6.2. *Groundwater GQRA Screening*

The results of the Groundwater GQRA screening exercise are included in Appendix C.

A summary table of the concentrations in excess of the applied EQS or DWS for each of the encountered strata are presented in Table 38 to Table 39. A key of the colour coding used in the tables below is shown below, based on the different criteria applied:

Drinking Water Standards (DWS)	Environmental Quality Standards (EQS)	Limit of Detection (LOD)
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Table 38 Groundwater GQRA Screening Summary – Chalk at Gravesend CSEC

Determinand	Units	Number of samples	Number above MDL	Minimum	Average	Maximum	EQS Transitional/ Coastal	Number above EQS Transitional/ Coastal	DWS ENG & WAL	Number above DWS ENG & WAL
Chloride	mg/l	3	3	252	1694	3200	N/A	N/A	250	3
Arsenic	mg/l	3	3	0.002	0.006	0.014	0.025	0	0.01	1
Boron	mg/l	3	3	0.18	0.95	1.99	N/A	N/A	1	1
Chromium	mg/l	3	1	<0.001	0.001	0.002	0.0006	1	0.05	0
Zinc	mg/l	3	3	0.004	0.009	0.017	0.0079	1	N/A	N/A
Fluoranthene	ug/l	3	1	<0.01	0.02	0.01	0.0063	1	N/A	N/A

Table 39 Groundwater GQRA Screening Summary – New Tilbury CSEC

Determinand	Units	Number of samples	Number above MDL	Minimum	Average	Maximum	EQS Transitional/ Coastal	Number above EQS Transitional/ Coastal	DWS ENG & WAL	Number above DWS ENG & WAL
Chloride as Cl	mg/l	3	3	620	1306.7	1710	N/A	N/A	250	3
>C12-C16 (Aromatic)	mg/l	3	1	<0.2	0.21	0.23	N/A	N/A	0.090	1
>C16-C21 (Aromatic)	mg/l	3	1	<0.2	0.22	0.26	N/A	N/A	0.09	1
>C21-C35 (Aromatic)	mg/l	3	3	0.42	0.47	0.56	N/A	N/A	0.09	3
>C35-C44 (Aromatic)	mg/l	3	3	0.46	0.53	0.62	N/A	N/A	N/A	N/A
Zinc as Zn	mg/l	3	3	0.006	0.01	0.017	0.0079	1	N/A	N/A

Note: Where no criteria are available, the LOD has been used. Only VOCs above the detection limit is included in the table above, PAHs have been excluded unless above the available criteria.

8.7. *Geo-environmental Conclusions*

8.7.1. *Human Health*

Gravesend CSEC

No concentrations in excess of the adopted GAC were recorded in soil or groundwater vapours in this area of the site. No visual or olfactory evidence of significant contamination was recorded on the exploratory logs for this area.

Tunnel

No concentrations in excess of the adopted GAC were recorded in soils in this area of the site. No visual or olfactory evidence of significant contamination was recorded on the exploratory logs for this area. Note that soil samples were taken from the invert depth of planned areas of the tunnel only.

New Tilbury CSEC

No concentrations in excess of the adopted GAC were recorded in soil or groundwater vapors in this area of the site. Asbestos was found on 2 occasions, identified in BH01 at 2.1m (0.02%), and RTP01B at 0.45m (0.001%).

Human Health Summary

Confirmation of the soils present or re-used at the surface will be required to ensure the suitability for use.

There remains potential for unknown or yet to be identified contamination to be present. In areas of proposed construction, a controlled and comprehensive programme of site clearance and turnover is anticipated as part of the construction works. Should any unexpected contamination be encountered, further validation works should be completed in advance of construction works.

Volatile contamination has not been identified in Gravesend CSEC or Tunnel, however, there remains the potential for volatile contamination to be present in New Tilbury CSEC. Should volatile contamination be encountered, appropriate monitoring and control measures should be in place, especially in confined spaces or during any below ground works.

A detailed health & safety risk assessment and method statements alongside the CEMP will be required prior to commencement of the works. This will need to address and provide control measures for all site workers, public open space users and neighbouring properties.

8.7.2. *Ground Gas*

The ground gas assessment undertaken in Section 7.10 indicates that ground gas is present on site and several sources of ground gas exist (former, current, and off-site landfills).

Gravesend CSEC

Monitoring identified elevated levels of methane, carbon monoxide and carbon dioxide, with the highest concentrations along with depleted levels of oxygen being recorded in

BH04 R2 and R3. Migration off-site via preferential pathways (pipeline / services) and / or accumulation with trenches / below ground excavations resulting in asphyxiation / explosion require consideration during the design stage, and mitigation measures such as venting in tunnels.

New Tilbury CSEC

Monitoring identified levels at or below gas monitoring equipment levels for methane (maximum at BH01 R3), carbon monoxide (maximum at BH01 R3/4) and carbon dioxide (BH02A R1). There was no depleted levels of oxygen recorded. It is noted that monitoring wells were flooded, and data collected does not represent an assessment of the Made Ground materials at the site.

8.7.3. *Controlled Waters*

Gravesend CSEC

Three samples of groundwater were collected from the Chalk. The samples recorded elevated concentrations of chloride and boron above the DWS (no EQS), arsenic above the DWS and below the EQS. DWS have been adopted due to the presence of a principal aquifer. The presence of elevated chloride is likely due to saline intrusion due to the tidal nature of the area. Arsenic and boron concentrations were marginally in excess of the applied screening criteria.

Chromium was recorded above the EQS and below the DWS, with zinc and fluoranthene above the EQS (no DWS). During works protection of surface drains and implementation best practise when working close to a water course should be made to avoid sediments from site entering the water course. Consideration of the chemical quality of the water should be made during the works design process.

New Tilbury CSEC

Three samples of groundwater were collected from chalk, RTD and ALV. The samples recorded marginally elevated zinc above the EQS (no DWS) and elevated concentrations of chloride and slightly elevated TPH above the DWS (no EQS).

The presence of elevated chloride is likely due to saline intrusion due to the tidal nature of the area.

Controlled Waters Summary

Arsenic, Boron, Chromium and Zinc recorded in groundwater in BH05 were in excess of the applied screening criteria, with shallow groundwater (which is tidally influenced) present across the site. It is noted that the maximum soil concentrations for this area (Gravesend CSEC) for total Chromium and Zinc were recorded in BH05 at varying depths, with total arsenic and boron also recorded in BH05 above laboratory limits of detection in both the MDG and natural stratum. Although no soil leachate testing has been undertaken it is considered that leaching and downward migration of contaminants represents an active pollutant linkage. Free phase product has not been identified on the Gravesend CSEC.

Dual installations were installed in all monitoring locations within the RTD/ALV and the Chalk; recorded water levels within the two units do not appear to show separation and groundwater samples were only taken from the standpipe installed within the Chalk. It is considered that there is hydraulic connectivity between the identified superficial and

bedrock aquifers. Following completion of monitoring and testing on the New Tilbury CSEC side it may be possible to assess the potential connectivity between the aquifers either side of the river, and the effect that the river may be having on this connectivity.

The River Thames is considered to be in hydraulic connectivity with the underlying groundwater.

Risk to the surface water course and surrounding aquifers should be managed through the works with measures to be outline in the Construction Environmental Management Plan (CEMP), works are considered likely to include actions such as; the sealing up of direct drainage into the River Thames, pre-construction and construction phase monitoring of the River Thames, monitoring of groundwater during the works to ensure no deterioration of quality, appropriate treatment and/or disposal of any water derived from dewatering activities along-side an environmental watching brief during the works. Other measures may also be required to comply with regulatory requirements.

8.8. *Materials Management*

It is understood that a nearby site holds a restoration permit and may be able to accept chalk wastes from the site, It is recommended that early engagement is made with the restoration site to agree which materials can be accepted and any further testing requirements for the material.

If required, the use of specialist remediation processes (i.e. to screen deleterious materials from the soils) will require a Waste Management License for Mobile Plant and as such a deployment form will need to be submitted and approved. The works shall also comply with all regulatory requirements and all necessary permits shall be obtained prior to commencement of the remediation works.

Topsoil (albeit described as MDG) thickness recorded during the investigation varies across the site. The reuse of topsoil material shall be compliant with BS3882 and further sampling maybe required to confirm the suitability of the topsoil material for reuse. Materials should be managed on-site in line with the CL:AIRE definition of waste: Development Industry Code of Practice. An adequate Materials Management Plan (MMP) should be in place, covering the use of materials on the site, prior to excavation of any materials.

9. Updated CSM and Qualitative Risk Assessment

The assessment considers the product of the 'severity of the consequence' and the 'probability of the likelihood', and significance of risk as shown in CIRIA C552, Contaminated Land Risk Assessment, A guide to good practice (CIRIA), 2001), and is provided below in Table .

Table 40 Updated CSM and Qualitative Risk Assessment (Gravesend CSEC and Tunnel areas only)

Potentially Active Contaminant Linkage	Potential Consequence	Likelihood Of Linkage	Significance of Risk	Commentary
Pathway 1 – Direct contact (dermal contact with soil and groundwater, ingestion of soil and dust) with potentially contaminated soils associated with on-site sources is possible by ground workers, construction workers and future below ground maintenance activities.	Medium	Unlikely	Low	No elevated concentrations contaminants identified. There remains potential for unknown or yet to be identified contamination to be present however this is considered unlikely. A controlled and comprehensive programme of clearance and turnover is anticipated in areas of construction works. Should any unexpected contamination be identified further validation should be completed in advance of construction works. A detailed health & safety risk assessment and method statements alongside the CEMP will be required prior to commencement of the works. This will need to address and provide control measures for all site workers. The reuse of materials shall be compliant with the material management plan. Control of groundwater during works should be managed to prevent direct contact with site workers. Appropriate management and disposal (if required) of groundwater in line with current legislation.
Pathway 2 – Direct contact (dermal contact, ingestion of soil and dust) with potentially contaminated soils is possible by current and future end users (public open space users, neighbouring properties, and trespassers).	Medium	Unlikely	Low	No elevated concentrations identified, and future hard surfaces areas shall further reduce the risk of direct contact with current and future public open space end users. There remains potential for unknown or yet to be identified contamination to be present . Confirmation of the soils present or re-used at the surface will be required in line with the Materials Management Plan. Control of dusts and water run-off during works shall be required in line with the CEMP.

Potentially Active Contaminant Linkage	Potential Consequence	Likelihood Of Linkage	Significance of Risk	Commentary
Pathway 3 –Gravesend- Inhalation of possible liberated fibres from ACSs and ACMs by ground workers, construction workers, future below ground maintenance workers, current and future end users (public open space users, neighbouring properties, and trespassers).	Medium	Low	Moderate /Low	No asbestos fibres were detected at Gravesend CSEC. In addition, limited Made Ground was encountered. It is possible that undetected ACSs and ACMs are present. As for all redevelopment works, good environmental management (i.e. dust control) during future maintenance or groundwork in-line with industry best practice should be adopted. A detailed health & safety risk assessment and method statements alongside the CEMP will be required prior to commencement of the works. This will need to address and provide control measures for all receptors in relation to encountering ACSs and ACMs.
Pathway 3 – Tilbury - Inhalation of possible liberated fibres from ACSs and ACMs by ground workers, construction workers, future below ground maintenance workers, current and future end users (public open space users, neighbouring properties, and trespassers).	Medium	Likely	Moderate	Asbestos fibres were detected on two occasions in soil samples tested during the ground investigation at Tilbury only. Deeper Made Ground was encountered on Tilbury side. It is possible that undetected ACSs and ACMs are present. As for all redevelopment works, good environmental management (i.e. dust control) during future maintenance or groundwork in-line with industry best practice should be adopted. A detailed health & safety risk assessment and method statements alongside the CEMP will be required prior to commencement of the works. This will need to address and provide control measures for all receptors in relation to encountering ACSs and ACMs.
Pathway 4 – Inhalation of potentially volatile vapours (hydrocarbons / solvents) resulting from soil or groundwater sources by groundworker and construction workers and future below ground maintenance workers.	Medium	Unlikely	Low	Volatile contamination has not been identified. Should volatile contamination be encountered, appropriate monitoring and control measures should be in place, especially in confined spaces or during any below ground works.
Pathway 5 – Migration of ground gas (methane and carbon dioxide) from biodegradable matter /	Severe	Likely	High	Concentrations of methane and carbon dioxide have been recorded along with depleted oxygen and elevated gas flow readings at Gravesend CSEC only.

Potentially Active Contaminant Linkage	Potential Consequence	Likelihood Of Linkage	Significance of Risk	Commentary
putrescible materials in MDG / landfilled areas (including off-site sources), followed by off-site via preferential pathways (pipeline / services) and / or accumulation with trenches / below ground excavations resulting in asphyxiation / explosion.				On New Tilbury CSEC side, monitoring identified levels at or below gas monitoring equipment levels for methane, carbon monoxide and carbon dioxide. There was no depleted levels of oxygen recorded. It is noted that no installations are within the MDG and the key source of ground gas (landfills) are present on and off site. All installations were noted to be flooded during monitoring and as such data unlikely to be representative. Furthermore, no information is available regarding the existing gas management systems (if any in place). Recommendations should include collation of the existing information relating to management of gas on the wider site (and associated historic and current landfill). The completion of a detailed gas risk assessment to inform the detailed design, it should be ensured no preferential pathway is created for landfill / ground gas to migrate off-site. Alongside the completed of the design works, the design of a safe working protocols and emergency action plans for the works, especially when person entry is required below ground and confined spaces.
Pathway 6 – Leaching of contaminants from potential source areas and vertical migration of contamination from shallow deposits / sources areas / perched groundwater (if any) into the underlying Aquifers.	Medium	Low	Moderate / Low	Chloride, elevated metals, TPH, and PAH are identified in the shallow groundwater collected from installations within the Chalk bedrock, and superficial deposits. Although no soil leachate testing has been undertaken it is considered that leaching and downward migration of contaminants represents an active pollutant linkage. Free phase product has not been identified on the Gravesend CSEC and New Tilbury CSEC. The River Thames is considered to be in hydraulic connectivity with the underlying groundwater. Risk to the surface water course and surrounding aquifers should be managed through the works with measures to be outline in the CEMP, works are considered likely to include actions such as; the sealing up of direct drainage into the River Thames, pre-construction and construction phase monitoring of the River Thames, monitoring of groundwater during the works to ensure no deterioration of quality, appropriate treatment and/or disposal of any water derived from dewatering activities along-side an environmental watching brief during the works. Other measures may also be required to comply with regulatory requirements.
Pathway 7 – Leaching of contaminants from potential historical sources into groundwater followed by lateral migration to the River Thames.	Medium	Low	Moderate / Low	

10. Geotechnical Risk Register

Table 41 - Geotechnical Risk Register

Risk ID	Hazard	Risk	Pre-Mitigation Risk			Control / Mitigation	Post Mitigation Risk		
			Severity	Likelihood	Risk		Severity	Likelihood	Risk
01	Low strength made ground and alluvium deposits.	Stability risk for temporary and permanent works.	Major	Likely	High	Ensure risk of low strength ground considered in all design stages for all works undertaken at both New Tilbury CSEC and Gravesend CSEC.	Major	Exceptional	Medium
02	Water bearing strata – High water pressure when excavating shaft.	Halted progress of shaft excavation/construction due to large amounts of groundwater inflow.	Major	Likely	High	Sufficient dewatering and remediation methods to be selected based on available information. High water pressure to be considered in River terrace and Chalk deposits. Ground improvement techniques to be deployed where necessary.	Major	Rare	Medium
03	Flood risk.	Risk of flooding	Minor	Likely	Medium	Flood risk is low. Planning should consider risk due to construction being below ground level.	Minor	Exceptional	Low
04	Contaminants used on site	Contamination of Chalk aquifer.	Minor	Likely	Medium	Use casing to hydraulically disconnect the drilling flush from the contaminated ground while drilling in deeper strata. Aquifer protection measures should be used by the Contractor.	Minor	Exceptional	Low
05	High strength flint bands.	Halted progress due to high strength flint bands.	Major	Likely	High	Ensure excavation and tunnelling methods include consideration of potential high strength flint bands.	Major	Exceptional	Medium
06	Rock Encountered	Slow progress of tunnel/shaft excavation/construction.	Major	Likely	High	Ensure excavation and tunnelling methods include consideration of potential high strength Chalkstone.	Major	Exceptional	Medium

Risk ID	Hazard	Risk	Pre-Mitigation Risk			Control / Mitigation	Post Mitigation Risk		
			Severity	Likelihood	Risk		Severity	Likelihood	Risk
07	Gravesend CSES - Contaminated ground and contaminated groundwater. Potentially including inorganics, heavy metals, PAHs, and asbestos.	Risk of sensitive receptors becoming adversely affected by the ground contamination, including workers, neighbouring site users, groundwater, and surface waterways.	Significant	Rare	Medium	The findings of this GIR need to be considered during the works design. Completion of supplementary testing in the event of identifying unexpected contamination. With further detailed assessment of water and soils for disposal and appropriate design control measures, PPE and RPE to be used.	Significant	Exceptional	Low
08	Gravesend and Tilbury CESC - Methane and carbon dioxide gas production from off-site landfill and potential natural strata sources.	Potential for explosive atmosphere or elevated carbon dioxide/ depleted oxygen within the excavation.	Major	Uncommon	High	Collate and assess existing information on gas management on the wider site (New Tilbury CSEC and associated historic and current landfill). Completion of detailed gas risk assessment to inform detailed design. Within the detailed design, it should be ensured no preferential pathway is created for landfill / ground gas to migrate off-site. Adoption of safe working protocols and emergency action plans for the works, especially when person entry is required below ground and confined spaces.	Major	Rare	Medium
09	New Tilbury CSES - Contaminated ground and contaminated groundwater. Potentially including inorganics, heavy metals, TPHs, and asbestos.	Risk of sensitive receptors becoming adversely affected by the ground contamination, including workers, neighbouring site users, groundwater, and surface waterways.	Significant	Rare	Medium	The findings of this GIR need to be considered during the works design. Completion of supplementary testing in the event of identifying unexpected contamination. With further detailed assessment of water and soils for disposal and appropriate design control measures, PPE and RPE to be used.	Significant	Exceptional	Low

11. Engineering Assessment

11.1. *Soft Ground*

Extremely soft to soft cohesive material is present throughout the made ground and alluvial deposits at both New Tilbury CSEC and Gravesend CSEC. These low strength materials should be considered in all surface temporary works design and permanent works shaft design.

11.2. *Rock Quality*

The quality of the chalk can be assessed based on the RQD (Sum of the length full section core pieces longer than 100mm measured over a reportable section), this has been plotted across all the boreholes along the tunnel alignment.

Total core recovery (TCR) was recorded between 0 to 100. Out of the 114 cores 78 recorded a TCR of 100%. Solid core recovery (SCR) was recorded between 0 and 100 with 26 of the 114 core runs recorded 0%. Out of 114 runs 33 recorded 0% in rock quality designation (RQD).

TCR was recorded as 100% in core runs down the entire length of the boreholes. Both SCR and RQD increase with depth, recorded as 100% around -50mAOD and below. The lowest level at which SCR and RQD were recorded as 0% was -45mAOD. In the over-water investigation RQD results of 0% were recorded down to a level of -22.5mAOD and 100% at a highest level of -30mAOD.

11.3. *Rock Strength and Abrasivity*

Although the chalk is considered low strength and low abriasivity, flint bands can be found running through the chalk.

These flint bands are much higher strength ranging from UCS of 43MPa to 1082MPa. All rock strength parameters are summarised in table 26 of this report. Major flint bands recorded at levels between -35mAOD and -37mAOD. High strength bands of flint should be considered during selection of tunnelling methods.

The Cerchar abrasively has been assessed for the chalk to assist in determination of tool wear.

11.4. *Permeability and Potential Water Ingress*

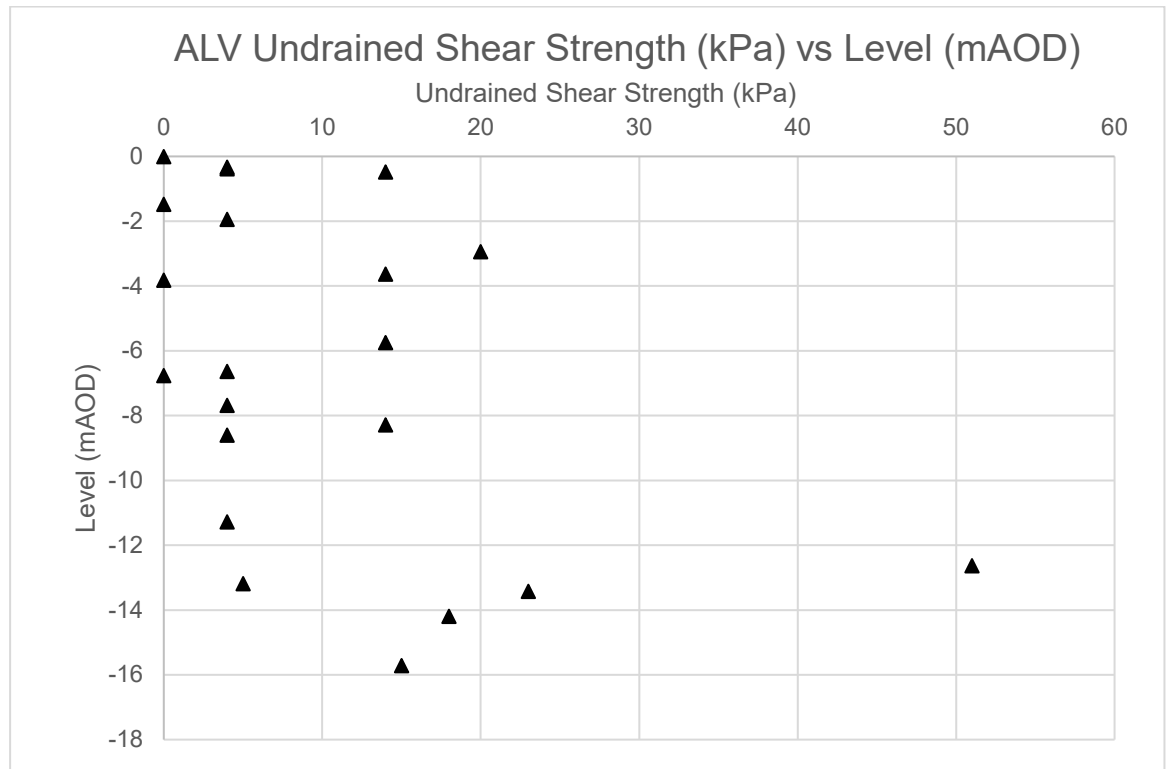
In order to assess the permeability and thus the potential water ingress into tunnels and shafts both variable head and packer tests were carried out. These recorded permeable strata in both the River Terrace Deposits and Chalk. These results are summarised in table 26 and table 27.

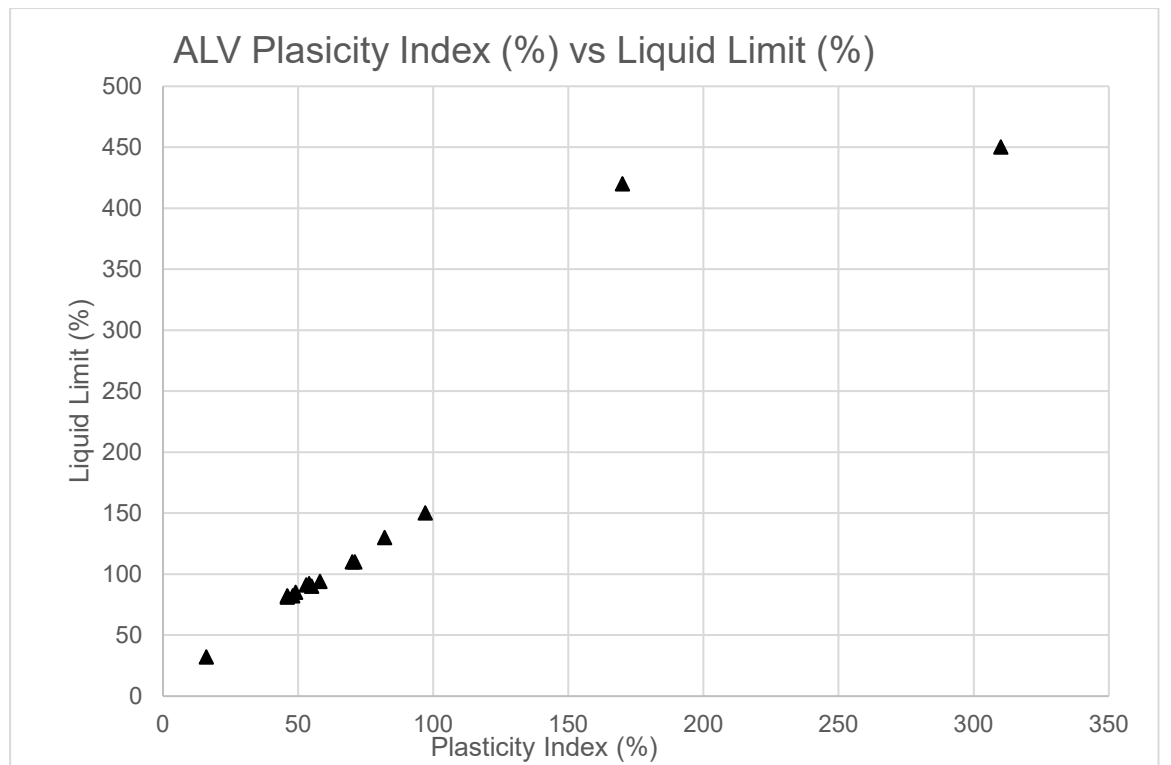
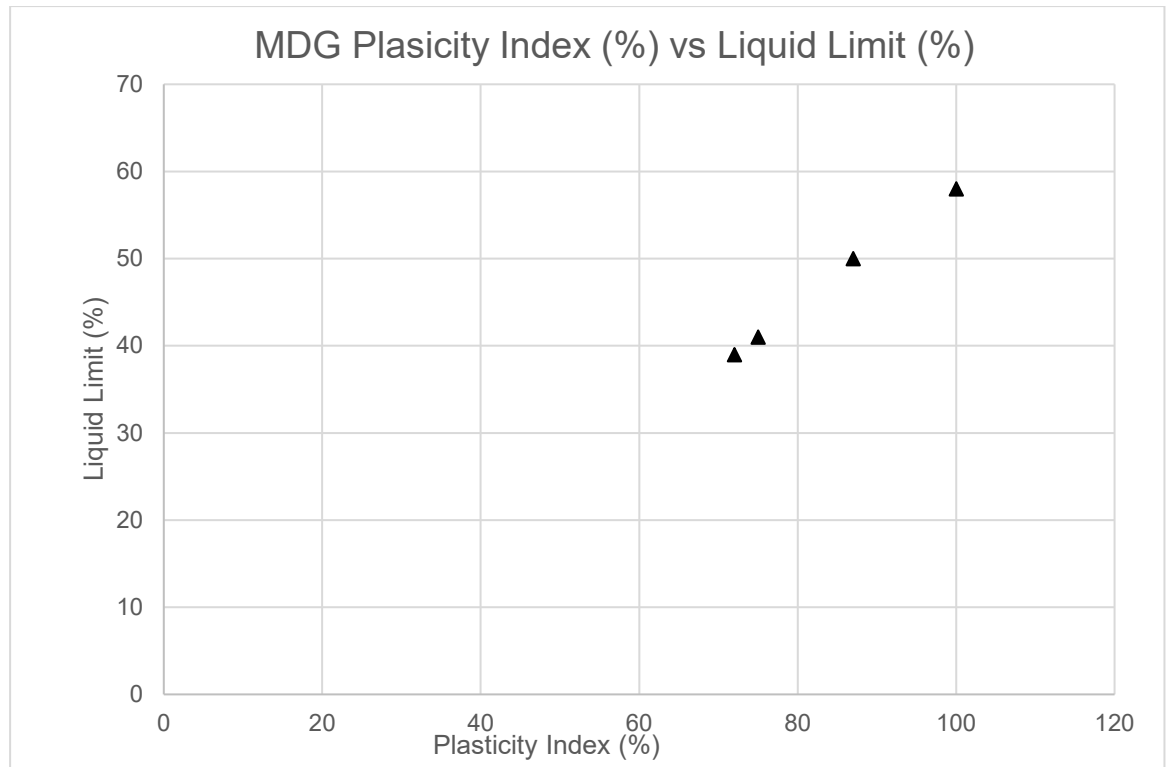
11.5. *Concrete Aggressivity*

Measurements of the sulphate content of the site materials have been carried out in all strata. The highest ACEC and DS classifications were recorded as interpreted as DS-3 and AC-3. These were measured at Tilbury in the Made Ground, Alluvium and River Terrace Deposits. The highest classification at Gravesend is in the Alluvium deposits classified as DS-2 and AC-2.

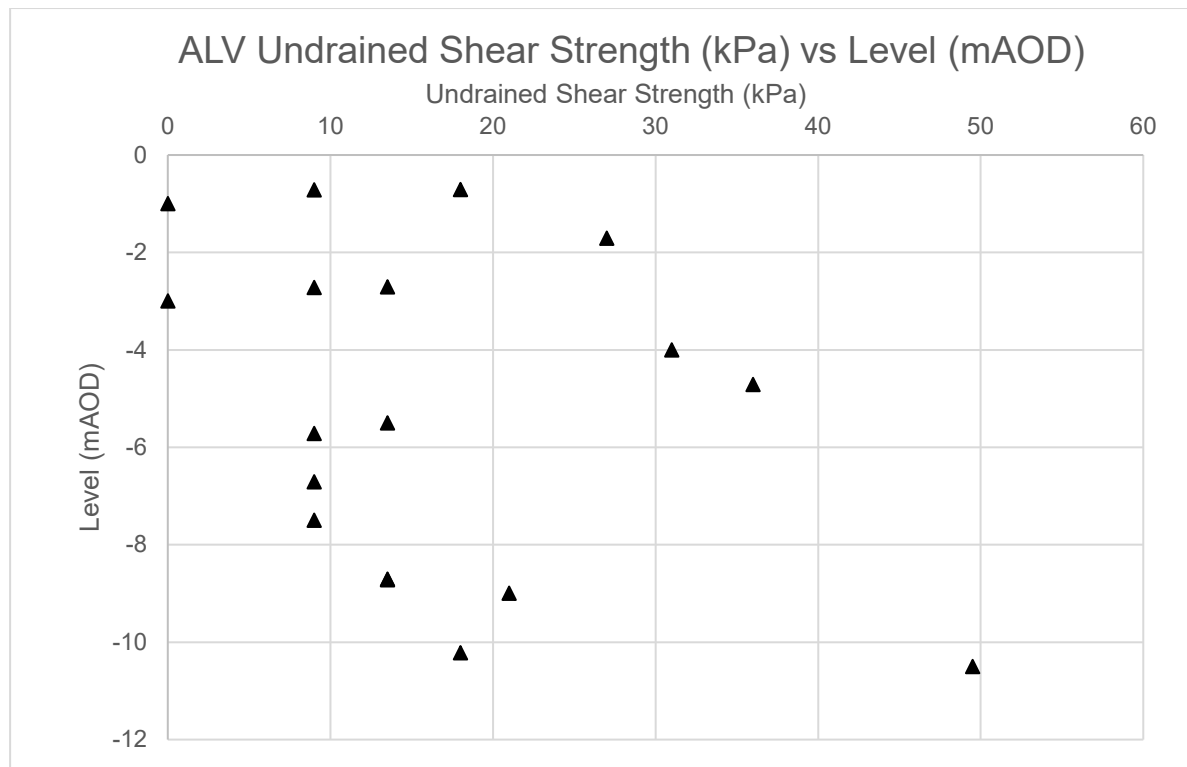
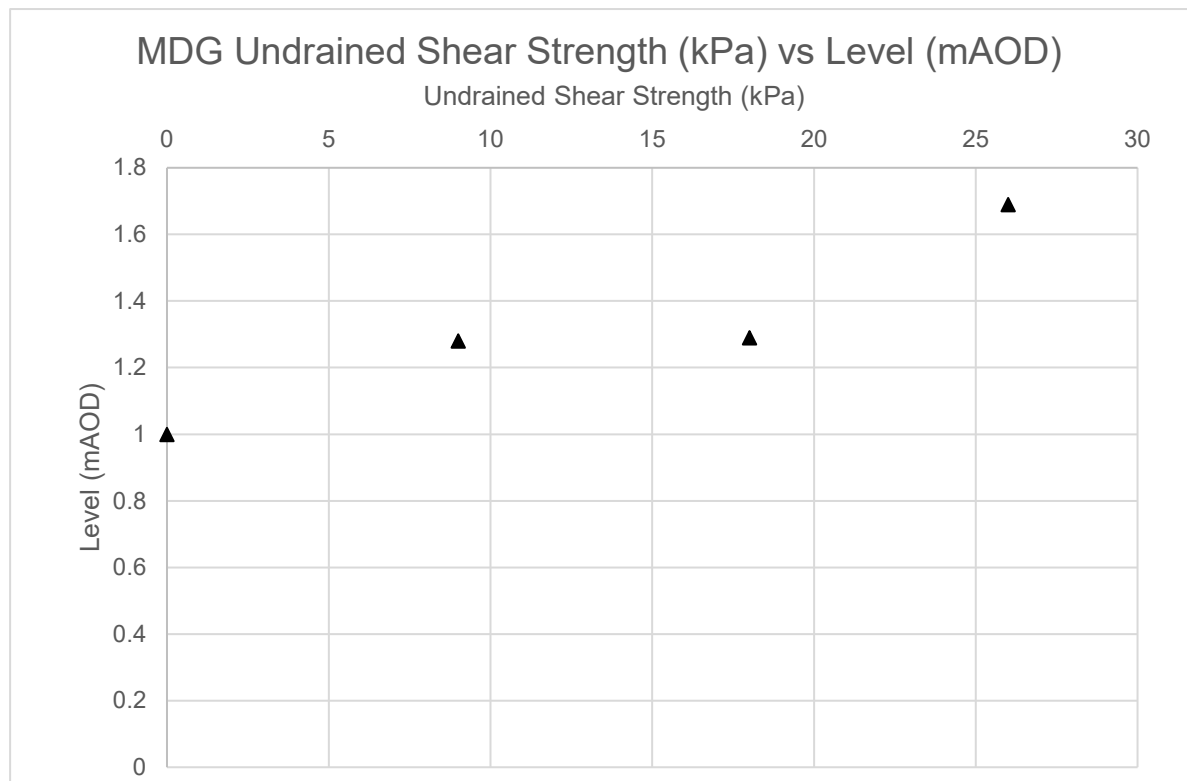
Appendix A – Geotechnical Charts

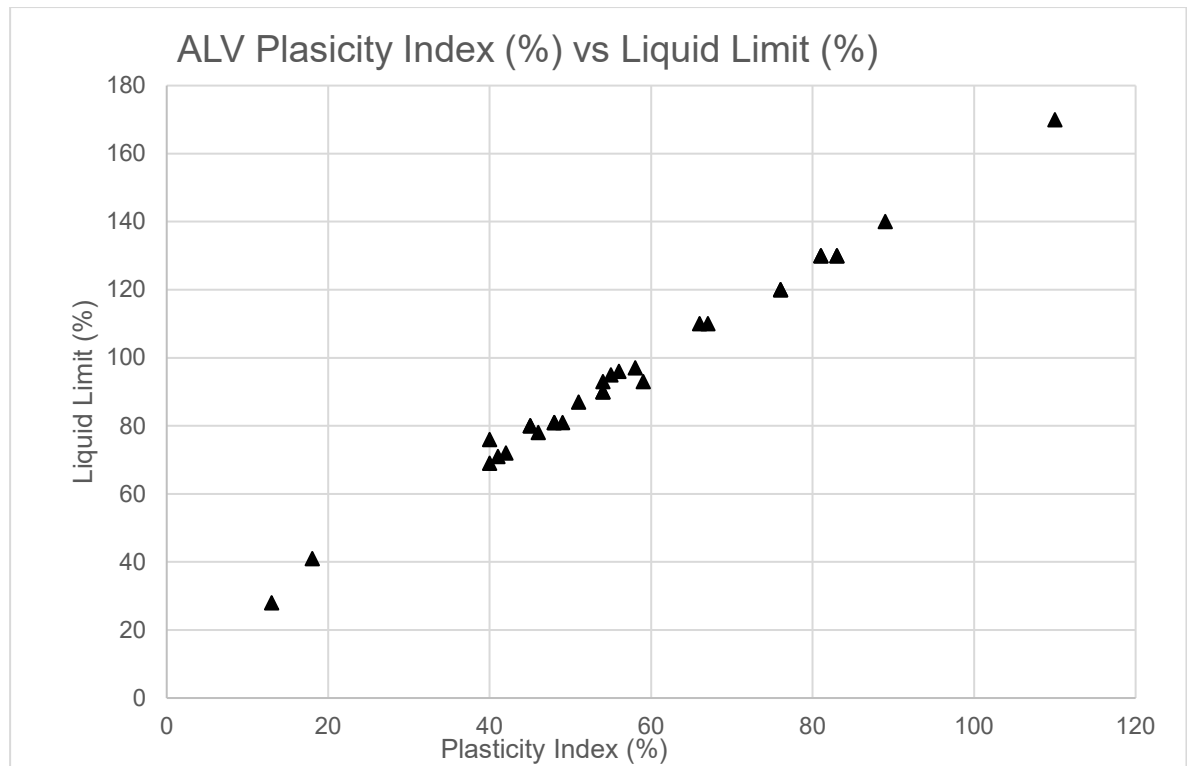
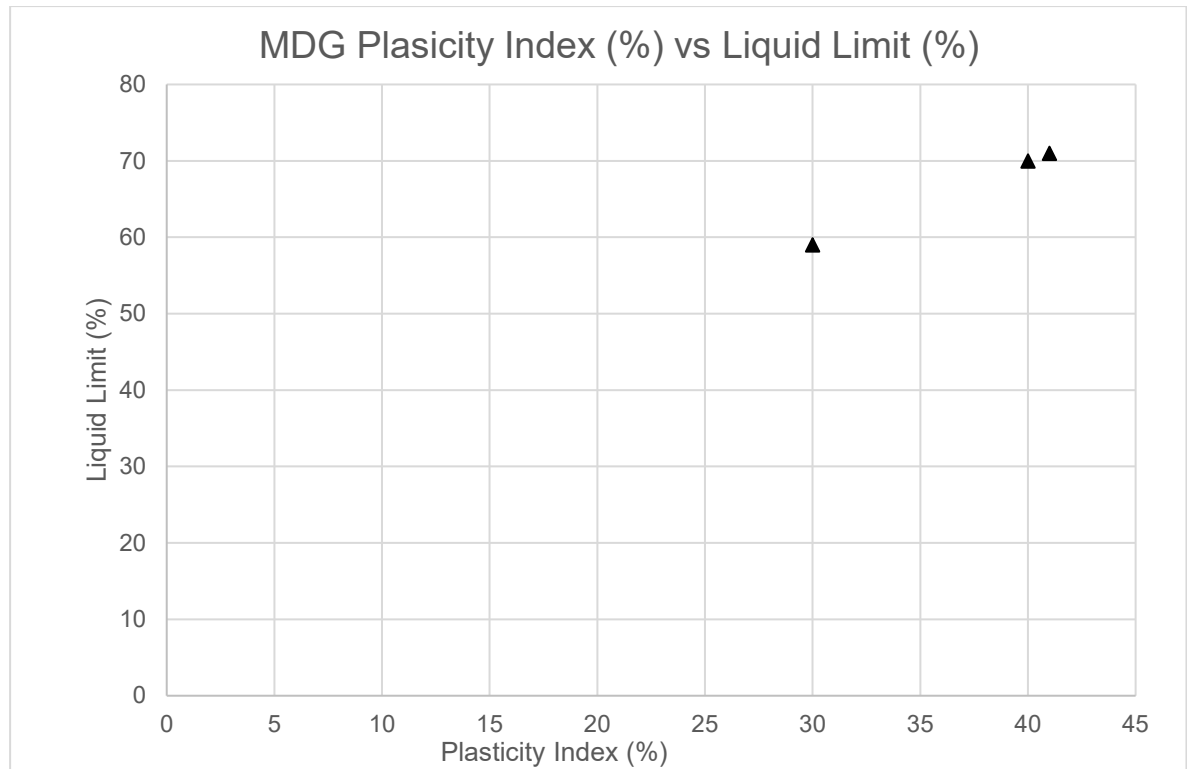
A.1 New Tilbury CSEC Superficial Geology



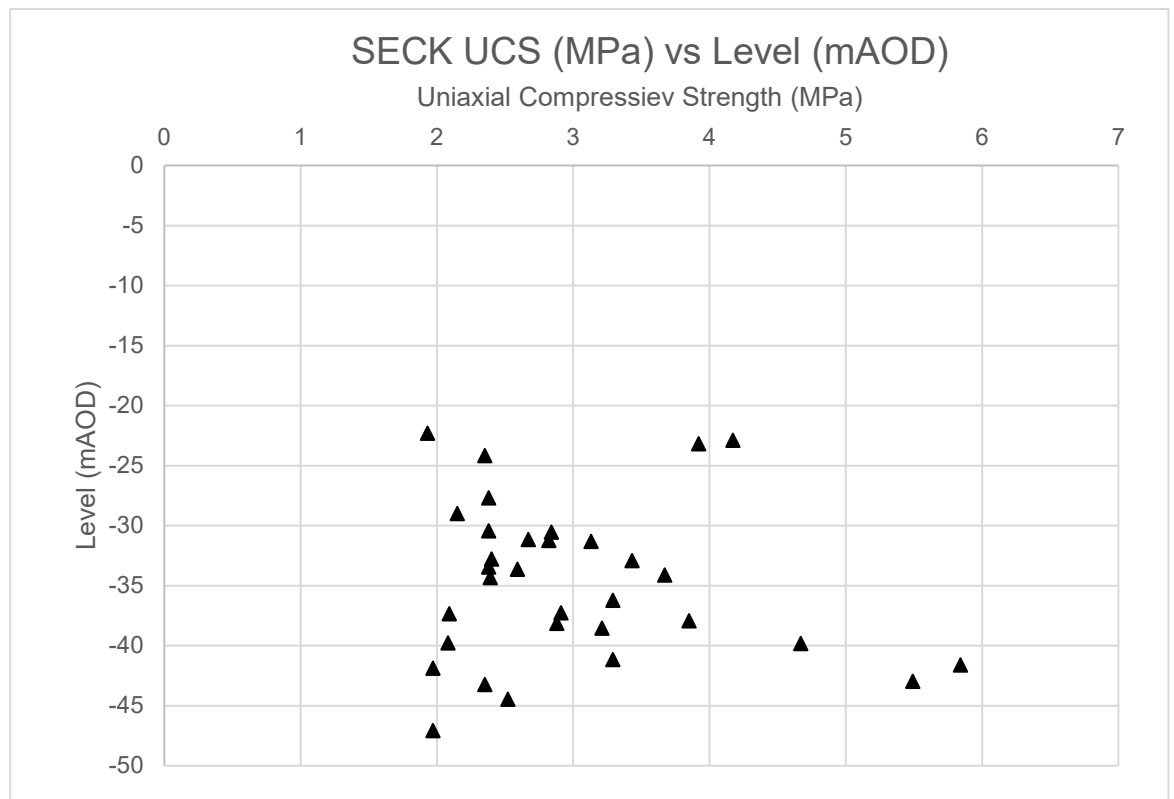


A.2 Gravesend CSEC Superficial Geology





A.3 Solid Geology



Appendix B – Drawings

- PDD-100116-ELE-019/30003364-MSE-XX-XX-DR-Y-10120 – Gravesend Geological Sections
- PDD-100116-ELE-020/30003364-MSE-XX-XX-DR-Y-10126 – Tilbury Geological Sections
- PDD-100116-ELE-021/30003364-MSE-XX-XX-DR-Y-10127 – Over-water Geological Sections

Appendix C – Groundwater GQRA Screening

Strata Description												MADE GROUND SILT	MADE GROUND CLAY	MADE GROUND CLAY	MADE GROUND CLAY	MADE GROUND CLAY	MADE GROUND SILT
Report No.:												23012669	23012669	23012669	23032766	23032766	23031791
Client Sample ID.:												TP-11	TP-13	TP-17	BH05	BH05	BH06
Sample Type:												ES	ES	ES	ES	ES	ES
Top Depth (m):												0.30	1.00	0.30	0.60	1.70	1.00
Date Sampled:												24-Jan-2023	24-Jan-2023	25-Jan-2023	21-Mar-2023	21-Mar-2023	13-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances						
Major Constituents	N/A	0.00	Not Accredited	6	0	0	0	<0	N/A			SILT	SILT	SILT	CLAY	CLAY	
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	6	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	
Phenol Index	mg/kg	0.50	Not Accredited	6	0	<0.5	0.6	<0.8	BH05 1.7m	1500	0	<0.5	<0.5	<0.5	<0.5	<0.8	
Sulphate as SO4	mg/kg	30.00	Not Accredited	6	6	59	234.2	595	BH05 1.7m			235.00	129.00	59.00	99.00	595.00	
pH	pH units	1.00	Not Accredited	6	6	6.8	7.5	8.3	BH05 0.6m			6.80	6.80	7.20	8.30	7.70	
Nitrate as NO3	mg/kg	2.00	Not Accredited	1	1	15.4	15.4	15.4	BH05 0.6m			-	-	-	15.40	-	
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	6	0	<0.7	0.7	<0.8	TP-17 0.3m			<0.7	<0.7	<0.8	<0.7	<0.8	
Organic matter	% m/m	0.04	UKAS 1252	6	6	1.69	3.66	7.68	TP-17 0.3m			4.91	2.61	7.68	3.32	1.75	
Total Organic Carbon	% m/m	0.02	UKAS 1252	5	5	0.98	2.35	4.46	TP-17 0.3m			2.85	1.52	4.46	1.93	-	
Loss on Ignition	%	0.00	MCERTS	0	0	N/A	N/A	N/A	N/A			-	-	-	-	-	
Antimony	mg/kg	0.01	Not Accredited	5	1	<0.01	0.08	0.26	BH06 1m	7500	0	<0.01	<0.01	<0.1	<0.01	-	
Arsenic	mg/kg	0.01	Not Accredited	6	5	<0.01	3.43	20.2	BH05 1.7m	640	0	0.06	0.02	0.11	<0.01	20.20	
Barium	mg/kg	0.10	Not Accredited	5	1	<0.1	0.2	0.4	BH06 1m	22000	0	<0.1	<0.1	<0.1	<0.1	-	
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	6	6	4.5	5.3	6	BH06 1m	240000	0	5.70	4.70	4.50	5.30	5.30	
Cadmium	mg/kg	0.00	Not Accredited	6	1	<0.0002	0.0505	0.3	BH05 1.7m	190	0	<0.0002	<0.0002	<0.002	<0.0002	0.30	
Chromium	mg/kg	0.01	Not Accredited	6	2	<0.01	12.94	77.5	BH05 1.7m	8600	0	<0.01	<0.01	<0.1	<0.01	77.50	
Copper	mg/kg	0.01	Not Accredited	6	6	0.03	2.75	16	BH05 1.7m	68000	0	0.18	0.04	0.11	0.03	16.00	
Lead	mg/kg	0.01	Not Accredited	6	1	<0.01	3.77	22.5	BH05 1.7m	2300	0	<0.01	<0.01	<0.1	<0.01	22.50	
Mercury	mg/kg	0.00	Not Accredited	6	0	<0.0003	0.084	<0.5	BH05 1.7m	1100	0	<0.0003	<0.0003	<0.003	<0.0003	<0.5	
Molybdenum	mg/kg	0.01	Not Accredited	5	4	<0.05	0.09	0.18	TP-11 0.3m	17000	0	0.18	0.05	<0.1	0.05	-	
Nickel	mg/kg	0.01	Not Accredited	6	4	<0.01	9.5	56.7	BH05 1.7m	980	0	0.08	0.02	<0.1	<0.01	56.70	
Selenium	mg/kg	0.01	Not Accredited	5	1	<0.01	0.03	<0.1	TP-17 0.3m	12000	0	<0.01	<0.01	<0.1	<0.01	-	
Zinc	mg/kg	0.02	Not Accredited	6	3	<0.02	17.28	103.3	BH05 1.7m	730000	0	0.04	<0.02	<0.2	<0.02	103.30	
GR0 >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	6	0	<0.26	0.3	<0.318	BH05 1.7m			<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	6	0	<0.26	0.3	<0.318	BH05 1.7m	5900	0	<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	6	0	<0.26	0.3	<0.318	BH05 1.7m	17000	0	<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	6	0	<0.26	0.3	<0.318	BH05 1.7m	4800	0	<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	6	1	<5.21	5.9	6.4	BH06 1m	23000	0	<5.93	<5.21	<6.06	<5.21	<6.36	
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	6	3	<5.21	8	15.8	BH06 1m	82000	0	6.76	<5.21	<6.06	7.54	<6.36	
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	6	4	<5.21	9.1	18.4	BH06 1m	1700000	0	10.40	<5.21	<6.06	7.86	6.56	
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	6	4	<13	23.4	35.5	TP-11 0.3m	1700000	0	35.50	<13.0	<15.2	28.40	26.60	
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	6	2	<7.81	10.3	16.4	BH05 0.6m	1700000	0	<8.90	<7.81	<9.09	16.40	11.80	
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	6	4	<26	47.6	69.6	BH06 1m			62.60	<26.0	<30.3	56.10	40.70	
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	5	3	<26	47.1	65.7	BH06 1m			59.80	<26.0	<30.3	53.70	-	
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	6	0	<0.013	0.01	<0.016	BH05 1.7m	46000	0	<0.015	<0.013	<0.015	<0.013	<0.016	
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	6	1	<0.013	0.02	0.018	BH06 1m	110000	0	<0.015	<0.013	<0.015	<0.013	<0.016	
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	6	0	<0.052	0.06	<0.064	BH05 1.7m	8100	0	<0.060	<0.052	<0.061	<0.052	<0.064	
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	6	1	<5.21	5.7	<6.36	BH05 1.7m	28000	0	<5.93	<5.21	6.30	<5.21	<6.36	
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	6	5	<5.21	13.7	18.3	BH05 1.7m	37000	0	14.70	<5.21	16.60	11.40	18.30	
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	6	4	<5.21	8.9	13.6	BH05 1.7m	28000	0	7.58	<5.21	<6.06	11.70	13.60	
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	6	5	<13	20.7	31.4	TP-11 0.3m	28000	0	31.40	<13.0	17.70	20.90	24.10	
Aromatics >C35-44	mg/kg	6.00	Not Accredited	6	4	<7.81	15.4	28.9	TP-11 0.3m	28000	0	28.90	<7.81	21.80	13.80	12.20	
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	6	5	<26	57.8	77.5	TP-11 0.3m			77.50	<26.0	59.60	57.70	70.90	
Benzene	µg/kg	10.00	UKAS 1252 & MCERTS	6	0	<13	14.2	<16	BH05 1.7m	47000	0	<15	<13	<15	<13	<16	
Toluene	µg/kg	10.00	UKAS 1252 & MCERTS	6	1	<13	15	18	BH06 1m	110000000	0	<15	<13	<15	<13	<16	
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTS	6	0	<13	14.2	<16	BH05 1.7m	13000000	0	<15	<13	<15	<13	<16	
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTS	6	0	<13	14.2	<16	BH05 1.7m	15000000	0	<15	<13	<15	<13	<16	
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTS	6	0	<26	28.3	<32	BH05 1.7m	14000000	0	<30	<26	<30	<26	<32	
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTS	5	1	<0.078	0.08	<0.091	TP-17 0.3m			<0.089	<0.078	<0.091	<0.078	-	
Acenaphthylene	mg/kg	0.08	UKAS 1252	6	0	<0.1	0.11	<0.13	BH05 1.7m	97000	0	<0.12	<0.10	<0.12	<0.10	<0.13	
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	6	1	<0.1	0.12	0.15	TP-11 0.3m	44	0	0.15	<0.10	<0.12	<0.10	<0.13	
Anthracene	mg/kg	0.08	UKAS 1252	6	0												

Strata Description												ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM SILT	ALLUVIUM PEAT
Report No.:												23012669	23012669	23012669	23012669	23012669	23012669	23012669	23031582	23031582
Client Sample ID.:												TP-12	TP-14	TP-15	TP-16	TP-18	TP-19	TP-20	BH04	BH04
Sample Type:												ES	ES	ES	ES	ES	ES	ES	ES	ES
Top Depth (m):												0.60	2.20	0.30	1.5	1.30	0.50	2.40	6.80	11.80
Date Sampled:												25-Jan-2023	24-Jan-2023	25-Jan-2023	25-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	08-Mar-2023	08-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances									
Major Constituents	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A			SILT	CLAY	SILT	CLAY	CLAY	CLAY	CLAY	CLAY	
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	
Phenol Index	mg/kg	0.50	Not Accredited	14	0	<0.5	0.6	<1.1	BH04 11.8m	1500	0	<0.5	<0.8	<0.5	<0.5	<0.5	<1.0	<0.5	<1.1	
Sulphate as SO4	mg/kg	30.00	Not Accredited	14	13	<30	958.4	5050	TP-20 2.4m			50.00	1390.00	<30	1440.00	443.00	60.00	5050.00	135.00	
pH	pH units	1.00	Not Accredited	14	14	6.8	7.7	8.7	BH05 13m			6.80	7.90	6.90	7.10	6.80	6.90	8.40	7.70	
Nitrate as NO3	mg/kg	2.00	Not Accredited	2	0	<2	3	<4	N/A			-	-	-	-	-	-	-	-	
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	14	0	<0.6	0.8	<1.1	BH04 11.8m			<0.6	<0.8	<0.7	<0.7	<0.7	<0.6	<1.0	<0.9	
Organic matter	% m/m	0.04	UKAS 1252	14	14	0.9	3.43	12.5	BH04 11.8m			4.13	1.99	3.67	1.29	1.86	2.50	5.46	2.73	
Total Organic Carbon	% m/m	0.02	UKAS 1252	12	12	0.52	1.6	3.17	TP-20 2.4m			2.39	1.15	2.13	0.75	1.08	1.45	3.17	1.58	
Loss on ignition	%	0.00	MCERTS	2	2	6.2	8.6	10.9	TP-20 2.4m			-	6.20	-	-	-	10.90	-	-	
Antimony	mg/kg	0.01	Not Accredited	12	5	<0.01	0.03	<0.1	TP-14 2.2m	7500	0	0.02	<0.1	<0.1	<0.01	<0.01	<0.01	0.03	0.05	
Arsenic	mg/kg	0.01	Not Accredited	14	11	<0.01	5.02	43.5	BH06 2.8m	640	0	0.08	0.35	<0.1	<0.01	<0.01	0.02	0.11	0.09	
Barium	mg/kg	0.10	Not Accredited	12	1	<0.1	0.2	<1	N/A	22000	0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	0.20	<0.1	
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	14	14	1.5	7	14.1	TP-20 2.4m	240000	0	1.50	7.70	4.00	9.40	6.40	2.90	14.10	8.80	
Cadmium	mg/kg	0.00	Not Accredited	14	2	<0.0002	0.029	0.2	BH04 11.8m	190	0	<0.0002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Chromium	mg/kg	0.01	Not Accredited	14	2	<0.01	5.14	45.7	BH06 2.8m	8600	0	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	
Copper	mg/kg	0.01	Not Accredited	14	6	<0.01	2.2	17.1	BH06 2.8m	68000	0	0.11	<0.1	<0.1	0.03	0.02	0.07	<0.01	<0.01	
Lead	mg/kg	0.01	Not Accredited	14	2	<0.01	2.14	19.2	BH06 2.8m	2300	0	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	
Mercury	mg/kg	0.00	Not Accredited	14	0	<0.0003	0.0721	<0.5	BH04 11.8m	1100	0	<0.0003	<0.003	<0.003	<0.0003	<0.0003	<0.0003	<0.0003	<0.5	
Molybdenum	mg/kg	0.01	Not Accredited	12	11	<0.03	0.2	0.71	TP-20 2.4m	17000	0	0.05	0.54	<0.1	0.15	0.08	0.06	0.71	0.21	
Nickel	mg/kg	0.01	Not Accredited	14	9	<0.01	4.28	34.4	BH06 2.8m	980	0	0.02	0.18	<0.1	0.02	<0.01	0.02	0.02	0.03	
Selenium	mg/kg	0.01	Not Accredited	12	1	<0.01	0.03	<0.1	TP-14 2.2m	12000	0	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	0.01	0.02	
Zinc	mg/kg	0.02	Not Accredited	14	8	<0.02	11.03	90.2	BH06 2.8m	730000	0	0.03	<0.2	<0.2	0.03	<0.02	0.03	<0.02	<0.02	
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m			<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413	<0.348	
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	5900	0	<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413	<0.348	
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	17000	0	<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413	<0.348	
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	4800	0	<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413	<0.348	
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	14	4	<5.01	7.4	13.7	BH04 11.8m	23000	0	<5.16	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26	11.20	
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	14	6	<5.01	9.9	24.5	BH06 2.8m	82000	0	<5.16	<6.21	5.43	<5.56	<5.74	<5.01	<8.26	18.20	
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	14	4	<5.01	10.1	30.6	BH06 2.8m	1700000	0	<5.16	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26	16.90	
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	14	5	<12.5	21.7	41.4	BH06 2.8m	1700000	0	<12.9	<15.5	<13.2	<13.9	<14.3	<12.5	<20.7	25.30	
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	14	5	<7.52	11.7	17.2	BH05 13m	1700000	0	<7.74	<9.32	<7.93	<8.34	<8.61	<7.52	<12.4	12.50	
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	14	7	<25.2	52.1	123	BH06 2.8m			<25.8	<31.1	<26.4	<27.8	<28.7	25.20	<41.3	79.80	
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	10	4	<25.1	41.3	77.4	BH04 6.8m			<25.8	-	<26.4	<27.8	<28.7	<25.1	-	77.40	
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	14	0	<0.013	0.02	<0.021	TP-20 2.4m	46000	0	<0.013	<0.016	<0.013	<0.014	<0.014	<0.013	<0.021	<0.017	
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	14	1	<0.013	0.02	0.021	BH04 6.8m	110000	0	<0.013	<0.016	<0.013	<0.014	<0.014	<0.013	<0.021	0.02	
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	14	0	<0.051	0.06	<0.085	BH04 11.8m	8100	0	<0.052	<0.063	<0.053	<0.056	<0.057	<0.051	<0.083	<0.07	
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	14	5	<5.01	7.9	21.8	BH06 13m	28000	0	5.93	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26	<6.96	
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	14	14	6.08	12.3	42.6	BH06 13m	37000	0	10.50	7.05	7.51	7.11	8.27	6.29	13.20	7.92	
Aromatics >C16-2																				

Strata Description												ALLUVIUM SILT	ALLUVIUM SILT	ALLUVIUM SILT	ALLUVIUM SILT	ALLUVIUM SILT
Report No.:												23032767	23032767	23032767	23031791	23032324
Client Sample ID.:												BH05	BH05	BH05	BH06	BH06
Sample Type:												ES	ES	ES	ES	ES
Top Depth (m):												5.00	9.00	13.00	2.80	13.00
Date Sampled:												22-Mar-2023	22-Mar-2023	22-Mar-2023	13-Mar-2023	16-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances					
Major Constituents	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A			CLAY	CLAY	CLAY	CLAY	
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	
Phenol Index	mg/kg	0.50	Not Accredited	14	0	<0.5	0.6	<1.1	BH04 11.8m	1500	0	<0.5	<0.5	<0.5	<0.5	
Sulphate as SO4	mg/kg	30.00	Not Accredited	14	13	<30	958.4	5050	TP-20 2.4m			218.00	104.00	40.00	2580.00	
pH	pH units	1.00	Not Accredited	14	14	6.8	7.7	8.7	BH05 13m			8.40	8.20	8.70	8.10	
Nitrate as NO3	mg/kg	2.00	Not Accredited	2	0	<2	3	<4	N/A			-	-	<4.0	<2.0	
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	14	0	<0.6	0.8	<1.1	BH04 11.8m			<0.8	<1.0	<0.7	<0.9	
Organic matter	% m/m	0.04	UKAS 1252	14	14	0.9	3.43	12.5	BH04 11.8m			4.35	2.82	1.37	2.39	
Total Organic Carbon	% m/m	0.02	UKAS 1252	12	12	0.52	1.6	3.17	TP-20 2.4m			2.53	1.64	0.79	-	
Loss on ignition	%	0.00	MCERTS	2	2	6.2	8.6	10.9	TP-20 2.4m			-	-	-	-	
Antimony	mg/kg	0.01	Not Accredited	12	5	<0.01	0.03	<0.1	TP-14 2.2m	7500	0	0.03	<0.01	<0.01	-	
Arsenic	mg/kg	0.01	Not Accredited	14	11	<0.01	5.02	43.5	BH06 2.8m	640	0	0.07	0.27	0.06	43.50	
Barium	mg/kg	0.10	Not Accredited	12	1	<0.1	0.2	<1	N/A	22000	0	<0.1	<0.1	<0.1	-	
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	14	14	1.5	7	14.1	TP-20 2.4m	240000	0	9.50	10.00	4.40	8.70	
Cadmium	mg/kg	0.00	Not Accredited	14	2	<0.0002	0.029	0.2	BH04 11.8m	190	0	<0.0002	<0.0002	<0.0002	<0.2	
Chromium	mg/kg	0.01	Not Accredited	14	2	<0.01	5.14	45.7	BH06 2.8m	8600	0	<0.01	<0.01	<0.01	45.70	
Copper	mg/kg	0.01	Not Accredited	14	6	<0.01	2.2	17.1	BH06 2.8m	68000	0	<0.01	<0.01	<0.01	17.10	
Lead	mg/kg	0.01	Not Accredited	14	2	<0.01	2.14	19.2	BH06 2.8m	2300	0	<0.01	<0.01	<0.01	19.20	
Mercury	mg/kg	0.00	Not Accredited	14	0	<0.0003	0.0721	<0.5	BH04 11.8m	1100	0	<0.0003	<0.0003	<0.0003	<0.5	
Molybdenum	mg/kg	0.01	Not Accredited	12	11	<0.03	0.2	0.71	TP-20 2.4m	17000	0	0.15	0.15	0.03	-	
Nickel	mg/kg	0.01	Not Accredited	14	9	<0.01	4.28	34.4	BH06 2.8m	980	0	<0.01	<0.01	<0.01	34.40	
Selenium	mg/kg	0.01	Not Accredited	12	1	<0.01	0.03	<0.1	TP-14 2.2m	12000	0	<0.01	<0.01	<0.01	-	
Zinc	mg/kg	0.02	Not Accredited	14	8	<0.02	11.03	90.2	BH06 2.8m	730000	0	0.07	<0.02	0.05	90.20	
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m			<0.338	<0.388	<0.269	<0.360	
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	5900	0	<0.338	<0.388	<0.269	<0.360	
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	17000	0	<0.338	<0.388	<0.269	<0.360	
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	4800	0	<0.338	<0.388	<0.269	<0.360	
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	14	4	<5.01	7.4	13.7	BH04 11.8m	23000	0	<6.76	<7.75	<5.38	11.40	
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	14	6	<5.01	9.9	24.5	BH06 2.8m	82000	0	<6.76	10.60	<5.38	24.50	
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	14	4	<5.01	10.1	30.6	BH06 2.8m	1700000	0	<6.76	<7.75	<5.38	30.60	
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	14	5	<12.5	21.7	41.4	BH06 2.8m	1700000	0	<16.9	<19.4	35.20	41.40	
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	14	5	<7.52	11.7	17.2	BH05 13m	1700000	0	<10.1	<11.6	17.20	16.50	
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	14	7	<25.2	52.1	123	BH06 2.8m			<33.8	52.40	58.20	123.00	
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	10	4	<25.1	41.3	77.4	BH04 6.8m			<33.8	46.10	53.80	-	
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	14	0	<0.013	0.02	<0.021	TP-20 2.4m	46000	0	<0.017	<0.019	<0.013	<0.018	
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	14	1	<0.013	0.02	0.021	BH04 6.8m	110000	0	<0.017	<0.019	<0.013	<0.018	
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	14	0	<0.051	0.06	<0.085	BH04 11.8m	8100	0	<0.068	<0.078	<0.054	<0.072	
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	14	5	<5.01	7.9	21.8	BH06 13m	28000	0	7.41	<7.75	<5.38	8.82	
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	14	14	6.08	12.3	42.6	BH06 13m	37000	0	11.10	8.15	6.08	27.00	
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	14	6	<5.01	10.7	41.4	BH06 13m	28000	0	9.44	9.33	7.70	23.90	
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	14	7	<13.2	24.6	75.2	BH06 13m	28000	0	17.10	<19.4	26.30	40.20	
Aromatics >C35-44	mg/kg	6.00	Not Accredited	14	11	<8.34	20.7	74.4	BH06 13m	28000	0	18.70	16.80	17.30	24.60	
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	14	9	<27.8	63.9	233	BH06 13m			58.50	49.70	52.90	126.00	
Benzene	µg/kg	10.00	UKAS 1252 & MCERTS	14	0	<13	15.9	<21	TP-20 2.4m	47000	0	<17	<19	<13	<18	
Toluene	µg/kg	10.00	UKAS 1252 & MCERTS	14	1	<13	16.2	21	BH04 6.8m	110000000	0	<17	<19	<13	<18	
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTS	14	0	<13	15.9	<21	TP-20 2.4m	13000000	0	<17	<19	<13	<18	
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTS	14	0	<13	15.9	<21	TP-20 2.4m	15000000	0	<17	<19	<13	<18	
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTS	14	0	<25	31.9	<42	BH04 11.8m	14000000	0	<34	<39	<27	<36	
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTS	10	1	<0.075	0.09	<0.116	BH05 9m			<0.101	<0.116	<0.081	-	
Acenaphthylene	mg/kg	0.08	UKAS 1252	14	0	<0.1	0.13	<0.17	TP-20 2.4m	97000	0	<0.14	<0.16	<0.11	<0.14	
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	14	2	<0.11	0.16	0.33	TP-19 0.5m	44	0	<0.14	<0.16	<0.11	<0.14	
Anthracene	mg/kg	0.08	UKAS 1252	14	0	<0.1	0.13	<0.17	TP-20 2.4m	540000	0	<0.14	<0.16	<0.11	<0.14	
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTS	14	0	<0.1	0.13	<0.17	TP-20 2.4m	68000	0	<0.14	<0.16	<0.11	<0.14	
Naphthalene	mg/kg	0.08	UKAS 1252 & MCERTS	14	0	<0.1	0.13	<0.17	TP-20 2.4m	460	0	<0.14	<0.16	<0.11	<0.14	
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTS	14	0	<0.1	0.13	<0.17	TP-20 2.4m	97000	0	<0.14	<0.16	<0.11	<0.14	

Strata Description												RTD GRAVEL	RTD CLAY	RTD GRAVEL	RTD GRAVEL
Report No.:												23031664	23032769	23032769	23032441
Client Sample ID.:												BH04	BH05	BH05	BH06
Sample Type:												ES	ES	ES	ES
Top Depth (m):												19.20	15.00	19.00	19.00
Date Sampled:												09-Mar-2023	23-Mar-2023	23-Mar-2023	20-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances				
Major Constituents	N/A	0.00	Not Accredited	4	0	0	0	<0	N/A			SAND	CLAY	GRAVEL	GRAVEL
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	4	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS
Phenol Index	mg/kg	0.50	Not Accredited	4	0	<0.5	0.5	<0.5	N/A	760	0	<0.5	<0.5	<0.5	<0.5
Sulphate as SO4	mg/kg	30.00	Not Accredited	4	3	<30	67.5	110	BH05 19m			70.00	60.00	110.00	<30
pH	pH units	1.00	Not Accredited	4	4	8.8	8.9	9	BH05 15m			8.80	9.00	8.80	8.90
Nitrate as NO3	mg/kg	2.00	Not Accredited	3	0	<4	4	<4	N/A			-	<4.0	<4.0	<4.0
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	4	0	<0.5	0.6	<0.7	BH05 15m			<0.5	<0.7	<0.6	<0.5
Organic matter	% m/m	0.04	UKAS 1252	4	4	0.17	0.37	0.81	BH05 15m			0.17	0.81	0.24	0.26
Total Organic Carbon	% m/m	0.02	UKAS 1252	4	4	0.1	0.22	0.47	BH05 15m			0.10	0.47	0.14	0.15
Loss on ignition	%	0.00	MCERTS	0	0	N/A	N/A	N/A	N/A			-	-	-	-
Antimony	mg/kg	0.01	Not Accredited	4	2	<0.01	0.03	0.04	BH05 15m	7500	0	<0.01	0.04	0.04	<0.01
Arsenic	mg/kg	0.01	Not Accredited	4	4	0.02	0.07	0.11	BH05 15m	640	0	0.02	0.11	0.10	0.03
Barium	mg/kg	0.10	Not Accredited	4	0	<0.1	0.1	<0.1	N/A	22000	0	<0.1	<0.1	<0.1	<0.1
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	4	3	<0.5	1.2	2.4	BH05 15m	240000	0	0.60	2.40	1.30	<0.5
Cadmium	mg/kg	0.00	Not Accredited	4	1	<0.0002	0.0003	0.0004	BH05 19m	190	0	<0.0002	<0.0002	0.00	<0.0002
Chromium	mg/kg	0.01	Not Accredited	4	0	<0.01	0.01	<0.01	N/A	8600	0	<0.01	<0.01	<0.01	<0.01
Copper	mg/kg	0.01	Not Accredited	4	2	<0.01	0.02	0.02	BH05 15m	68000	0	<0.01	0.02	0.02	<0.01
Lead	mg/kg	0.01	Not Accredited	4	0	<0.01	0.01	<0.01	N/A	2300	0	<0.01	<0.01	<0.01	<0.01
Mercury	mg/kg	0.00	Not Accredited	4	0	<0.0003	0.0003	<0.0003	N/A	1100	0	<0.0003	<0.0003	<0.0003	<0.0003
Molybdenum	mg/kg	0.01	Not Accredited	4	3	<0.01	0.1	0.18	BH05 19m	17000	0	0.07	0.14	0.18	<0.01
Nickel	mg/kg	0.01	Not Accredited	4	2	<0.01	0.03	0.06	BH05 19m	980	0	<0.01	0.03	0.06	<0.01
Selenium	mg/kg	0.01	Not Accredited	4	1	<0.01	0.02	0.05	BH05 15m	12000	0	<0.01	0.05	<0.01	<0.01
Zinc	mg/kg	0.02	Not Accredited	4	1	<0.02	0.02	0.03	BH05 19m	730000	0	<0.02	<0.02	0.03	<0.02
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m			<0.217	<0.268	<0.226	<0.209
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m	3200	0	<0.217	<0.268	<0.226	<0.209
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m	7800	0	<0.217	<0.268	<0.226	<0.209
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m	2000	0	<0.217	<0.268	<0.226	<0.209
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	4	1	<4.19	5.3	7.29	BH04 19.2m	9700	0	7.29	<5.37	<4.52	<4.19
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	4	1	<4.19	6.5	12.1	BH04 19.2m	59000	0	12.10	<5.37	<4.52	<4.19
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	4	1	<4.19	6.5	12.1	BH04 19.2m	1600000	0	12.10	<5.37	<4.52	<4.19
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	4	2	<10.5	14.3	19.4	BH05 15m	1600000	0	15.90	19.40	<11.3	<10.5
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	4	1	<6.28	8.9	14.5	BH04 19.2m	1600000	0	14.50	<8.05	<6.79	<6.28
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	4	2	<20.9	34.3	57.8	BH04 19.2m			57.80	36.00	<22.6	<20.9
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	4	2	<20.9	31.8	53	BH04 19.2m			53.00	30.70	<22.6	<20.9
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	4	0	<0.011	0.01	<0.013	BH05 15m	26000	0	<0.011	<0.013	<0.011	<0.011
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	4	0	<0.011	0.01	<0.013	BH05 15m	56000	0	<0.011	<0.013	<0.011	<0.011
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	4	0	<0.043	0.05	<0.054	BH05 15m	3500	0	<0.044	<0.054	<0.045	<0.043
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	4	3	<4.19	6.5	9.9	BH05 15m	16000	0	4.62	9.90	7.19	<4.19
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	4	3	<4.19	9.1	17	BH05 15m	36000	0	4.66	17.00	10.70	<4.19
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	4	2	<4.19	9.3	18	BH05 15m	28000	0	<4.34	18.00	10.70	<4.19
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	4	1	<10.5	14.8	26.4	BH05 15m	28000	0	<10.9	26.40	<11.3	<10.5
Aromatics >C35-44	mg/kg	6.00	Not Accredited	4	3	<6.28	15	25.7	BH05 15m	28000	0	15.70	25.70	12.30	<6.28
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	4	3	<20.9	48	89.5	BH05 15m			32.20	89.50	49.30	<20.9
Benzene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	27000	0	<11	<13	<11	<11
Toluene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	56000000	0	<11	<13	<11	<11
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	5700000	0	<11	<13	<11	<11
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	6600000	0	<11	<13	<11	<11
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTS	4	0	<21	23.3	<27	BH05 15m	5900000	0	<22	<27	<23	<21
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTS	4	0	<0.063	0.07	<0.081	BH05 15m			<0.065	<0.081	<0.068	<0.063
Acenaphthylene	mg/kg	0.08	UKAS 1252	4	0	<0.08	0.09	<0.11	BH05 15m	83000	0	<0.09	<0.11	<0.09	<0.08
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	44	0	<0.09	<0.11	<0.09	<0.08
Anthracene	mg/kg	0.08	UKAS 1252	4	0	<0.08	0.09	<0.11	BH05 15m	520000	0	<0.09	<0.11	<0.09	<0.08
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	63000	0	<0.09	<0.11	<0.09	<0.08
Naphthalene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	190	0	<0.09	<0.11	<0.09	<0.08
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	84000	0	<0.09	<0.11	<0.09	<0.08
Benzo(k)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	1200	0	<0.09	<0.11	<0.09	<0.08
Fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	23000	0	<0.09	<0.11	<0.09	<0.08
Phenanthrene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08									

Strata Description												CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK
Report No.:												23042005	23042005	23042005	23042005	23042668	23041026	23041026	23041026
Client Sample ID.:												BH05	BH05	BH05	BH05	BH05	BH06	BH06	BH06
Sample Type:												ES	ES	ES	ES	ES	ES	ES	ES
Top Depth (m):												24.86	29.50	40.47	50.36	54.50	22.20	27.40	34.80
Date Sampled:												03-Apr-2023	03-Apr-2023	04-Apr-2023	04-Apr-2023	04-Apr-2023	23-Mar-2023	23-Mar-2023	24-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances								
Major Constituents	N/A	0.00	Not Accredited	10	0	0	0	<0	N/A			CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	10	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	
Phenol Index	mg/kg	0.50	Not Accredited	10	0	<0.5	0.6	<0.7	BH06 22.2m	760	0	<0.5	<0.5	<0.5	<0.5	<0.6	<0.7	<0.5	
Sulphate as SO4	mg/kg	30.00	Not Accredited	10	6	<30	583.5	5270	BH06 27.4m			<30	<30	<30	<30	190.00	50.00	5270.00	
pH	pH units	1.00	Not Accredited	10	10	7.4	8.9	9.2	BH05 40.47m			9.00	9.10	9.20	9.20	9.20	9.10	7.40	
Nitrate as NO3	mg/kg	2.00	Not Accredited	10	6	<4	6.6	10.6	BH06 27.4m			<4.0	4.90	<4.0	<4.0	<4.0	7.30	10.60	
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTs	10	0	<0.6	0.6	<0.7	BH05 29.5m			<0.6	<0.7	<0.6	<0.6	<0.6	<0.7	<0.6	
Organic matter	% m/m	0.04	UKAS 1252	10	10	0.64	0.78	1.07	BH06 54.3m			0.76	0.80	0.89	0.64	0.82	0.71	0.70	
Total Organic Carbon	% m/m	0.02	UKAS 1252	7	7	0.37	0.47	0.62	BH06 54.3m			0.44	0.46	0.52	0.37	-	-	0.41	
Loss on ignition	%	0.00	MCERTS	2	0	0	0	<0	N/A			-	-	-	-	-	-	-	
Antimony	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	7500	0	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	
Arsenic	mg/kg	0.01	Not Accredited	10	3	<0.01	1.93	18	BH05 54.5m	640	0	<0.01	<0.01	<0.01	<0.01	18.00	0.70	<0.01	
Barium	mg/kg	0.10	Not Accredited	7	1	<0.1	0.1	0.2	BH06 27.4m	22000	0	<0.1	<0.1	<0.1	<0.1	-	-	0.20	
Boron	mg/kg	0.50	UKAS 1252 & MCERTs	10	3	<0.5	0.7	1.9	BH06 46.04m	240000	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.60	<0.5	
Cadmium	mg/kg	0.00	Not Accredited	10	7	<0.0002	0.1305	0.5	BH05 54.5m	190	0	<0.0002	0.00	0.00	0.00	0.50	0.50	0.00	
Chromium	mg/kg	0.01	Not Accredited	10	3	<0.01	3.24	29.3	BH05 54.5m	8600	0	<0.01	<0.01	<0.01	<0.01	29.30	1.60	<0.01	
Copper	mg/kg	0.01	Not Accredited	10	3	<0.01	4.28	36.8	BH05 54.5m	68000	0	<0.01	<0.01	<0.01	<0.01	36.80	3.40	<0.01	
Lead	mg/kg	0.01	Not Accredited	10	3	<0.01	31.22	308.7	BH05 54.5m	2300	0	<0.01	<0.01	<0.01	<0.01	308.70	2.40	<0.01	
Mercury	mg/kg	0.00	Not Accredited	10	1	<0.0003	0.1602	0.6	BH05 54.5m	1100	0	<0.0003	<0.0003	<0.0003	<0.0003	0.60	<0.5	<0.0003	
Molybdenum	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	17000	0	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	
Nickel	mg/kg	0.01	Not Accredited	10	4	<0.01	3.79	24.7	BH05 54.5m	980	0	<0.01	<0.01	<0.01	<0.01	24.70	7.20	0.14	
Selenium	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	12000	0	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	
Zinc	mg/kg	0.02	Not Accredited	10	3	<0.02	20.82	170.8	BH05 54.5m	730000	0	<0.02	<0.02	<0.02	<0.02	170.80	21.20	0.11	
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m			<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	3200	0	<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	7800	0	<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	2000	0	<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	10	3	<4.94	5.5	7.66	BH06 27.4m	9700	0	<5.15	<5.26	<5.15	<5.17	<4.94	6.15	7.66	
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	10	2	<4.94	5.4	6.98	BH06 34.8m	59000	0	<5.15	<5.26	<5.15	<5.17	<4.94	<5.22	<5.19	
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	10	3	<4.94	5.5	7.32	BH06 27.4m	1600000	0	<5.15	<5.26	<5.15	<5.17	<4.94	5.33	7.32	
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	10	3	<12.4	13.8	18.8	BH05 54.5m	1600000	0	<12.9	<13.2	<12.9	<12.9	18.80	<13.1	13.10	
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	10	5	<7.46	12.3	23.7	BH06 46.04m	1600000	0	<7.72	<7.89	<7.72	<7.75	7.72	20.80	19.90	
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	10	5	<24.9	30.4	41.4	BH06 27.4m			<25.7	<26.3	<25.7	<25.8	25.90	28.00	41.40	
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	7	2	<24.9	29.5	39.8	BH06 27.4m			<25.7	<26.3	<25.7	<25.8	-	-	39.80	
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTs	10	0	<0.012	0.01	<0.013	BH05 24.86m	26000	0	<0.013	<0.013	<0.013	<0.013	<0.012	<0.013	<0.013	
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTs	10	0	<0.012	0.01	<0.013	BH05 24.86m	56000	0	<0.013	<0.013	<0.013	<0.013	<0.012	<0.013	<0.013	
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTs	10	0	<0.049	0.05	<0.053	BH05 29.5m	3500	0	<0.052	<0.053	<0.052	<0.052	<0.049	<0.052	<0.052	
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	10	7	<4.94	7.8	12	BH05 40.47m	16000	0	10.30	9.17	12.00	7.60	<4.94	8.69	<5.19	
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	10	8	<4.94	8.3	11	BH05 29.5m	36000	0	10.20	11.00	10.60	<5.17	<4.94	9.97	8.89	
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	10	7	<4.94	8	12.1	BH06 27.4m	28000	0	7.89	8.07	7.96	<5.17	<4.94	10.70	12.10	
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	10	4	<12.3	18	37.3	BH05 29.5m	28000	0	22.70	37.30	25.70	<12.9	<12.3	<13.1	<13.0	
Aromatics >C35-44	mg/kg	6.00	Not Accredited	10	9	<7.75	22.1	37.3	BH05 29.5m	28000	0	28.10	37.30	33.20	<7.75	16.10	27.10	13.70	
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	10	8	<24.7	52.3	87.6	BH05 29.5										

Strata Description												CHALK	CHALK
Report No.:												23041026	23041188
Client Sample ID.:												BH06	BH06
Sample Type:												ES	ES
Top Depth (m):												46.04	54.30
Date Sampled:												27-Mar-2023	27-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances		
Major Constituents	N/A	0.00	Not Accredited	10	0	0	0	<0	N/A			CHALK	CHALK
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	10	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS
Phenol Index	mg/kg	0.50	Not Accredited	10	0	<0.5	0.6	<0.7	BH06 22.2m	760	0	<0.5	<0.5
Sulphate as SO4	mg/kg	30.00	Not Accredited	10	6	<30	583.5	5270	BH06 27.4m			70.00	60.00
pH	pH units	1.00	Not Accredited	10	10	7.4	8.9	9.2	BH05 40.47m			8.70	9.00
Nitrate as NO3	mg/kg	2.00	Not Accredited	10	6	<4	6.6	10.6	BH06 27.4m			7.20	10.50
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTs	10	0	<0.6	0.6	<0.7	BH05 29.5m			<0.7	<0.6
Organic matter	% m/m	0.04	UKAS 1252	10	10	0.64	0.78	1.07	BH06 54.3m			0.76	1.07
Total Organic Carbon	% m/m	0.02	UKAS 1252	7	7	0.37	0.47	0.62	BH06 54.3m			0.44	0.62
Loss on Ignition	%	0.00	MCERTs	2	0	0	0	<0	N/A				
Antimony	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	7500	0	<0.01	<0.01
Arsenic	mg/kg	0.01	Not Accredited	10	3	<0.01	1.93	18	BH05 54.5m	640	0	<0.01	<0.01
Barium	mg/kg	0.10	Not Accredited	7	1	<0.1	0.1	0.2	BH06 27.4m	22000	0	<0.1	<0.1
Boron	mg/kg	0.50	UKAS 1252 & MCERTs	10	3	<0.5	0.7	1.9	BH06 46.04m	240000	0	1.90	1.10
Cadmium	mg/kg	0.00	Not Accredited	10	7	<0.0002	0.1305	0.5	BH05 54.5m	190	0	<0.0002	<0.0002
Chromium	mg/kg	0.01	Not Accredited	10	3	<0.01	3.24	29.3	BH05 54.5m	8600	0	<0.01	<0.01
Copper	mg/kg	0.01	Not Accredited	10	3	<0.01	4.28	36.8	BH05 54.5m	68000	0	<0.01	<0.01
Lead	mg/kg	0.01	Not Accredited	10	3	<0.01	31.22	308.7	BH05 54.5m	2300	0	<0.01	<0.01
Mercury	mg/kg	0.00	Not Accredited	10	1	<0.0003	0.1602	0.6	BH05 54.5m	1100	0	<0.0003	<0.0003
Molybdenum	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	17000	0	<0.01	<0.01
Nickel	mg/kg	0.01	Not Accredited	10	4	<0.01	3.79	24.7	BH05 54.5m	980	0	<0.01	<0.01
Selenium	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	12000	0	<0.01	<0.01
Zinc	mg/kg	0.02	Not Accredited	10	3	<0.02	20.82	170.8	BH05 54.5m	730000	0	<0.02	<0.02
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m			<0.261	<0.249
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	3200	0	<0.261	<0.249
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	7800	0	<0.261	<0.249
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	2000	0	<0.261	<0.249
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	10	3	<4.94	5.5	7.66	BH06 27.4m	9700	0	<5.22	5.36
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	10	2	<4.94	5.4	6.98	BH06 34.8m	59000	0	6.02	<4.98
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	10	3	<4.94	5.5	7.32	BH06 27.4m	1600000	0	6.43	<4.98
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	10	3	<12.4	13.8	18.8	BH05 54.5m	1600000	0	<13.0	<12.4
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	10	5	<7.46	12.3	23.7	BH06 46.04m	1600000	0	23.70	<7.46
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	10	5	<24.9	30.4	41.4	BH06 27.4m			39.50	<24.9
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	7	2	<24.9	29.5	39.8	BH06 27.4m			38.00	<24.9
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTs	10	0	<0.012	0.01	<0.013	BH05 24.86m	26000	0	<0.013	<0.012
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTs	10	0	<0.012	0.01	<0.013	BH05 24.86m	56000	0	<0.013	<0.012
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTs	10	0	<0.049	0.05	<0.053	BH05 29.5m	3500	0	<0.052	<0.05
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	10	7	<4.94	7.8	12	BH05 40.47m	16000	0	6.93	8.20
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	10	8	<4.94	8.3	11	BH05 29.5m	36000	0	6.33	10.40
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	10	7	<4.94	8	12.1	BH06 27.4m	28000	0	7.71	9.83
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	10	4	<12.3	18	37.3	BH05 29.5m	28000	0	<13.0	<12.4
Aromatics >C35-44	mg/kg	6.00	Not Accredited	10	9	<7.75	22.1	37.3	BH05 29.5m	28000	0	16.80	26.30
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	10	8	<24.7	52.3	87.6	BH05 29.5m			43.30	56.20
Benzene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	27000	0	<13	<12
Toluene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	56000000	0	<13	<12
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	5700000	0	<13	<12
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	6600000	0	<13	<12
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTs	10	0	<25	25.8	<26	BH05 24.86m	5900000	0	<26	<25
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTs	7	0	<0.075	0.08	<0.079	BH05 29.5m			<0.078	<0.075
Acenaphthylene	mg/kg	0.08	UKAS 1252	10	0	<0.1	0.1	<0.11	BH05 29.5m	83000	0	<0.10	<0.10
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	44	0	<0.10	<0.10
Anthracene	mg/kg	0.08	UKAS 1252	10	0	<0.1	0.1	<0.11	BH05 29.5m	520000	0	<0.10	<0.10
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	63000	0	<0.10	<0.10
Naphthalene	mg/kg	0.08	UKAS 1252 & MCERTs	10	3	<0.1	0.13	0.22	BH06 27.4m	190	0	<0.10	0.20
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	84000	0	<0.10	<0.10
Benzo(k)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	1200	0	<0.10	<0.10
Fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	23000	0	<0.10	<0.10
Phenanthrene	mg/kg	0.08	UKAS 1252 & MCERTs	10	1	<0.1	0.1	0.11	BH06 27.4m	22000	0	<0.10	<0.10
Dibenz-a-h-anthracene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	3.5	0	<0.10	<0.10
Chrysene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	350	0	<0.10	<0.10
PAH 16 Total	mg/kg	1.28	UKAS 1252	10	3	<1.58	1.68	1.79	BH06 27.4m			<1.67	1.69
Benzo(a)anthracene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	170	0	<0.10	<0.10
Benzo(a)pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	35	0	<0.10	<0.10
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	10	0	<0.1	0.1	<0.11	BH05 29.5m	3900	0	<0.10	<0.10
Pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	54000	0	<0.10	<0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	500	0	<0.10	<0.10
Coronene	mg/kg	0.08	Not Accredited	7	0	<0.1	0.1	<0.11	BH05 29.5m			<0.10	<0.10
PAH 17 Total	mg/kg	1.36	Not Accredited	7	2	<1.75	1.79	1.89	BH06 27.4m			<1.77	1.79
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	0.01	UKAS 1252 & MCERTs	7	0	<0.006	0.006	<					

Installation Details - Response Strata															Chalk	Chalk	Chalk
Installation Details - Response Zone (m bgl)															42.00 to 44.00	50.00 to 53.00	25.00 to 27.50
Report No.:															23051661	23051661	23051661
Client Sample ID.:															BH04	BH05	BH06
Sample Type:															EW	EW	EW
Top Depth (m):															10.00	10.00	10.00
Date Sampled:															12/05/2023	12/05/2023	12/05/2023
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above LOD	Minimum	Average	Maximum	Maximum Sample Reference	EQS Transitional and Coastal Waters	Number of Exceedances	DWS	Number of Exceedances				
pH	pH Units	1	UKAS 1252	3	3	7	7.2	7.4	BH06			6.5-9.5	0	7.3	7	7.4	
Chloride	mg/l	1	UKAS 1252	3	3	252	1694	3200	BH05			250	3	1630	3200	252	
Nitrate as NO3	mg/l	0.9	UKAS 1252	3	2	<0.9	5.7	10.2	BH05			50	0	6	10.2	<0.9	
Cyanide	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A	0.001	0	0.05	0	<0.02	<0.02	<0.02	
Magnesium	mg/l	1	UKAS 1252	3	3	22	100.3	186	BH05					93	186	22	
Sulphate as SO4	mg/l	3	UKAS 1252	3	3	54	89	146	BH04			250	0	146	54	67	
Arsenic	mg/l	0.001	UKAS 1252	3	3	0.002	0.006	0.014	BH05	0.025	0	0.01	1	0.003	0.014	0.002	
Boron	mg/l	0.01	UKAS 1252	3	3	0.18	0.95	1.99	BH05			1	1	0.69	1.99	0.18	
Cadmium	mg/l	0.00002	UKAS 1252	3	0	<0.00002	0.00002	<0.00002	N/A	0.0002	0	0.005	0	<0.00002	<0.00002	<0.00002	
Chromium	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.002	BH05	0.0006	1	0.050	0	<0.001	0.002	<0.001	
Copper	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.001	BH05	0.00376	0	2.000	0	<0.001	0.001	<0.001	
Lead	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A	0.0013	0	0.010	0	<0.001	<0.001	<0.001	
Mercury	mg/l	0.00003	UKAS 1252	3	0	<0.00003	0.00003	<0.00003	N/A	0.00007	0	0.001	0	<0.00003	<0.00003	<0.00003	
Nickel	mg/l	0.001	UKAS 1252	3	3	0.002	0.004	0.005	BH05	0.0086	0	0.020	0	0.002	0.005	0.004	
Zinc	mg/l	0.002	UKAS 1252	3	3	0.004	0.009	0.017	BH05	0.0079	1			0.005	0.017	0.004	
GRO >C5-10	mg/l	0.1	UKAS 1252	3	0	<0.1	0.1	<0.1	N/A					<0.100	<0.100	<0.100	
Aliphatics >C5-6	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A			15.000	0	<0.100	<0.100	<0.100	
Aliphatics >C6-8	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A			15.000	0	<0.100	<0.100	<0.100	
Aliphatics >C8-10	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A			3.000	0	<0.100	<0.100	<0.100	
Aliphatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			3.000	0	<0.04	<0.01	<0.01	
Aliphatics >C12-16	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			3.000	0	<0.04	<0.01	0.01	
Aliphatics >C16-21	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04					<0.04	<0.01	0.01	
Aliphatics >C21-35	mg/l	0.01	UKAS 1252	3	2	<0.01	0.02	<0.04	BH04					<0.04	0.02	0.01	
Aliphatics >C35-44	mg/l	0.01	Not Accredited	3	1	<0.01	0.02	<0.04	BH04			3.000	0	<0.04	0.01	<0.01	
Aliphatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.04	0.07	0.12	BH04					0.12	0.05	0.04	
Aromatics >C5-7	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A			0.010	0	<0.005	<0.005	<0.005	
Aromatics >C7-8	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A			0.700	0	<0.005	<0.005	<0.005	
Aromatics >C8-10	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A			0.300	0	<0.020	<0.020	<0.020	
Aromatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C12-16	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C16-21	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C21-35	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C35-44	mg/l	0.01	Not Accredited	3	3	0.01	0.02	0.05	BH04			0.090	0	0.05	0.01	0.01	
Aromatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.02	0.04	0.09	BH04					0.09	0.02	0.02	
Benzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	8.00	0	1.000	0	<5	<5	<5	
Ethylbenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	20.00	0			<5	<5	<5	
m,p xylenes	ug/l	10	UKAS 1252	3	0	<10	10	<10	N/A					<10	<10	<10	
O-Xylene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A					<5	<5	<5	
Toluene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	74.00	0			<5	<5	<5	
Acenaphthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Acenaphthylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.10	0			<0.04	<0.01	<0.01	
Benzo (g,h,i) perylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.0082	0			<0.04	<0.01	<0.01	
Benzo(a)anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Benzo(a)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.00017	0	0.010	0	<0.04	<0.01	<0.01	
Benzo(b)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.017	0			<0.04	<0.01	<0.01	
Benzo(k)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.017	0			<0.04	<0.01	<0.01	
Chrysene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Dibenz-a-h-anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Fluoranthene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04	0.0063	1			<0.04	<0.01	0.01	
Fluorene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Indeno(1,2,3-cd)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Naphthalene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	2.00	0			<0.04	<0.01	<0.01	
Phenanthrene	ug/l	0.01	UKAS 1252	3	2	<0.02	0.03	0.04	BH06					<0.04	0.02	0.04	
Pyrene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04					<0.04	<0.01	0.01	
PAH 16 Total	ug/l	0.16	UKAS 1252	3	2	<0.17	0.33	<0.64	BH04					<0.64	0.17	0.19	
Methylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A					<0.05	<0.05	<0.05	
Phenol	mg/l	0.05	UKAS 1252	3	0	<											

Installation Details - Response Zone												Chalk	Chalk	Chalk
Installation Details - Response Strata												42.00 to 44.00	50.00 to 53.00	25.00 to 27.50
Socotec Job No.:												23051661	23051661	23051661
Client Sample ID.:												BH04	BH05	BH06
Sample Type:												EW	EW	EW
Top Depth (m):												10.00	10.00	10.00
Date Sampled:												12/05/2023	12/05/2023	12/05/2023
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above LOD	Minimum	Average	Maximum	Maximum Sample Reference	SoBRA Groundwater Vapours Commercial	Number of Exceedances			
pH	pH Units	1	UKAS 1252	3	3	7	7.2	7.4	BH06			7.3	7	7.4
Chloride	mg/l	1	UKAS 1252	3	3	252	1694	3200	BH05			1630	3200	252
Nitrate as NO3	mg/l	0.9	UKAS 1252	3	2	<0.9	5.7	10.2	BH05			6	10.2	<0.9
Cyanide	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A			<0.02	<0.02	<0.02
Magnesium	mg/l	1	UKAS 1252	3	3	22	100.3	186	BH05			93	186	22
Sulphate as SO4	mg/l	3	UKAS 1252	3	3	54	89	146	BH04			146	54	67
Arsenic	mg/l	0.001	UKAS 1252	3	3	0.002	0.006	0.014	BH05			0.003	0.014	0.002
Boron	mg/l	0.01	UKAS 1252	3	3	0.18	0.95	1.99	BH05			0.69	1.99	0.18
Cadmium	mg/l	0.00002	UKAS 1252	3	0	<0.00002	0.00002	<0.00002	N/A			<0.00002	<0.00002	<0.00002
Chromium	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.002	BH05			<0.001	0.002	<0.001
Copper	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.001	BH05			<0.001	0.001	<0.001
Lead	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A			<0.001	<0.001	<0.001
Mercury	mg/l	0.00003	UKAS 1252	3	0	<0.00003	0.00003	<0.00003	N/A	0.095	0	<0.00003	<0.00003	<0.00003
Nickel	mg/l	0.001	UKAS 1252	3	3	0.002	0.004	0.005	BH05			0.002	0.005	0.004
Zinc	mg/l	0.002	UKAS 1252	3	3	0.004	0.009	0.017	BH05			0.005	0.017	0.004
GRO >C5-10	mg/l	0.1	UKAS 1252	3	0	<0.1	0.1	<0.1	N/A			<0.100	<0.100	<0.100
Aliphatics >C5-6	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	190	0	<0.100	<0.100	<0.100
Aliphatics >C6-8	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	150	0	<0.100	<0.100	<0.100
Aliphatics >C8-10	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	5.7	0	<0.100	<0.100	<0.100
Aliphatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	3.6	0	<0.04	<0.01	<0.01
Aliphatics >C12-16	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
Aliphatics >C16-21	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
Aliphatics >C21-35	mg/l	0.01	UKAS 1252	3	2	<0.01	0.02	<0.04	BH04			<0.04	0.02	0.01
Aliphatics >C35-44	mg/l	0.01	Not Accredited	3	1	<0.01	0.02	<0.04	BH04			<0.04	0.01	<0.01
Aliphatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.04	0.07	0.12	BH04			0.12	0.05	0.04
Aromatics >C5-7	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A	20000	0	<0.005	<0.005	<0.005
Aromatics >C7-8	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A	21000	0	<0.005	<0.005	<0.005
Aromatics >C8-10	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A	190	0	<0.020	<0.020	<0.020
Aromatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	660	0	<0.04	<0.01	<0.01
Aromatics >C12-16	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	3700	0	<0.04	<0.01	<0.01
Aromatics >C16-21	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Aromatics >C21-35	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Aromatics >C35-44	mg/l	0.01	Not Accredited	3	3	0.01	0.02	0.05	BH04			0.05	0.01	0.01
Aromatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.02	0.04	0.09	BH04			0.09	0.02	0.02
Benzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	20000	0	<5	<5	<5
Ethylbenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	960000	0	<5	<5	<5
m,p xylenes	ug/l	10	UKAS 1252	3	0	<10	10	<10	N/A	940000	0	<10	<10	<10
O-Xylene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	1100000	0	<5	<5	<5
Toluene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	21000000	0	<5	<5	<5
Acenaphthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	15000000	0	<0.04	<0.01	<0.01
Acenaphthylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	20000000	0	<0.04	<0.01	<0.01
Anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo (g,h,i) perylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(a)anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(a)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(b)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(k)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Chrysene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Dibenz-a-h-anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Fluoranthene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
Fluorene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	18000000	0	<0.04	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Naphthalene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	23000	0	<0.04	<0.01	<0.01
Phenanthrene	ug/l	0.01	UKAS 1252	3	2	<0.02	0.03	0.04	BH06			<0.04	0.02	0.04
Pyrene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
PAH 16 Total	ug/l	0.16	UKAS 1252	3	2	<0.17	0.33	<0.64	BH04			<0.64	0.17	0.19
Methylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Phenol	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Total Speciated Phenols	mg/l	0.2	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Trimethylphenol	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Xylenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	22000	0	<1	<1	<1
1,1,1-Trichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	290000	0	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A	150000	0	<1	<1	<1
1,1,2-Trichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	49000	0	<1	<1	<1
1,1-Dichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	260000	0	<1	<1	

Strata												CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK
Report No.:												F223717-REP-002		F223717-REP-002		F223717-REP-002		F223717-REP-002	
Client Sample ID.:												MRC1		MRC1		MRC2		MRC3	
Sample Type:												ES		ES		ES		ES	
Top Depth (m):												18.01		24.83		11.10		18.90	
Date Sampled:												15-Mar-2023		16-Mar-2023		17-Mar-2023		17-Mar-2023	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances								
Asbestos (Presence of)	---	0.00	UKAS	8	0	0	0	<0	N/A	Not-detected	0	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos Analysts Comments	---	0.00	UKAS	8	0	0	0	0	N/A			na	na	na	na	na	na	na	na
Organic matter	% m/m	0.04	UKAS 1252	8	8	0.1	0.16	0.2	N/A			0.20	0.10	0.20	0.20	0.10	0.10	0.20	0.20
Anthracene	mg/kg	0.08	UKAS 1252	8	0	<0.03	0.03	<0.03	N/A	520000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	54000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	8	0	<0.03	0.03	<0.03	N/A	3900	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	0.03	N/A	500	0	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	44	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	23000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	1200	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	mg/kg	0.08	UKAS 1252	8	0	<0.03	0.03	<0.03	N/A	83000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	350	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	35	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenz-a-h-anthracene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	3.5	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	170	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTs	8	0	<0.1	0.1	<0.1	N/A			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Lead	mg/kg	0.01	Not Accredited	8	2	<0.05	0.06	0.12	N/A	2300	0	< 0.05	< 0.05	< 0.05	0.12	< 0.05	0.07	< 0.05	< 0.05
Mercury	mg/kg	0.00	Not Accredited	8	0	<0.002	0.002	<0.002	N/A	1100	0	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Nickel	mg/kg	0.01	Not Accredited	8	0	<0.1	0.1	<0.1	N/A	980	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Arsenic	mg/kg	0.01	Not Accredited	8	0	<0.01	0.01	<0.01	N/A	640	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Boron	mg/kg	0.50	UKAS 1252 & MCERTs	8	1	<0.2	0.3	0.8	N/A	240000	0	0.20	< 0.2	< 0.2	< 0.2	< 0.2	0.80	< 0.2	< 0.2
Cadmium	mg/kg	0.00	Not Accredited	8	0	<0.02	0.02	<0.02	N/A	190	0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chromium	mg/kg	0.01	Not Accredited	8	0	<0.1	0.1	<0.1	N/A	8600	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Copper	mg/kg	0.01	Not Accredited	8	3	<0.02	0.02	0.03	N/A	68000	0	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.03	< 0.02	< 0.02
Zinc	mg/kg	0.02	Not Accredited	8	4	<0.01	0.02	0.03	N/A	730000	0	< 0.01	< 0.01	< 0.01	0.03	< 0.01	0.03	0.02	0.02
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	84000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	22000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	63000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Napthalene	mg/kg	0.00	MCERTs	8	0	<0.03	0	<0.03	N/A	190	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenol (Monohydric)	mg/kg	0.00	MCERTs	8	4	<0.3	0.02	1.4	N/A	760	0	1.40	0.80	0.50	0.60	< 0.3	< 0.3	< 0.3	< 0.3
Pah,Total	mg/kg	0.00	UKAS	8	0	<0.1	0.1	<0.1	N/A			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EPH >C10-40	mg/kg	0.00	MCERTs	8	0	<10	10	<10	N/A	9700	0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Sulphate as SO4	mg/kg	30.00	Not Accredited	8	5	<100	108.8	130	N/A			< 100	< 100	130.00	110.00	< 100	130.00	100.00	100.00
pH	pH units	1.00	Not Accredited	8	8	6.6	7.4	8.3	N/A			8.20	8.30	6.60	6.60	8.00	8.20	6.60	6.70
Loss on ignition	%	0.00	MCERTs	2	2	0.27	0.3	0.38	N/A			-	-	-	-	-	-	0.27	0.38
Total Organic Carbon	% m/m	0.02	UKAS 1252	8	8	3.1	4.11	5.3	N/A			3.10	5.30	3.60	3.50	5.20	4.90	3.30	4.00
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTs	8	0	<0.01	0	<0.01	N/A	5700000	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	µg/kg	10.00	UKAS 1252 & MCERTs	8	0	<0.01	0	<0.01	N/A	56000000	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	mg/kg	0.00	MCERTs	8	0	<0.01	0	<0.01	N/A	5900	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB, Total Of 7 Congeners	mg/kg	0.04	UKAS 1252 & MCERTs	8	0	<0.01	0.01	<0.01	N/A			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzene	µg/kg	10.00	UKAS 1252 & MCERTs	8	0	<0.01	0	<0.01	N/A	27000	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pah,Total	mg/kg	0.00	UKAS	8	0	<0.1	0.1	<0.1	N/A			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTs	8	0	<0.04	0.04	<0.04	N/A			< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
TPH >C10-40	mg/kg	0.00	MCERTs	8	0	<10	10	<10	N/A	9700	0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Number of Samples												Exceedance		Pass	Pass	Pass	Pass	Pass	Pass
												Total Number	0	N/A	N/A	N/A	N/A	N/A	N/A

Lowest TPH fraction of EPH >C10-C40

Installation Details - Response Strata															Chalk	Chalk	Chalk
Installation Details - Response Zone (m bgl)															42.00 to 44.00	50.00 to 53.00	25.00 to 27.50
Report No.:															23051661	23051661	23051661
Client Sample ID.:															BH04	BH05	BH06
Sample Type:															EW	EW	EW
Top Depth (m):															10.00	10.00	10.00
Date Sampled:															12/05/2023	12/05/2023	12/05/2023
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above LOD	Minimum	Average	Maximum	Maximum Sample Reference	EQS Transitional and Coastal Waters	Number of Exceedances	DWS	Number of Exceedances				
pH	pH Units	1	UKAS 1252	3	3	7	7.2	7.4	BH06			6.5-9.5	0	7.3	7	7.4	
Chloride	mg/l	1	UKAS 1252	3	3	252	1694	3200	BH05			250	3	1630	3200	252	
Nitrate as NO3	mg/l	0.9	UKAS 1252	3	2	<0.9	5.7	10.2	BH05			50	0	6	10.2	<0.9	
Cyanide	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A	0.001	0	0.05	0	<0.02	<0.02	<0.02	
Magnesium	mg/l	1	UKAS 1252	3	3	22	100.3	186	BH05					93	186	22	
Sulphate as SO4	mg/l	3	UKAS 1252	3	3	54	89	146	BH04			250	0	146	54	67	
Arsenic	mg/l	0.001	UKAS 1252	3	3	0.002	0.006	0.014	BH05	0.025	0	0.01	1	0.003	0.014	0.002	
Boron	mg/l	0.01	UKAS 1252	3	3	0.18	0.95	1.99	BH05			1	1	0.69	1.99	0.18	
Cadmium	mg/l	0.00002	UKAS 1252	3	0	<0.00002	0.00002	<0.00002	N/A	0.0002	0	0.005	0	<0.00002	<0.00002	<0.00002	
Chromium	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.002	BH05	0.0006	1	0.050	0	<0.001	0.002	<0.001	
Copper	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.001	BH05	0.00376	0	2.000	0	<0.001	0.001	<0.001	
Lead	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A	0.0013	0	0.010	0	<0.001	<0.001	<0.001	
Mercury	mg/l	0.00003	UKAS 1252	3	0	<0.00003	0.00003	<0.00003	N/A	0.00007	0	0.001	0	<0.00003	<0.00003	<0.00003	
Nickel	mg/l	0.001	UKAS 1252	3	3	0.002	0.004	0.005	BH05	0.0086	0	0.020	0	0.002	0.005	0.004	
Zinc	mg/l	0.002	UKAS 1252	3	3	0.004	0.009	0.017	BH05	0.0079	1			0.005	0.017	0.004	
GRO >C5-10	mg/l	0.1	UKAS 1252	3	0	<0.1	0.1	<0.1	N/A					<0.100	<0.100	<0.100	
Aliphatics >C5-6	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A			15.000	0	<0.100	<0.100	<0.100	
Aliphatics >C6-8	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A			15.000	0	<0.100	<0.100	<0.100	
Aliphatics >C8-10	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A			3.000	0	<0.100	<0.100	<0.100	
Aliphatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			3.000	0	<0.04	<0.01	<0.01	
Aliphatics >C12-16	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			3.000	0	<0.04	<0.01	0.01	
Aliphatics >C16-21	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04					<0.04	<0.01	0.01	
Aliphatics >C21-35	mg/l	0.01	UKAS 1252	3	2	<0.01	0.02	<0.04	BH04					<0.04	0.02	0.01	
Aliphatics >C35-44	mg/l	0.01	Not Accredited	3	1	<0.01	0.02	<0.04	BH04			3.000	0	<0.04	0.01	<0.01	
Aliphatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.04	0.07	0.12	BH04					0.12	0.05	0.04	
Aromatics >C5-7	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A			0.010	0	<0.005	<0.005	<0.005	
Aromatics >C7-8	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A			0.700	0	<0.005	<0.005	<0.005	
Aromatics >C8-10	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A			0.300	0	<0.020	<0.020	<0.020	
Aromatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C12-16	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C16-21	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C21-35	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			0.090	0	<0.04	<0.01	<0.01	
Aromatics >C35-44	mg/l	0.01	Not Accredited	3	3	0.01	0.02	0.05	BH04			0.090	0	0.05	0.01	0.01	
Aromatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.02	0.04	0.09	BH04					0.09	0.02	0.02	
Benzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	8.00	0	1.000	0	<5	<5	<5	
Ethylbenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	20.00	0			<5	<5	<5	
m,p xylenes	ug/l	10	UKAS 1252	3	0	<10	10	<10	N/A					<10	<10	<10	
O-Xylene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A					<5	<5	<5	
Toluene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	74.00	0			<5	<5	<5	
Acenaphthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Acenaphthylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.10	0			<0.04	<0.01	<0.01	
Benzo (g,h,i) perylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.0082	0			<0.04	<0.01	<0.01	
Benzo(a)anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Benzo(a)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.00017	0	0.010	0	<0.04	<0.01	<0.01	
Benzo(b)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.017	0			<0.04	<0.01	<0.01	
Benzo(k)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	0.017	0			<0.04	<0.01	<0.01	
Chrysene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Dibenz-a-h-anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Fluoranthene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04	0.0063	1			<0.04	<0.01	0.01	
Fluorene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Indeno(1,2,3-cd)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04					<0.04	<0.01	<0.01	
Naphthalene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	2.00	0			<0.04	<0.01	<0.01	
Phenanthrene	ug/l	0.01	UKAS 1252	3	2	<0.02	0.03	0.04	BH06					<0.04	0.02	0.04	
Pyrene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04					<0.04	<0.01	0.01	
PAH 16 Total	ug/l	0.16	UKAS 1252	3	2	<0.17	0.33	<0.64	BH04					<0.64	0.17	0.19	
Methylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A					<0.05	<0.05	<0.05	
Phenol	mg/l	0.05	UKAS 1252	3	0	<0.05											

Installation Details - Response Strata														ALV	RTD	CHALK
Installation Details - Response Zone (m bgl)														8.00 to 10.00	16.50 to 18.50	34.50 to 38.50
Report No.:														23062651	23062651	23062651
Client Sample ID.:														BH01	BH02A	BH03
Sample Type:														EW	EW	EW
Top Depth (m):														5.00	5.00	7.00
Date Sampled:														16/06/2023	16/06/2023	16/06/2023
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above LOD	Minimum	Average	Maximum	Maximum Sample Reference	EQS Transitional and Coastal Waters	Number of Exceedances	DWS	Number of Exceedances			
Phenol	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A	0.01				<0.05	<0.05	<0.05
Methylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A					<0.05	<0.05	<0.05
Chloride as Cl	mg/l	1	UKAS 1252	3	3	620	1306.7	1710	BH01		250	3		1710	620	1590
Trimethylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A					<0.05	<0.05	<0.05
Nitrate as NO3	mg/l	0.9	UKAS 1252	3	0	<0.9	0.9	<0.9	N/A		50	0		<0.9	<0.9	<0.9
>C7-C8 Aromatic	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A		0.7	0		<0.005	<0.005	<0.005
>C8-C10 Aromatic	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A		0.3	0		<0.020	<0.020	<0.020
>C10-C12 (Aromatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A		0.09	0		<0.20	<0.20	<0.20
>C12-C16 (Aromatic)	mg/l	0.01	UKAS 1252	3	1	<0.2	0.21	0.23	BH03		0.09	1		<0.20	<0.20	0.23
>C16-C21 (Aromatic)	mg/l	0.01	UKAS 1252	3	1	<0.2	0.22	0.26	BH03		0.09	1		<0.20	<0.20	0.26
>C21-C35 (Aromatic)	mg/l	0.01	UKAS 1252	3	3	0.42	0.47	0.56	BH03		0.09	3		0.42	0.42	0.56
>C35-C44 (Aromatic)	mg/l	0.01	Not Accredited	3	3	0.46	0.53	0.62	BH03		0.09	3		0.46	0.51	0.62
Total GRO C5-C10	mg/l	0.1	UKAS 1252	3	0	<0.1	0.1	<0.1	N/A					<0.100	<0.100	<0.100
C5-C6 Aliphatic	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A		15	0		<0.100	<0.100	<0.100
>C6-C8 Aliphatic	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A		15	0		<0.100	<0.100	<0.100
>C8-C10 Aliphatic	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A		3	0		<0.100	<0.100	<0.100
>C10-C12 (Aliphatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A		3	0		<0.20	<0.20	<0.20
>C12-C16 (Aliphatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A		3	0		<0.20	<0.20	<0.20
>C16-C21 (Aliphatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A					<0.20	<0.20	<0.20
>C21-C35 (Aliphatic)	mg/l	0.01	UKAS 1252	3	3	0.44	0.47	0.52	BH02A					0.44	0.52	0.46
>C35-C44 (Aliphatic)	mg/l	0.01	Not Accredited	3	3	0.47	0.49	0.52	BH03		3	0		0.47	0.47	0.52
C5-C7 Aromatic	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A		0.01	0		<0.005	<0.005	<0.005
Total TPH >C8-C40 (Aliphatic)	mg/l	0.01	UKAS 1252	3	3	1.14	1.19	1.24	BH03					1.14	1.18	1.24
Total TPH >C8-C40 (Aromatic)	mg/l	0.01	UKAS 1252	3	3	1.04	1.26	1.61	BH03					1.04	1.12	1.61
Total Phenols	mg/l	0.2	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A					<0.20	<0.20	<0.20
Dimethylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A					<0.05	<0.05	<0.05
Total Sulphur as SO4	mg/l	3	UKAS 1252	3	3	134	153.7	189	BH03		250.000	0		134	138	189
Lead as Pb	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A	0.0013	0	0.010	0	<0.001	<0.001	<0.001
Magnesium as Mg	mg/l	1	UKAS 1252	3	3	33	60	75	BH01					75	33	72
Mercury as Hg	mg/l	0.00003	UKAS 1252	3	0	<0.00003	0.00003	<0.00003	N/A	0.0001	0	0.001	0	<0.00003	<0.00003	<0.00003
Nickel as Ni	mg/l	0.001	UKAS 1252	3	3	0.002	0.006	0.008	BH02A	0.0086	0	0.020	0	0.002	0.008	0.008
Arsenic as As	mg/l	0.001	UKAS 1252	3	3	0.001	0.002	0.004	BH03	0.03	0	0.010	0	0.001	0.001	0.004
Boron as B	mg/l	0.01	UKAS 1252	3	3	0.23	0.31	0.39	BH01			1.000	0	0.39	0.23	0.32
Cadmium as Cd	mg/l	0.00002	UKAS 1252	3	0	<0.00002	0.00002	<0.00002	N/A	0.00	0	0.005	0	<0.00002	<0.00002	<0.00002
Total Chromium as Cr	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A	0.00	0	0.050	0	<0.001	<0.001	<0.001
Copper as Cu	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A	0.00	0	2.000	0	<0.001	<0.001	<0.001
Zinc as Zn	mg/l	0.002	UKAS 1252	3	3	0.006	0.01	0.017	BH03	0.0079	1			0.007	0.006	0.017
Total Cyanide	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A	0.00	0	0.050	0	<0.02	<0.02	<0.02
pH	pH Units	1	UKAS 1252	3	3	7	7.3	7.5	BH02A			6.5-9.5	0	7	7.5	7.5
Ethylbenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	20.00	0			<5	<5	<5
Styrene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
cis 1,3-Dichloropropene	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A					<1	<1	<1
trans 1,3-Dichloropropene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
Propylbenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
n-Butylbenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
4-Chlorotoluene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
1,4-Dichlorobenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
1,2-Dibromoethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
1,2-Dichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
1,3,5-Trimethylbenzene	ug/l	0.6	Not Accredited	3	0	<0.6	0.6	<0.6	N/A					<0.6	<0.6	<0.6
Bromobenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
Toluene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	74.00	0			<5	<5	<5
Chlorobenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A					<1	<1	<1
Anthracene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A	0.10	0			<0.20	<0.20	<0.20
1,2,4-Trichlorobenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A					<5	<5	<5
Dibromochloromethane	ug/l	1	UKAS 1252	3	1	<1	1.3	2	BH02A					<1	2	<1
Tetrachloroethene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A					<5	<5	<5
Pyrene	ug/l	0														

Installation Details - Response Zone												Chalk	Chalk	Chalk
Installation Details - Response Strata												42.00 to 44.00	50.00 to 53.00	25.00 to 27.50
Socotec Job No.:												23051661	23051661	23051661
Client Sample ID.:												BH04	BH05	BH06
Sample Type:												EW	EW	EW
Top Depth (m):												10.00	10.00	10.00
Date Sampled:												12/05/2023	12/05/2023	12/05/2023
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above LOD	Minimum	Average	Maximum	Maximum Sample Reference	SoBRA Groundwater Vapours Commercial	Number of Exceedances			
pH	pH Units	1	UKAS 1252	3	3	7	7.2	7.4	BH06			7.3	7	7.4
Chloride	mg/l	1	UKAS 1252	3	3	252	1694	3200	BH05			1630	3200	252
Nitrate as NO3	mg/l	0.9	UKAS 1252	3	2	<0.9	5.7	10.2	BH05			6	10.2	<0.9
Cyanide	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A			<0.02	<0.02	<0.02
Magnesium	mg/l	1	UKAS 1252	3	3	22	100.3	186	BH05			93	186	22
Sulphate as SO4	mg/l	3	UKAS 1252	3	3	54	89	146	BH04			146	54	67
Arsenic	mg/l	0.001	UKAS 1252	3	3	0.002	0.006	0.014	BH05			0.003	0.014	0.002
Boron	mg/l	0.01	UKAS 1252	3	3	0.18	0.95	1.99	BH05			0.69	1.99	0.18
Cadmium	mg/l	0.00002	UKAS 1252	3	0	<0.00002	0.00002	<0.00002	N/A			<0.00002	<0.00002	<0.00002
Chromium	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.002	BH05			<0.001	0.002	<0.001
Copper	mg/l	0.001	UKAS 1252	3	1	<0.001	0.001	0.001	BH05			<0.001	0.001	<0.001
Lead	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A			<0.001	<0.001	<0.001
Mercury	mg/l	0.00003	UKAS 1252	3	0	<0.00003	0.00003	<0.00003	N/A	0.095	0	<0.00003	<0.00003	<0.00003
Nickel	mg/l	0.001	UKAS 1252	3	3	0.002	0.004	0.005	BH05			0.002	0.005	0.004
Zinc	mg/l	0.002	UKAS 1252	3	3	0.004	0.009	0.017	BH05			0.005	0.017	0.004
GRO >C5-10	mg/l	0.1	UKAS 1252	3	0	<0.1	0.1	<0.1	N/A			<0.100	<0.100	<0.100
Aliphatics >C5-6	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	190	0	<0.100	<0.100	<0.100
Aliphatics >C6-8	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	150	0	<0.100	<0.100	<0.100
Aliphatics >C8-10	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	5.7	0	<0.100	<0.100	<0.100
Aliphatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	3.6	0	<0.04	<0.01	<0.01
Aliphatics >C12-16	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
Aliphatics >C16-21	mg/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
Aliphatics >C21-35	mg/l	0.01	UKAS 1252	3	2	<0.01	0.02	<0.04	BH04			<0.04	0.02	0.01
Aliphatics >C35-44	mg/l	0.01	Not Accredited	3	1	<0.01	0.02	<0.04	BH04			<0.04	0.01	<0.01
Aliphatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.04	0.07	0.12	BH04			0.12	0.05	0.04
Aromatics >C5-7	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A	20000	0	<0.005	<0.005	<0.005
Aromatics >C7-8	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A	21000	0	<0.005	<0.005	<0.005
Aromatics >C8-10	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A	190	0	<0.020	<0.020	<0.020
Aromatics >C10-12	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	660	0	<0.04	<0.01	<0.01
Aromatics >C12-16	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	3700	0	<0.04	<0.01	<0.01
Aromatics >C16-21	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Aromatics >C21-35	mg/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Aromatics >C35-44	mg/l	0.01	Not Accredited	3	3	0.01	0.02	0.05	BH04			0.05	0.01	0.01
Aromatics >C8-40	mg/l	0.01	UKAS 1252	3	3	0.02	0.04	0.09	BH04			0.09	0.02	0.02
Benzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	20000	0	<5	<5	<5
Ethylbenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	960000	0	<5	<5	<5
m,p xylenes	ug/l	10	UKAS 1252	3	0	<10	10	<10	N/A	940000	0	<10	<10	<10
O-Xylene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	1100000	0	<5	<5	<5
Toluene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	21000000	0	<5	<5	<5
Acenaphthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	15000000	0	<0.04	<0.01	<0.01
Acenaphthylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	20000000	0	<0.04	<0.01	<0.01
Anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo (g,h,i) perylene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(a)anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(a)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(b)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Benzo(k)fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Chrysene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Dibenz-a-h-anthracene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Fluoranthene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
Fluorene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	18000000	0	<0.04	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04			<0.04	<0.01	<0.01
Naphthalene	ug/l	0.01	UKAS 1252	3	0	<0.01	0.02	<0.04	BH04	23000	0	<0.04	<0.01	<0.01
Phenanthrene	ug/l	0.01	UKAS 1252	3	2	<0.02	0.03	0.04	BH06			<0.04	0.02	0.04
Pyrene	ug/l	0.01	UKAS 1252	3	1	<0.01	0.02	<0.04	BH04			<0.04	<0.01	0.01
PAH 16 Total	ug/l	0.16	UKAS 1252	3	2	<0.17	0.33	<0.64	BH04			<0.64	0.17	0.19
Methylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Phenol	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Total Speciated Phenols	mg/l	0.2	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Trimethylphenol	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Xylenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	22000	0	<1	<1	<1
1,1,1-Trichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	290000	0	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A	150000	0	<1	<1	<1
1,1,2-Trichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	49000	0	<1	<1	<1
1,1-Dichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	260000	0	<1	<1	<1
1,1-Dichloroethene	ug/l	1	UKAS 1252											

Installation Details - Response Zone												ALV	RTD	CHALK
Installation Details - Response Strata												8.00 to 10.00	16.50 to 18.50	34.50 to 38.50
Socotec Job No.:												23062651	23062651	23062651
Client Sample ID.:												BH01	BH02A	BH03
Sample Type:												EW	EW	EW
Top Depth (m):												5.00	5.00	7.00
Date Sampled:												16/06/2023	16/06/2023	16/06/2023
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above LOD	Minimum	Average	Maximum	Maximum Sample Reference	SoBRA Groundwater Vapours Commercial	Number of Exceedances			
Phenol	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Methylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Chloride as Cl	mg/l	1	UKAS 1252	3	3	620	1306.7	1710	BH01			1710	620	1590
Trimethylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Nitrate as NO3	mg/l	0.9	UKAS 1252	3	0	<0.9	0.9	<0.9	N/A			<0.9	<0.9	<0.9
>C7-C8 Aromatic	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A	21000	0	<0.005	<0.005	<0.005
>C8-C10 Aromatic	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A	190	0	<0.020	<0.020	<0.020
>C10-C12 (Aromatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A	660	0	<0.20	<0.20	<0.20
>C12-C16 (Aromatic)	mg/l	0.01	UKAS 1252	3	1	<0.2	0.21	0.23	BH03	3700	0	<0.20	<0.20	0.23
>C16-C21 (Aromatic)	mg/l	0.01	UKAS 1252	3	1	<0.2	0.22	0.26	BH03			<0.20	<0.20	0.26
>C21-C35 (Aromatic)	mg/l	0.01	UKAS 1252	3	3	0.42	0.47	0.56	BH03			0.42	0.42	0.56
>C35-C44 (Aromatic)	mg/l	0.01	Not Accredited	3	3	0.46	0.53	0.62	BH03			0.46	0.51	0.62
Total GRO C5-C10	mg/l	0.1	UKAS 1252	3	0	<0.1	0.1	<0.1	N/A			<0.100	<0.100	<0.100
C5-C6 Aliphatic	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	190	0	<0.100	<0.100	<0.100
>C6-C8 Aliphatic	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	150	0	<0.100	<0.100	<0.100
>C8-C10 Aliphatic	mg/l	0.1	Not Accredited	3	0	<0.1	0.1	<0.1	N/A	5.7	0	<0.100	<0.100	<0.100
>C10-C12 (Aliphatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A	3.6	0	<0.20	<0.20	<0.20
>C12-C16 (Aliphatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
>C16-C21 (Aliphatic)	mg/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
>C21-C35 (Aliphatic)	mg/l	0.01	UKAS 1252	3	3	0.44	0.47	0.52	BH02A			0.44	0.52	0.46
>C35-C44 (Aliphatic)	mg/l	0.01	Not Accredited	3	3	0.47	0.49	0.52	BH03			0.47	0.47	0.52
C5-C7 Aromatic	mg/l	0.005	UKAS 1252	3	0	<0.005	0.005	<0.005	N/A	20000	0	<0.005	<0.005	<0.005
Total TPH >C8-C40 (Aliphatic)	mg/l	0.01	UKAS 1252	3	3	1.14	1.19	1.24	BH03			1.14	1.18	1.24
Total TPH >C8-C40 (Aromatic)	mg/l	0.01	UKAS 1252	3	3	1.04	1.26	1.61	BH03			1.04	1.12	1.61
Total Phenols	mg/l	0.2	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Dimethylphenols	mg/l	0.05	UKAS 1252	3	0	<0.05	0.05	<0.05	N/A			<0.05	<0.05	<0.05
Total Sulphur as SO4	mg/l	3	UKAS 1252	3	3	134	153.7	189	BH03			134	138	189
Lead as Pb	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A			<0.001	<0.001	<0.001
Magnesium as Mg	mg/l	1	UKAS 1252	3	3	33	60	75	BH01			75	33	72
Mercury as Hg	mg/l	0.00003	UKAS 1252	3	0	<0.00003	0.00003	<0.00003	N/A	0.095	0	<0.00003	<0.00003	<0.00003
Nickel as Ni	mg/l	0.001	UKAS 1252	3	3	0.002	0.006	0.008	BH02A			0.002	0.008	0.008
Arsenic as As	mg/l	0.001	UKAS 1252	3	3	0.001	0.002	0.004	BH03			0.001	0.001	0.004
Boron as B	mg/l	0.01	UKAS 1252	3	3	0.23	0.31	0.39	BH01			0.39	0.23	0.32
Cadmium as Cd	mg/l	0.00002	UKAS 1252	3	0	<0.00002	0.00002	<0.00002	N/A			<0.00002	<0.00002	<0.00002
Total Chromium as Cr	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A			<0.001	<0.001	<0.001
Copper as Cu	mg/l	0.001	UKAS 1252	3	0	<0.001	0.001	<0.001	N/A			<0.001	<0.001	<0.001
Zinc as Zn	mg/l	0.002	UKAS 1252	3	3	0.006	0.01	0.017	BH03			0.007	0.006	0.017
Total Cyanide	mg/l	0.02	UKAS 1252	3	0	<0.02	0.02	<0.02	N/A			<0.02	<0.02	<0.02
pH	pH Units	1	UKAS 1252	3	3	7	7.3	7.5	BH02A			7	7.5	7.5
Ethylbenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	960000	0	<5	<5	<5
Styrene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	810000	0	<1	<1	<1
cis 1,3-Dichloropropene	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A			<1	<1	<1
trans 1,3-Dichloropropene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A			<1	<1	<1
Propylbenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	240000	0	<1	<1	<1
n-Butylbenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A			<1	<1	<1
4-Chlorotoluene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A			<1	<1	<1
1,4-Dichlorobenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	460000	0	<1	<1	<1
1,2-Dibromoethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A			<1	<1	<1
1,2-Dichloroethane	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	850	0	<1	<1	<1
1,3,5-Trimethylbenzene	ug/l	0.6	Not Accredited	3	0	<0.6	0.6	<0.6	N/A			<0.6	<0.6	<0.6
Bromobenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	20000	0	<1	<1	<1
Toluene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	21000000	0	<5	<5	<5
Chlorobenzene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	15000	0	<1	<1	<1
Anthracene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
1,2,4-Trichlorobenzene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A	7200	0	<5	<5	<5
Dibromochloromethane	ug/l	1	UKAS 1252	3	1	<1	1.3	2	BH02A			<1	2	<1
Tetrachloroethene	ug/l	5	UKAS 1252	3	0	<5	5	<5	N/A			<5	<5	<5
Pyrene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
sec-Butylbenzene	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A			<1	<1	<1
1,3-Dichloropropane	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A			<1	<1	<1
cis 1,2-Dichloroethene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	13000	0	<1	<1	<1
trans 1,2-Dichloroethene	ug/l	1	UKAS 1252	3	0	<1	1	<1	N/A	16000	0	<1	<1	<1
MTBE	ug/l	1	Not Accredited	3	0	<1	1	<1	N/A	7800000	0	<1	<1	<1
Benzo[g,h,i]perylene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Indeno[1,2,3-cd]pyrene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Benzo[b]fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.20	<0.20	<0.20
Benzo[k]fluoranthene	ug/l	0.01	UKAS 1252	3	0	<0.2	0.2	<0.2	N/A			<0.		

Strata Description												ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM CLAY	ALLUVIUM PEAT
Report No.:												23012669	23012669	23012669	23012669	23012669	23012669	23012669	2301582	23031582
Client Sample ID.:												TP-12	TP-14	TP-15	TP-16	TP-18	TP-19	TP-20	BH04	BH04
Sample Type:												ES	ES	ES	ES	ES	ES	ES	ES	ES
Top Depth (m):												0.60	2.20	0.30	1.5	1.30	0.50	2.40	6.80	11.80
Date Sampled:												25-Jan-2023	24-Jan-2023	25-Jan-2023	25-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	08-Mar-2023	08-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances									
Major Constituents	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A			SILT	CLAY	SILT	CLAY	CLAY	CLAY	CLAY		
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS		
Phenol Index	mg/kg	0.50	Not Accredited	14	0	<0.5	0.6	<1.1	BH04 11.8m	1500	0	<0.5	<0.8	<0.5	<0.5	<0.5	<1.0	<0.5		
Sulphate as SO4	mg/kg	30.00	Not Accredited	14	13	<30	958.4	5050	TP-20 2.4m			50.00	1390.00	<30	1440.00	443.00	60.00	5050.00		
pH	pH units	1.00	Not Accredited	14	14	6.8	7.7	8.7	BH05 13m			6.80	7.90	6.90	7.10	6.80	6.90	8.40		
Nitrate as NO3	mg/kg	2.00	Not Accredited	2	0	<2	3	<4	N/A			-	-	-	-	-	-	-		
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	14	0	<0.6	0.8	<1.1	BH04 11.8m			<0.6	<0.8	<0.7	<0.7	<0.6	<1.0	<0.9		
Organic matter	% m/m	0.04	UKAS 1252	14	14	0.9	3.43	12.5	BH04 11.8m			4.13	1.99	3.67	1.29	1.86	2.50	5.46		
Total Organic Carbon	% m/m	0.02	UKAS 1252	12	12	0.52	1.6	3.17	TP-20 2.4m			2.39	1.15	2.13	0.75	1.08	1.45	3.17		
Loss on ignition	%	0.00	MCERTS	2	2	6.2	8.6	10.9	TP-20 2.4m			-	6.20	-	-	-	10.90	-		
Antimony	mg/kg	0.01	Not Accredited	12	5	<0.01	0.03	<0.1	TP-14 2.2m	7500	0	0.02	<0.1	<0.1	<0.01	<0.01	0.03	0.05		
Arsenic	mg/kg	0.01	Not Accredited	14	11	<0.01	5.02	43.5	BH06 2.8m	640	0	0.08	0.35	<0.1	<0.01	<0.01	0.02	0.11		
Barium	mg/kg	0.10	Not Accredited	12	1	<0.1	0.2	<1	N/A	22000	0	<0.1	<1.0	<0.1	<0.1	<0.1	0.20	<0.1		
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	14	14	1.5	7	14.1	TP-20 2.4m	240000	0	1.50	7.70	4.00	9.40	6.40	2.90	14.10		
Cadmium	mg/kg	0.00	Not Accredited	14	2	<0.0002	0.029	0.2	BH04 11.8m	190	0	<0.0002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002		
Chromium	mg/kg	0.01	Not Accredited	14	2	<0.01	5.14	45.7	BH06 2.8m	8600	0	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01		
Copper	mg/kg	0.01	Not Accredited	14	6	<0.01	2.2	17.1	BH06 2.8m	68000	0	0.11	<0.1	<0.1	0.03	0.02	0.07	<0.01		
Lead	mg/kg	0.01	Not Accredited	14	2	<0.01	2.14	19.2	BH06 2.8m	2300	0	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01		
Mercury	mg/kg	0.00	Not Accredited	14	0	<0.0003	0.0721	<0.5	BH04 11.8m	1100	0	<0.0003	<0.003	<0.003	<0.0003	<0.0003	<0.0003	<0.0003		
Molybdenum	mg/kg	0.01	Not Accredited	12	11	<0.03	0.2	0.71	TP-20 2.4m	17000	0	0.05	0.54	<0.1	0.15	0.08	0.06	0.71		
Nickel	mg/kg	0.01	Not Accredited	14	9	<0.01	4.28	34.4	BH06 2.8m	980	0	0.02	0.18	<0.1	0.02	<0.01	0.02	0.03		
Selenium	mg/kg	0.01	Not Accredited	12	1	<0.01	0.03	<0.1	TP-14 2.2m	12000	0	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	0.02		
Zinc	mg/kg	0.02	Not Accredited	14	8	<0.02	11.03	90.2	BH06 2.8m	730000	0	0.03	<0.2	<0.2	0.03	<0.02	0.03	<0.02		
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m			<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413		
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	5900	0	<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413		
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	17000	0	<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413		
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	4800	0	<0.258	<0.311	<0.264	<0.278	<0.287	<0.251	<0.413		
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	14	4	<5.01	7.4	13.7	BH04 11.8m	23000	0	<5.16	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26		
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	14	6	<5.01	9.9	24.5	BH06 2.8m	82000	0	<5.16	<6.21	5.43	<5.56	<5.74	<5.01	<8.26		
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	14	4	<5.01	10.1	30.6	BH06 2.8m	1700000	0	<5.16	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26		
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	14	5	<12.5	21.7	41.4	BH06 2.8m	1700000	0	<12.9	<15.5	<13.2	<13.9	<14.3	<12.5	<20.7		
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	14	5	<7.52	11.7	17.2	BH05 13m	1700000	0	<7.74	<9.32	<7.93	<8.34	<8.61	<7.52	<12.4		
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	14	7	<25.2	52.1	123	BH06 2.8m			<25.8	<31.1	<26.4	<27.8	<28.7	25.20	<41.3		
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	10	4	<25.1	41.3	77.4	BH04 6.8m			<25.8	-	<26.4	<27.8	<28.7	<25.1	-		
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	14	0	<0.013	0.02	<0.021	TP-20 2.4m	46000	0	<0.013	<0.016	<0.013	<0.014	<0.014	<0.013	<0.021		
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	14	1	<0.013	0.02	0.021	BH04 6.8m	110000	0	<0.013	<0.016	<0.013	<0.014	<0.014	<0.013	<0.021		
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	14	0	<0.051	0.06	<0.085	BH04 11.8m	8100	0	<0.052	<0.063	<0.053	<0.056	<0.057	<0.051	<0.083		
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	14	5	<5.01	7.9	21.8	BH06 13m	28000	0	5.93	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26		
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	14	14	6.08	12.3	42.6	BH06 13m	37000	0	10.50	7.05	7.51	7.11	8.27	6.29	13.20		
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	14	6	<5.01	10.7	41.4	BH06 13m	28000	0	6.39	<6.21	<5.28	<5.56	<5.74	<5.01	<8.26		
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	14	7	<13.2	24.6	75.2	BH06 13m	28000	0	28.40	<15.5	<13.2	<13.9	<14.3	13.50	<20.7		
Aromatics >C35-44	mg/kg	6.00	Not Accredited	14	11	<8.34	20.7	74.4	BH06 13m	28000	0	25.60	<9.32	13.50	<8.34	14.30	13.90	17.40		
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	14																

Strata Description												ALLUVIUM SILT	ALLUVIUM SILT	ALLUVIUM SILT	ALLUVIUM SILT	ALLUVIUM SILT
Report No.:												23032767	23032767	23032767	23031791	23032324
Client Sample ID.:												BH05	BH05	BH05	BH06	BH06
Sample Type:												ES	ES	ES	ES	ES
Top Depth (m):												5.00	9.00	13.00	2.80	13.00
Date Sampled:												22-Mar-2023	22-Mar-2023	22-Mar-2023	13-Mar-2023	16-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances					
Major Constituents	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A			CLAY	CLAY	CLAY	CLAY	CLAY
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	14	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS
Phenol Index	mg/kg	0.50	Not Accredited	14	0	<0.5	0.6	<1.1	BH04 11.8m	1500	0	<0.5	<0.5	<0.5	<0.9	<0.5
Sulphate as SO4	mg/kg	30.00	Not Accredited	14	13	<30	958.4	5050	TP-20 2.4m			218.00	104.00	40.00	2580.00	257.00
pH	pH units	1.00	Not Accredited	14	14	6.8	7.7	8.7	BH05 13m			8.40	8.20	8.70	8.10	8.60
Nitrate as NO3	mg/kg	2.00	Not Accredited	2	0	<2	3	<4	N/A			-	-	<4.0	-	<2.0
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	14	0	<0.6	0.8	<1.1	BH04 11.8m			<0.8	<1.0	<0.7	<0.9	<0.7
Organic matter	% m/m	0.04	UKAS 1252	14	14	0.9	3.43	12.5	BH04 11.8m			4.35	2.82	1.37	2.39	0.90
Total Organic Carbon	% m/m	0.02	UKAS 1252	12	12	0.52	1.6	3.17	TP-20 2.4m			2.53	1.64	0.79	-	0.52
Loss on ignition	%	0.00	MCERTS	2	2	6.2	8.6	10.9	TP-20 2.4m			-	-	-	-	-
Antimony	mg/kg	0.01	Not Accredited	12	5	<0.01	0.03	<0.1	TP-14 2.2m	7500	0	0.03	<0.01	<0.01	-	0.03
Arsenic	mg/kg	0.01	Not Accredited	14	11	<0.01	5.02	43.5	BH06 2.8m	640	0	0.07	0.27	0.06	43.50	0.03
Barium	mg/kg	0.10	Not Accredited	12	1	<0.1	0.2	<1	N/A	22000	0	<0.1	<0.1	<0.1	-	<0.1
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	14	14	1.5	7	14.1	TP-20 2.4m	240000	0	9.50	10.00	4.40	8.70	2.60
Cadmium	mg/kg	0.00	Not Accredited	14	2	<0.0002	0.029	0.2	BH04 11.8m	190	0	<0.0002	<0.0002	<0.0002	<0.2	0.00
Chromium	mg/kg	0.01	Not Accredited	14	2	<0.01	5.14	45.7	BH06 2.8m	8600	0	<0.01	<0.01	<0.01	45.70	<0.01
Copper	mg/kg	0.01	Not Accredited	14	6	<0.01	2.2	17.1	BH06 2.8m	68000	0	<0.01	<0.01	<0.01	17.10	<0.01
Lead	mg/kg	0.01	Not Accredited	14	2	<0.01	2.14	19.2	BH06 2.8m	2300	0	<0.01	<0.01	<0.01	19.20	<0.01
Mercury	mg/kg	0.00	Not Accredited	14	0	<0.0003	0.0721	<0.5	BH04 11.8m	1100	0	<0.0003	<0.0003	<0.0003	<0.5	<0.0003
Molybdenum	mg/kg	0.01	Not Accredited	12	11	<0.03	0.2	0.71	TP-20 2.4m	17000	0	0.15	0.15	0.03	-	0.11
Nickel	mg/kg	0.01	Not Accredited	14	9	<0.01	4.28	34.4	BH06 2.8m	980	0	<0.01	<0.01	<0.01	34.40	0.02
Selenium	mg/kg	0.01	Not Accredited	12	1	<0.01	0.03	<0.1	TP-14 2.2m	12000	0	<0.01	<0.01	<0.01	-	<0.01
Zinc	mg/kg	0.02	Not Accredited	14	8	<0.02	11.03	90.2	BH06 2.8m	730000	0	0.07	<0.02	0.05	90.20	0.03
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m			<0.338	<0.388	<0.269	<0.360	<0.272
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	5900	0	<0.338	<0.388	<0.269	<0.360	<0.272
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	17000	0	<0.338	<0.388	<0.269	<0.360	<0.272
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	14	0	<0.251	0.3	<0.424	BH04 11.8m	4800	0	<0.338	<0.388	<0.269	<0.360	<0.272
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	14	4	<5.01	7.4	13.7	BH04 11.8m	23000	0	<6.76	<7.75	<5.38	11.40	6.59
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	14	6	<5.01	9.9	24.5	BH06 2.8m	82000	0	<6.76	10.60	<5.38	24.50	11.00
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	14	4	<5.01	10.1	30.6	BH06 2.8m	1700000	0	<6.76	<7.75	<5.38	30.60	12.20
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	14	5	<12.5	21.7	41.4	BH06 2.8m	1700000	0	<16.9	<19.4	35.20	41.40	28.90
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	14	5	<7.52	11.7	17.2	BH05 13m	1700000	0	<10.1	<11.6	17.20	16.50	16.50
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	14	7	<25.2	52.1	123	BH06 2.8m			<33.8	52.40	58.20	123.00	76.50
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	10	4	<25.1	41.3	77.4	BH04 6.8m			<33.8	46.10	53.80	-	68.20
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	14	0	<0.013	0.02	<0.021	TP-20 2.4m	46000	0	<0.017	<0.019	<0.013	<0.018	<0.014
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	14	1	<0.013	0.02	0.021	BH04 6.8m	110000	0	<0.017	<0.019	<0.013	<0.018	<0.014
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	14	0	<0.051	0.06	<0.085	BH04 11.8m	8100	0	<0.068	<0.078	<0.054	<0.072	<0.055
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	14	5	<5.01	7.9	21.8	BH06 13m	28000	0	7.41	<7.75	<5.38	8.82	21.80
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	14	14	6.08	12.3	42.6	BH06 13m	37000	0	11.10	8.15	6.08	27.00	42.60
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	14	6	<5.01	10.7	41.4	BH06 13m	28000	0	9.44	9.33	7.70	23.90	41.40
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	14	7	<13.2	24.6	75.2	BH06 13m	28000	0	17.10	<19.4	26.30	40.20	75.20
Aromatics >C35-44	mg/kg	6.00	Not Accredited	14	11	<8.34	20.7	74.4	BH06 13m	28000	0	18.70	16.80	17.30	24.60	74.40
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	14	9	<27.8	63.9	233	BH06 13m			58.50	49.70	52.90	126.00	233.00
Benzene	µg/kg	10.00	UKAS 1252 & MCERTS	14	0	<13	15.9	<21	TP-20 2.4m	47000	0	<17	<19	<13	<18	<14
Toluene	µg/kg	10.00	UKAS 1252 & MCERTS	14	1	<13	16.2	21	BH04 6.8m	11000000	0	<17	<19	<13	<18	<14
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTS	14	0	<13	15.9	<21	TP-20 2.4m	13000000	0	<17	<19	<13	<18	<14
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTS	14	0	<13	15.9	<21	TP-20 2.4m	15000000	0	<17	<19	<13	<18	<14
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTS	14	0	<25	31.9	<42	BH04 11.8m	14000000	0	<34	<39	<27	<36	<27
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTS	10	1	<0.075	0.09	<0.116	BH05 9m			<0.101	<0.116	<0.081	-	<0.082
Acenaphthylene	mg/kg	0.08	UKAS 1252	14	0	<0.1	0.13	<0.17	TP-20 2.4m	97000	0	<0.14	<0.16	<0.11	<0.14	<0.11
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	14	2	<0.11	0.16	0.33	TP-19 0.5m	44	0	<0.14	<0.16	<0.11	<0.14	<0.11
Anthracene	mg/kg	0.08	UKAS 1252	14	0	<0.1	0.13	<0.17	TP-20 2.4m	540000	0	<0.14	<0.16	<0.11	<0.14	<0.11
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTS	14	0	<0.1	0.13	<0.17	TP-20 2.4m	68000	0	<0.14	<0.16	<0.11	<0.14	<0.11
Naphthalene	mg/kg	0.08	UKAS 1252 & MCERTS	14	0	<0.1	0.13	<0.17	TP-20 2.4m	460	0	<0.14	<0.16	<0.11	<0.14	<0.11
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTS</													

Strata Description												CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK
Report No.:	Client Sample ID.:											23042005	23042005	23042005	23042005	23042668	23041026	23041026	23041026	23041026	23041188
Sample Type:	Top Depth (m):											BH05	BH05	BH05	BH05	BH05	BH06	BH06	BH06	BH06	BH06
Date Sampled:	Date Sampled:											ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
												24.86	29.50	40.47	50.36	54.50	22.20	27.40	34.80	46.04	54.30
												03-Apr-2023	03-Apr-2023	04-Apr-2023	04-Apr-2023	04-Apr-2023	23-Mar-2023	23-Mar-2023	24-Mar-2023	27-Mar-2023	27-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances										
Major Constituents	N/A	0.00	Not Accredited	10	0	0	0	<0	N/A			CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	10	0	0	0	<0	N/A	0.001	0	NAIS	NAIS	NAIS	NAIS	NAIS	NAIS	NAIS	NAIS	NAIS	
Phenol Index	mg/kg	0.50	Not Accredited	10	0	<0.5	0.6	<0.7	BH06 22.2m	760	0	<0.5	<0.5	<0.5	<0.6	<0.7	<0.5	<0.7	<0.5	<0.5	
Sulphate as SO4	mg/kg	30.00	Not Accredited	10	6	<30	583.5	5370	BH06 27.4m			<30	<30	<30	<30	190.00	50.00	5270.00	75.00	70.00	
pH	pH units	1.00	Not Accredited	10	10	7.4	8.9	9.2	BH05 40.47m			9.00	9.10	9.20	9.20	9.20	9.10	7.40	9.10	8.70	
Nitrate as NO3	mg/kg	2.00	Not Accredited	10	6	<4	6.6	10.6	BH06 27.4m			<4.0	4.90	<4.0	<4.0	<4.0	7.30	10.60	9.50	7.20	
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTs	10	0	<0.6	0.6	<0.7	BH05 29.5m			<0.6	<0.7	<0.6	<0.6	<0.6	<0.7	<0.6	<0.7	<0.6	
Organic matter	% m/m	0.04	UKAS 1252	10	10	0.64	0.78	1.07	BH06 54.3m			0.76	0.80	0.89	0.64	0.82	0.71	0.70	0.64	0.76	
Total Organic Carbon	% m/m	0.02	UKAS 1252	7	7	0.37	0.47	0.62	BH06 54.3m			0.44	0.46	0.52	0.37	-	-	0.41	-	0.44	
Loss on ignition	%	0.00	MCERTs	2	0	0	0	<0	N/A			-	-	-	-	-	-	-	-	-	
Antimony	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	7500	0	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	
Arsenic	mg/kg	0.01	Not Accredited	10	3	<0.01	1.93	18	BH05 54.5m	640	0	<0.01	<0.01	<0.01	<0.01	18.00	0.70	<0.01	0.50	<0.01	
Barium	mg/kg	0.10	Not Accredited	7	1	<0.1	0.1	0.2	BH06 27.4m	220000	0	<0.1	<0.1	<0.1	<0.1	-	-	0.20	-	<0.1	
Boron	mg/kg	0.50	UKAS 1252 & MCERTs	10	3	<0.5	0.7	1.9	BH06 46.04m	2400000	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.60	<0.5	<0.5	1.90	
Cadmium	mg/kg	0.00	Not Accredited	10	7	<0.0002	0.1305	0.5	BH05 54.5m	190	0	<0.0002	0.00	0.00	0.00	0.50	0.50	0.00	0.30	<0.0002	
Chromium	mg/kg	0.01	Not Accredited	10	3	<0.01	3.24	29.3	BH05 54.5m	8600	0	<0.01	<0.01	<0.01	<0.01	29.30	1.60	<0.01	1.40	<0.01	
Copper	mg/kg	0.01	Not Accredited	10	3	<0.01	4.28	36.8	BH05 54.5m	68000	0	<0.01	<0.01	<0.01	<0.01	36.80	3.40	<0.01	2.50	<0.01	
Lead	mg/kg	0.01	Not Accredited	10	3	<0.01	31.22	308.7	BH05 54.5m	2300	0	<0.01	<0.01	<0.01	<0.01	308.70	2.40	<0.01	1.00	<0.01	
Mercury	mg/kg	0.00	Not Accredited	1	<0.0003	0.1602	0.6		BH05 54.5m	1100	0	<0.0003	<0.0003	<0.0003	<0.0003	0.60	<0.5	<0.0003	<0.5	<0.0003	
Molybdenum	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	17000	0	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	
Nickel	mg/kg	0.01	Not Accredited	10	4	<0.01	3.79	24.7	BH05 54.5m	980	0	<0.01	<0.01	<0.01	<0.01	24.70	7.20	0.14	5.80	<0.01	
Selenium	mg/kg	0.01	Not Accredited	7	0	<0.01	0.01	<0.01	N/A	12000	0	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	
Zinc	mg/kg	0.02	Not Accredited	10	3	<0.02	20.82	170.8	BH05 54.5m	7300000	0	<0.02	<0.02	<0.02	<0.02	170.80	21.20	0.11	<16.0	<0.02	
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m			<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	<0.260	<0.261	
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	3200	0	<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	<0.260	<0.261	
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	7800	0	<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	<0.260	<0.261	
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTs	10	0	<0.247	0.3	<0.263	BH05 29.5m	2000	0	<0.257	<0.263	<0.257	<0.258	<0.247	<0.261	<0.260	<0.260	<0.261	
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	10	3	<4.94	5.5	7.66	BH06 27.4m	9700	0	<5.15	<5.26	<5.15	<5.17	<4.94	6.15	7.66	<5.21	<5.22	
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	10	2	<4.94	5.4	6.98	BH06 34.8m	59000	0	<5.15	<5.26	<5.15	<5.17	<4.94	<5.22	<5.19	6.98	6.02	
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	10	3	<4.94	5.5	7.32	BH06 27.4m	1600000	0	<5.15	<5.26	<5.15	<5.17	<4.94	5.33	7.32	<5.21	6.43	
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	10	3	<12.4	13.8	18.8	BH05 54.5m	16000000	0	<12.9	<13.2	<12.9	<12.9	18.80	<13.1	13.10	15.40	<13.0	
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	10	5	<7.46	12.3	23.7	BH06 46.04m	1600000	0	<7.72	<7.89	<7.72	<7.75	7.72	20.80	19.90	12.00	23.70	
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	10	5	<24.9	30.4	41.4	BH06 27.4m			<25.7	<26.3	<25.7	<25.8	25.90	28.00	41.40	41.20	39.50	
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	7	2	<24.9	29.5	39.8	BH06 27.4m			<25.7	<26.3	<25.7	<25.8	-	-	39.80	-	38.00	
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTs	10	0	<0.012	0.01	<0.013	BH05 24.86m	26000	0	<0.013	<0.013	<0.013	<0.013	<0.012	<0.013	<0.013	<0.013	<0.013	
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTs	10	0	<0.012	0.01	<0.013	BH05 24.86m	56000	0	<0.013	<0.013	<0.013	<0.013	<0.012	<0.013	<0.013	<0.013	<0.013	
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTs	10	0	<0.049	0.05	<0.053	BH05 29.5m	3500	0	<0.052	<0.053	<0.052	<0.052	<0.049	<0.052	<0.052	<0.052	<0.052	
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	10	7	<4.94	7.8	12	BH05 40.47m	16000	0	10.30	9.17	12.00	7.60	<4.94	8.69	<5.19	<5.21	6.93	
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	10	8	<4.94	8.3	11	BH05 29.5m	36000	0	10.20	11.00	10.60	<5.17	<4.94	9.97	8.89	5.22	6.33	
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	10	7	<4.94	8	12.1	BH06 27.4m	28000	0	7.89	8.07	7.96	<5.17	<4.94	10.70	12.10	<5.21	7.71	
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	10	4	<12.3	18	37.3	BH05 29.5m	28000	0	22.70	37.30	25.70	<12.9	<12.3	<13.1	17.50	<13.0	<12.4	
Aromatics >C35-44	mg/kg	6.00	Not Accredited	10	9	<7.75	22.1	37.3	BH05 29.5m	28000	0	28.10	37.30	33.20	<7.75	16.10	27.10	13.70	15.00	16.80	
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	10	8	<24.7	52.3	87.6	BH05 29.5m			69.40	87.60	80.10	<25.8	<24.7	54.60	37.60	43.50	56.20	
Benzene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	27000	0	<13	<13	<13	<13	<12	<13	<13	<13	<12	
Toluene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	56000000	0	<13	<13	<13	<13	<12	<13	<13	<13	<12	
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	5700000	0	<13	<13	<13	<13	<12	<13	<13	<13	<12	
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTs	10	0	<12	12.8	<13	BH05 24.86m	6600000	0	<13	<13	<13	<13	<12	<13	<13	<13	<12	
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTs	10	0	<25	25.8	<26	BH05 24.86m	5900000	0	<26	<26	<26	<26	<25	<26	<26	<26	<25	
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTs	7	0	<0.075	0.08	<0.079	BH05 29.5m			<0.077	<0.079	<0.077	<0.078	-	-	<0.078	-	<0.078	
Acenaphthylene	mg/kg	0.08	UKAS 1252	10	0	<0.1	0.1	<0.11	BH05 29.5m	83000	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	44	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Anthracene	mg/kg	0.08	UKAS 1252	10	0	<0.1	0.1	<0.11	BH05 29.5m	520000	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	63000	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Naphthalene	mg/kg	0.08	UKAS 1252 & MCERTs	10	3	<0.1	0.13	0.22	BH06 27.4m	190	0	<0.10	<0.11	<0.10	<0.10	<0.10	0.20	0.22	<0.10	0.20	
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	84000	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Benzo(k)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	1200	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	10	0	<0.1	0.1	<0.11	BH05 29.5m	23000	0	<0.10	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	

Strata Description												MADE GROUND SILT	MADE GROUND CLAY	MADE GROUND CLAY	MADE GROUND CLAY	MADE GROUND CLAY	MADE GROUND SILT
Report No.:												23012669	23012669	23012669	23032766	23032766	23031791
Client Sample ID.:												TP-11	TP-13	TP-17	BH05	BH05	BH06
Sample Type:												ES	ES	ES	ES	ES	ES
Top Depth (m):												0.30	1.00	0.30	0.60	1.70	1.00
Date Sampled:												24-Jan-2023	24-Jan-2023	25-Jan-2023	21-Mar-2023	21-Mar-2023	13-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances						
Major Constituents	N/A	0.00	Not Accredited	6	0	0	0	<0	N/A			SILT	SILT	SILT	CLAY	CLAY	
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	6	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS	NAIIS	
Phenol Index	mg/kg	0.50	Not Accredited	6	0	<0.5	0.6	<0.8	BH05 1.7m	1500	0	<0.5	<0.5	<0.5	<0.8	<0.5	
Sulphate as SO4	mg/kg	30.00	Not Accredited	6	6	59	234.2	595	BH05 1.7m			235.00	129.00	59.00	99.00	595.00	
pH	pH units	1.00	Not Accredited	6	6	6.8	7.5	8.3	BH05 0.6m			6.80	6.80	7.20	8.30	7.70	
Nitrate as NO3	mg/kg	2.00	Not Accredited	1	1	15.4	15.4	15.4	BH05 0.6m			-	-	-	15.40	-	
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTs	6	0	<0.7	0.7	<0.8	TP-17 0.3m			<0.7	<0.7	<0.8	<0.8	<0.7	
Organic matter	% m/m	0.04	UKAS 1252	6	6	1.69	3.66	7.68	TP-17 0.3m			4.91	2.61	7.68	3.32	1.75	
Total Organic Carbon	% m/m	0.02	UKAS 1252	5	5	0.98	2.35	4.46	TP-17 0.3m			2.85	1.52	4.46	1.93	-	
Loss on ignition	%	0.00	MCERTs	0	0	N/A	N/A	N/A	N/A			-	-	-	-	-	
Antimony	mg/kg	0.01	Not Accredited	5	1	<0.01	0.08	0.26	BH06 1m	7500	0	<0.01	<0.01	<0.1	<0.01	-	
Arsenic	mg/kg	0.01	Not Accredited	6	5	<0.01	3.43	20.2	BH05 1.7m	640	0	0.06	0.02	0.11	<0.01	20.20	
Barium	mg/kg	0.10	Not Accredited	5	1	<0.1	0.2	0.4	BH06 1m	22000	0	<0.1	<0.1	<0.1	<0.1	-	
Boron	mg/kg	0.50	UKAS 1252 & MCERTs	6	6	4.5	5.3	6	BH06 1m	240000	0	5.70	4.70	4.50	5.30	6.00	
Cadmium	mg/kg	0.00	Not Accredited	6	1	<0.0002	0.0505	0.3	BH05 1.7m	190	0	<0.0002	<0.0002	<0.002	<0.0002	0.30	
Chromium	mg/kg	0.01	Not Accredited	6	2	<0.01	12.94	77.5	BH05 1.7m	8600	0	<0.01	<0.01	<0.1	<0.01	77.50	
Copper	mg/kg	0.01	Not Accredited	6	6	0.03	2.75	16	BH05 1.7m	68000	0	0.18	0.04	0.11	0.03	16.00	
Lead	mg/kg	0.01	Not Accredited	6	1	<0.01	3.77	22.5	BH05 1.7m	2300	0	<0.01	<0.01	<0.1	<0.01	22.50	
Mercury	mg/kg	0.00	Not Accredited	6	0	<0.0003	0.084	<0.5	BH05 1.7m	1100	0	<0.0003	<0.0003	<0.003	<0.0003	<0.5	
Molybdenum	mg/kg	0.01	Not Accredited	5	4	<0.05	0.09	0.18	TP-11 0.3m	17000	0	0.18	0.05	<0.1	0.05	-	
Nickel	mg/kg	0.01	Not Accredited	6	4	<0.01	9.5	56.7	BH05 1.7m	980	0	0.08	0.02	<0.1	<0.01	56.70	
Selenium	mg/kg	0.01	Not Accredited	5	1	<0.01	0.03	<0.1	TP-17 0.3m	12000	0	<0.01	<0.01	<0.1	<0.01	-	
Zinc	mg/kg	0.02	Not Accredited	6	3	<0.02	17.28	103.3	BH05 1.7m	730000	0	0.04	<0.02	<0.2	<0.02	103.30	
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTs	6	0	<0.26	0.3	<0.318	BH05 1.7m			<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTs	6	0	<0.26	0.3	<0.318	BH05 1.7m	5900	0	<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTs	6	0	<0.26	0.3	<0.318	BH05 1.7m	17000	0	<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTs	6	0	<0.26	0.3	<0.318	BH05 1.7m	4800	0	<0.297	<0.260	<0.303	<0.260	<0.318	
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	6	1	<5.21	5.9	6.4	BH06 1m	23000	0	<5.93	<5.21	<6.06	<5.21	<6.36	
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	6	3	<5.21	8	15.8	BH06 1m	82000	0	6.76	<5.21	<6.06	7.54	<6.36	
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	6	4	<5.21	9.1	18.4	BH06 1m	1700000	0	10.40	<5.21	<6.06	7.86	6.56	
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	6	4	<13	23.4	35.5	TP-11 0.3m	1700000	0	35.50	<13.0	<15.2	28.40	26.60	
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	6	2	<7.81	10.3	16.4	BH05 0.6m	1700000	0	<8.90	<7.81	<9.09	16.40	11.80	
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	6	4	<26	47.6	69.6	BH06 1m			62.60	<26.0	<30.3	56.10	40.70	
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	5	3	<26	47.1	65.7	BH06 1m			59.80	<26.0	<30.3	53.70	-	
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTs	6	0	<0.013	0.01	<0.016	BH05 1.7m	46000	0	<0.015	<0.013	<0.015	<0.013	<0.016	
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTs	6	1	<0.013	0.02	0.018	BH06 1m	110000	0	<0.015	<0.013	<0.015	<0.013	<0.016	
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTs	6	0	<0.052	0.06	<0.064	BH05 1.7m	8100	0	<0.060	<0.052	<0.061	<0.052	<0.064	
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	6	1	<5.21	5.7	<6.36	BH05 1.7m	28000	0	<5.93	<5.21	6.30	<5.21	<6.36	
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	6	5	<5.21	13.7	18.3	BH05 1.7m	37000	0	14.70	<5.21	16.60	11.40	18.30	
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	6	4	<5.21	8.9	13.6	BH05 1.7m	28000	0	7.58	<5.21	<6.06	11.70	13.60	
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	6	5	<13	20.7	31.4	TP-11 0.3m	28000	0	31.40	<13.0	17.70	20.90	24.10	
Aromatics >C35-44	mg/kg	6.00	Not Accredited	6	4	<7.81	15.4	28.9	TP-11 0.3m	28000	0	28.90	<7.81	21.80	13.80	12.20	
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	6	5	<26	57.8	77.5	TP-11 0.3m			77.50	<26.0	59.60	57.70	70.90	
Benzene	µg/kg	10.00	UKAS 1252 & MCERTs	6	0	<13	14.2	<16	BH05 1.7m	47000	0	<15	<13	<15	<13	<16	
Toluene	µg/kg	10.00	UKAS 1252 & MCERTs	6	1	<13	15	18	BH06 1m	110000000	0	<15	<13	<15	<13	<16	
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTs	6	0	<13	14.2	<16	BH05 1.7m	13000000	0	<15	<13	<15	<13	<16	
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTs	6	0	<13	14.2	<16	BH05 1.7m	15000000	0	<15	<13	<15	<13	<16	
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTs	6	0	<26	28.3	<32	BH05 1.7m	14000000	0	<30	<26	<30	<26	<32	
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTs	5	1	<0.078	0.08	<0.091	TP-17 0.3m			<0.089	<0.078	<0.091	<0.078	-	
Acenaphthylene	mg/kg	0.08	UKAS 1252	6	0	<0.1	0.11	<0.13	BH05 1.7m	97000	0	<0.12	<0.10	<0.1			

Strata Description												RTD GRAVEL	RTD CLAY	RTD GRAVEL	RTD GRAVEL
Report No.:												23031664	23032769	23032769	23032441
Client Sample ID.:												BH04	BH05	BH05	BH06
Sample Type:												E5	E5	E5	E5
Top Depth (m):												19.20	15.00	19.00	19.00
Date Sampled:												09-Mar-2023	23-Mar-2023	23-Mar-2023	20-Mar-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances				
Major Constituents	N/A	0.00	Not Accredited	4	0	0	0	<0	N/A			SAND	CLAY	GRAVEL	GRAVEL
Asbestos Quantification (Total %)	N/A	0.00	Not Accredited	4	0	0	0	<0	N/A	0.001	0	NAIIS	NAIIS	NAIIS	NAIIS
Phenol Index	mg/kg	0.50	Not Accredited	4	0	<0.5	0.5	<0.5	N/A	760	0	<0.5	<0.5	<0.5	<0.5
Sulphate as SO4	mg/kg	30.00	Not Accredited	4	3	<30	67.5	110	BH05 19m			70.00	60.00	110.00	<30
pH	pH units	1.00	Not Accredited	4	4	8.8	8.9	9	BH05 15m			8.80	9.00	8.80	8.90
Nitrate as NO3	mg/kg	2.00	Not Accredited	3	0	<4	4	<4	N/A			-	<4.0	<4.0	<4.0
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTS	4	0	<0.5	0.6	<0.7	BH05 15m			<0.5	<0.7	<0.6	<0.5
Organic matter	% m/m	0.04	UKAS 1252	4	4	0.17	0.37	0.81	BH05 15m			0.17	0.81	0.24	0.26
Total Organic Carbon	% m/m	0.02	UKAS 1252	4	4	0.1	0.22	0.47	BH05 15m			0.10	0.47	0.14	0.15
Loss on ignition	%	0.00	MCERTS	0	0	N/A	N/A	N/A	N/A			-	-	-	-
Antimony	mg/kg	0.01	Not Accredited	4	2	<0.01	0.03	0.04	BH05 15m	7500	0	<0.01	0.04	0.04	<0.01
Arsenic	mg/kg	0.01	Not Accredited	4	4	0.02	0.07	0.11	BH05 15m	640	0	0.02	0.11	0.10	0.03
Barium	mg/kg	0.10	Not Accredited	4	0	<0.1	0.1	<0.1	N/A	22000	0	<0.1	<0.1	<0.1	<0.1
Boron	mg/kg	0.50	UKAS 1252 & MCERTS	4	3	<0.5	1.2	2.4	BH05 15m	240000	0	0.60	2.40	1.30	<0.5
Cadmium	mg/kg	0.00	Not Accredited	4	1	<0.0002	0.0003	0.0004	BH05 19m	190	0	<0.0002	<0.0002	0.00	<0.0002
Chromium	mg/kg	0.01	Not Accredited	4	0	<0.01	0.01	<0.01	N/A	8600	0	<0.01	<0.01	<0.01	<0.01
Copper	mg/kg	0.01	Not Accredited	4	2	<0.01	0.02	0.02	BH05 15m	68000	0	<0.01	0.02	0.02	<0.01
Lead	mg/kg	0.01	Not Accredited	4	0	<0.01	0.01	<0.01	N/A	2300	0	<0.01	<0.01	<0.01	<0.01
Mercury	mg/kg	0.00	Not Accredited	4	0	<0.0003	0.0003	<0.0003	N/A	1100	0	<0.0003	<0.0003	<0.0003	<0.0003
Molybdenum	mg/kg	0.01	Not Accredited	4	3	<0.01	0.1	0.18	BH05 19m	17000	0	0.07	0.14	0.18	<0.01
Nickel	mg/kg	0.01	Not Accredited	4	2	<0.01	0.03	0.06	BH05 19m	980	0	<0.01	0.03	0.06	<0.01
Selenium	mg/kg	0.01	Not Accredited	4	1	<0.01	0.02	0.05	BH05 15m	12000	0	<0.01	0.05	<0.01	<0.01
Zinc	mg/kg	0.02	Not Accredited	4	1	<0.02	0.02	0.03	BH05 19m	730000	0	<0.02	<0.02	0.03	<0.02
GRO >C5-10	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m			<0.217	<0.268	<0.226	<0.209
Aliphatics >C5-6	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m	3200	0	<0.217	<0.268	<0.226	<0.209
Aliphatics >C6-8	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m	7800	0	<0.217	<0.268	<0.226	<0.209
Aliphatics >C8-10	mg/kg	0.20	UKAS 1252 & MCERTS	4	0	<0.209	0.2	<0.268	BH05 15m	2000	0	<0.217	<0.268	<0.226	<0.209
Aliphatics >C10-12	mg/kg	4.00	UKAS 1252	4	1	<4.19	5.3	7.29	BH04 19.2m	9700	0	7.29	<5.37	<4.52	<4.19
Aliphatics >C12-16	mg/kg	4.00	UKAS 1252	4	1	<4.19	6.5	12.1	BH04 19.2m	59000	0	12.10	<5.37	<4.52	<4.19
Aliphatics >C16-21	mg/kg	4.00	UKAS 1252	4	1	<4.19	6.5	12.1	BH04 19.2m	1600000	0	12.10	<5.37	<4.52	<4.19
Aliphatics >C21-35	mg/kg	10.00	UKAS 1252	4	2	<10.5	14.3	19.4	BH05 15m	1600000	0	15.90	19.40	<11.3	<10.5
Aliphatics >C35-44	mg/kg	6.00	Not Accredited	4	1	<6.28	8.9	14.5	BH04 19.2m	1600000	0	14.50	<8.05	<6.79	<6.28
Aliphatics >C8-40	mg/kg	20.00	UKAS 1252	4	2	<20.9	34.3	57.8	BH04 19.2m			57.80	36.00	<22.6	<20.9
Aliphatics >C10-40	mg/kg	20.00	UKAS 1252	4	2	<20.9	31.8	53	BH04 19.2m			53.00	30.70	<22.6	<20.9
Aromatics >C5-7	mg/kg	0.01	UKAS 1252 & MCERTS	4	0	<0.011	0.01	<0.013	BH05 15m	26000	0	<0.011	<0.013	<0.011	<0.011
Aromatics >C7-8	mg/kg	0.01	UKAS 1252 & MCERTS	4	0	<0.011	0.01	<0.013	BH05 15m	56000	0	<0.011	<0.013	<0.011	<0.011
Aromatics >C8-10	mg/kg	0.04	UKAS 1252 & MCERTS	4	0	<0.043	0.05	<0.054	BH05 15m	3500	0	<0.044	<0.054	<0.045	<0.043
Aromatics >C10-12	mg/kg	4.00	UKAS 1252	4	3	<4.19	6.5	9.9	BH05 15m	16000	0	4.62	9.90	7.19	<4.19
Aromatics >C12-16	mg/kg	4.00	UKAS 1252	4	3	<4.19	9.1	17	BH05 15m	36000	0	4.66	17.00	10.70	<4.19
Aromatics >C16-21	mg/kg	4.00	UKAS 1252	4	2	<4.19	9.3	18	BH05 15m	28000	0	<4.34	18.00	10.70	<4.19
Aromatics >C21-35	mg/kg	10.00	UKAS 1252	4	1	<10.5	14.8	26.4	BH05 15m	28000	0	<10.9	26.40	<11.3	<10.5
Aromatics >C35-44	mg/kg	6.00	Not Accredited	4	3	<6.28	15	25.7	BH05 15m	28000	0	15.70	25.70	12.30	<6.28
Aromatics >C8-40	mg/kg	20.00	UKAS 1252	4	3	<20.9	48	89.5	BH05 15m			32.20	89.50	49.30	<20.9
Benzene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	27000	0	<11	<13	<11	<11
Toluene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	56000000	0	<11	<13	<11	<11
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	5700000	0	<11	<13	<11	<11
O-Xylene	µg/kg	10.00	UKAS 1252 & MCERTS	4	0	<11	11.5	<13	BH05 15m	6600000	0	<11	<13	<11	<11
m,p xylenes	µg/kg	20.00	UKAS 1252 & MCERTS	4	0	<21	23.3	<27	BH05 15m	5900000	0	<22	<27	<23	<21
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTS	4	0	<0.063	0.07	<0.081	BH05 15m			<0.065	<0.081	<0.068	<0.063
Acenaphthylene	mg/kg	0.08	UKAS 1252	4	0	<0.08	0.09	<0.11	BH05 15m	83000	0	<0.09	<0.11	<0.09	<0.08
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	44	0	<0.09	<0.11	<0.09	<0.08
Anthracene	mg/kg	0.08	UKAS 1252	4	0	<0.08	0.09	<0.11	BH05 15m	520000	0	<0.09	<0.11	<0.09	<0.08
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	63000	0	<0.09	<0.11	<0.09	<0.08
Naphthalene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	190	0	<0.09	<0.11	<0.09	<0.08
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	84000	0	<0.09	<0.11	<0.09	<0.08
Benzo(k)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08	0.09	<0.11	BH05 15m	1200	0	<0.09	<0.11	<0.09	<0.08
Fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTS	4	0	<0.08									

Strata Description												ALLUVIUM - PEAT	ALLUVIUM - CLAY	ALLUVIUM - PEAT	ALLUVIUM - CLAY	ALLUVIUM - CLAY	ALLUVIUM - PEAT	ALLUVIUM - CLAY	ALLUVIUM - CLAY	ALLUVIUM - CLAY
Report No.:												23052169	23052169	23052121	23052121	23060476	23060748	23060748	23060748	23060748
Client Sample ID.:												BH01	BH01	BH02A	BH02A	BH07A	BH07A	BH07A	BH07A	BH07A
Sample Type:												E5	E5	E5	E5	E5	E5	E5	E5	E5
Top Depth (m):												6.20	7.80	7.50	10.00	2.10	6.80	8.00	15.90	16.40
Date Sampled:												17-May-2023	17-May-2023	11-May-2023	11-May-2023	22-May-2023	23-May-2023	23-May-2023	25-May-2023	25-May-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 6% SOM Commercial	Number of Exceedances									
Moisture Content at 35 deg	%	0.10	Not Accredited	14	14	2.7	39.9	77	BH01 6.2m			77.00	44.70	70.90	47.30	32.00	54.40	34.60	26.60	
Fraction of material above 4mm	%	0.00	Not Accredited	5	5	0	20	100	BH07A 16.4m			-	0.00	0.00	-	-	0.00	-	100.00	
Fraction Non Crushable Material	%	0.00	Not Accredited	5	5	0	0	0	BH01 7.8m			-	0.00	0.00	-	-	0.00	-	0.00	
Sulphur	% m/m	0.01	Not Accredited	9	9	0.053	11.219	25	BH01 7.8m			0.09	25.00	25.00	-	0.05	25.00	25.00	0.43	
Organic matter	% m/m	0.04	Not Accredited	11	11	0.38	11.03	31.6	BH01 7.8m			1.72	31.60	31.60	5.50	-	28.70	-	0.38	
Total Organic Carbon	% m/m	0.02	Not Accredited	5	5	0.22	11.5	21.3	BH01 7.8m			-	21.30	18.70	-	-	16.60	-	0.22	
Weight of Dry Material	kg	0.00	Not Accredited	5	5	0.09	0.1	0.09	BH01 7.8m			-	0.09	0.09	-	-	0.09	-	0.09	
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	5	5	0.094	0.2	0.314	BH02A 7.5m			-	0.17	0.31	-	-	0.31	-	0.09	
Leachant Volume	l	0.00	Not Accredited	5	5	0.676	0.8	0.896	BH07A 16.4m			-	0.82	0.68	-	-	0.68	-	0.90	
Sulphate as SO4	mg/kg	30.00	Not Accredited	14	14	210	1231.5	2820	TP02 1.65m			1630.00	842.00	1210.00	1540.00	914.00	1740.00	1910.00	701.00	
Chloride	mg/kg	10.00	Not Accredited	9	9	92	4503	15600	BH07A 6.8m			92.00	5970.00	11300.00	-	1120.00	15600.00	4520.00	1080.00	
Fluoride	mg/kg	1.00	Not Accredited	5	5	2	3	5	BH01 7.8m			-	5.00	2.00	-	-	2.00	-	2.00	
Lead	mg/kg	0.01	Not Accredited	11	6	<0.01	13.12	57	BH01 6.2m	2300	0	57.00	<0.01	<0.01	14.50	-	<0.1	-	<0.01	
Mercury	mg/kg	0.00	Not Accredited	11	1	<0.0003	0.2732	<0.5	BH01 6.2m	1100	0	<0.5	0.00	<0.0003	<0.5	-	<0.003	-	<0.0003	
Molybdenum	mg/kg	0.01	Not Accredited	5	5	0.02	0.11	0.17	BH07A 6.8m	17000	0	-	0.13	0.11	-	-	0.17	-	0.02	
Nickel	mg/kg	0.01	Not Accredited	11	9	<0.01	15.02	33.9	TP01 2.8m	980	0	14.20	0.02	<0.01	24.90	-	<0.1	-	0.02	
Antimony	mg/kg	0.01	Not Accredited	5	2	<0.01	0.03	<0.1	BH07A 6.8m	7500	0	-	0.02	<0.01	-	-	<0.1	-	<0.01	
Arsenic	mg/kg	0.01	Not Accredited	11	10	<0.05	12.37	49.9	TP02 1.65m	640	0	5.80	0.08	0.05	16.90	-	<0.1	-	0.07	
Barium	mg/kg	0.10	Not Accredited	5	2	<0.1	0.1	0.2	BH02A 7.5m	22000	0	-	<0.1	0.20	-	-	0.20	-	<0.1	
Cadmium	mg/kg	0.00	Not Accredited	11	3	<0.0002	0.1548	0.5	BH01 6.2m	190	0	0.50	<0.0002	<0.0002	<0.2	-	<0.002	-	<0.0002	
Chromium	mg/kg	0.01	Not Accredited	11	6	<0.01	19.85	49.4	TP06 2.8m	8600	0	17.10	<0.01	<0.01	33.40	-	<0.1	-	<0.01	
Copper	mg/kg	0.01	Not Accredited	11	7	<0.01	8.44	23.8	BH01 6.2m	68000	0	23.80	<0.01	<0.01	11.10	-	<0.1	-	<0.01	
Zinc	mg/kg	0.02	Not Accredited	11	7	<0.02	43.69	98	TP06 2.8m	730000	0	83.10	0.04	<0.02	64.00	-	<0.2	-	<0.02	
Selenium	mg/kg	0.01	Not Accredited	5	1	<0.01	0.03	<0.1	BH07A 6.8m	12000	0	-	<0.01	<0.01	-	-	<0.1	-	<0.01	
Total dissolved solids	mg/kg	700.00	Not Accredited	5	5	980	16030	31100	BH07A 6.8m			-	16900.00	27700.00	-	-	31100.00	-	980.00	
Phenol Index	mg/kg	0.50	Not Accredited	11	0	<0.5	0.9	<2.2	BH01 6.2m	3200	0	<2.2	<0.5	<0.9	-	-	<1.1	-	<0.5	
TOC (filtered)	mg/kg	2.00	Not Accredited	5	5	17.2	145	246	BH07A 6.8m			-	149.00	239.00	-	-	246.00	-	17.20	
Nitrate as NO3	mg/kg	2.00	Not Accredited	9	1	<4	5.7	19.4	BH01 6.2m			19.40	<4.0	<4.0	-	<4.0	<4.0	<4.0	<4.0	
Ethylbenzene	mg/kg	0.01	Not Accredited	11	0	<0.01	13.73	<44	BH01 6.2m	27000	0	<44	<0.018	<0.034	<19	-	<22	-	<0.010	
Toluene	mg/kg	0.01	Not Accredited	11	0	<0.01	13.73	<44	BH01 6.2m	180000	0	<44	<0.018	<0.034	<19	-	<22	-	<0.010	
Anthracene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	540000	0	<0.35	<0.15	<0.28	<0.15	-	0.20	-	<0.08	
Pyrene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.2	0.56	BH07A 6.8m	54000	0	<0.35	<0.15	<0.28	<0.15	-	0.56	-	<0.08	
Coronene	mg/kg	0.08	Not Accredited	4	0	<0.08	0.15	<0.28	BH02A 7.5m			-	<0.15	<0.28	-	-	-	-	<0.08	
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	4000	0	<0.35	<0.15	<0.28	<0.15	-	<0.18	-	<0.08	
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	510	0	<0.35	<0.15	<0.28	<0.15	-	0.21	-	<0.08	
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	45	0	<0.35	<0.15	<0.28	<0.15	-	0.27	-	<0.08	
Fluoranthene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.21	0.65	BH07A 6.8m	23000	0	<0.35	<0.15	<0.28	<0.15	-	0.65	-	<0.08	
Benzo(k)fluoranthene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	1200	0	<0.35	<0.15	<0.28	<0.15	-	<0.18	-	<0.08	
Acenaphthylene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	100000	0	<0.35	<0.15	<0.28	<0.15	-	<0.18	-	<0.08	
Chrysene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.18	<0.35	BH01 6.2m	350	0	<0.35	<0.15	<0.28	<0.15	-	0.34	-	<0.08	
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			-	<0.009	<0.017	-	-	-	-	<0.005	
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			-	<0.009	<0.017	-	-	-	-	<0.005	
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			-	<0.							

Strata Description												ALLUVIUM - CLAY	ALLUVIUM - CLAY	ALLUVIUM - CLAY	ALLUVIUM - CLAY	ALLUVIUM - CLAY
Report No.:												23060477	23052122	23052122	23052169	23052169
Client Sample ID.:												RTPO2A	TP01	TP02	TP05A	TP06
Sample Type:												E5	E5	E5	E5	E5
Top Depth (m):												1.20	2.80	1.65	2.70	2.80
Date Sampled:												19-May-2023	15-May-2023	15-May-2023	17-May-2023	17-May-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 6% SOM Commercial	Number of Exceedances					
Moisture Content at 35 deg	%	0.10	Not Accredited	14	14	2.7	39.9	77	BH01 6.2m			19.60	51.70	40.00	29.80	27.60
Fraction of material above 4mm	%	0.00	Not Accredited	5	5	0	20	100	BH07A 16.4m			0.00	-	-	-	-
Fraction Non Crushable Material	%	0.00	Not Accredited	5	5	0	0	0	BH01 7.8m			0.00	-	-	-	-
Sulphur	% m/m	0.01	Not Accredited	9	9	0.053	11.219	25	BH01 7.8m			0.29	-	-	-	-
Organic matter	% m/m	0.04	Not Accredited	11	11	0.38	11.03	31.6	BH01 7.8m			1.14	6.95	7.03	5.48	1.26
Total Organic Carbon	% m/m	0.02	Not Accredited	5	5	0.22	11.5	21.3	BH01 7.8m			0.66	-	-	-	-
Weight of Dry Material	kg	0.00	Not Accredited	5	5	0.09	0.1	0.09	BH01 7.8m			0.09	-	-	-	-
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	5	5	0.094	0.2	0.314	BH02A 7.5m			0.12	-	-	-	-
Leachant Volume	l	0.00	Not Accredited	5	5	0.676	0.8	0.896	BH07A 16.4m			0.87	-	-	-	-
Sulphate as SO4	mg/kg	30.00	Not Accredited	14	14	210	1231.5	2820	TP02 1.65m			338.00	1960.00	2820.00	1200.00	226.00
Chloride	mg/kg	10.00	Not Accredited	9	9	92	4503	15600	BH07A 6.8m			735.00	-	-	-	-
Fluoride	mg/kg	1.00	Not Accredited	5	5	2	3	5	BH01 7.8m			4.00	-	-	-	-
Lead	mg/kg	0.01	Not Accredited	11	6	<0.01	13.12	57	BH01 6.2m	2300	0	<0.01	17.10	20.00	14.00	21.60
Mercury	mg/kg	0.00	Not Accredited	11	1	<0.0003	0.2732	<0.5	BH01 6.2m	1100	0	<0.0003	<0.5	<0.5	<0.5	<0.5
Molybdenum	mg/kg	0.01	Not Accredited	5	5	0.02	0.11	0.17	BH07A 6.8m	17000	0	0.10	-	-	-	-
Nickel	mg/kg	0.01	Not Accredited	11	9	<0.01	15.02	33.9	TP01 2.8m	980	0	0.03	33.90	31.60	27.40	33.00
Antimony	mg/kg	0.01	Not Accredited	5	2	<0.01	0.03	<0.1	BH07A 6.8m	7500	0	0.03	-	-	-	-
Arsenic	mg/kg	0.01	Not Accredited	11	10	<0.05	12.37	49.9	TP02 1.65m	640	0	0.06	24.50	49.90	12.50	26.10
Barium	mg/kg	0.10	Not Accredited	5	2	<0.1	0.1	0.2	BH02A 7.5m	22000	0	<0.1	-	-	-	-
Cadmium	mg/kg	0.00	Not Accredited	11	3	<0.0002	0.1548	0.5	BH01 6.2m	190	0	<0.0002	0.30	<0.2	0.30	<0.2
Chromium	mg/kg	0.01	Not Accredited	11	6	<0.01	19.85	49.4	TP06 2.8m	8600	0	<0.01	41.20	41.40	35.70	49.40
Copper	mg/kg	0.01	Not Accredited	11	7	<0.01	8.44	23.8	BH01 6.2m	68000	0	0.08	16.10	13.70	12.70	15.20
Zinc	mg/kg	0.02	Not Accredited	11	7	<0.02	43.69	98	TP06 2.8m	730000	0	<0.02	85.30	81.50	68.40	98.00
Selenium	mg/kg	0.01	Not Accredited	5	1	<0.01	0.03	<0.1	BH07A 6.8m	12000	0	0.02	-	-	-	-
Total dissolved solids	mg/kg	700.00	Not Accredited	5	5	980	16030	31100	BH07A 6.8m			3470.00	-	-	-	-
Phenol Index	mg/kg	0.50	Not Accredited	11	0	<0.5	0.9	<2.2	BH01 6.2m	3200	0	<0.5	<1.0	<0.8	<0.7	<0.7
TOC (filtered)	mg/kg	2.00	Not Accredited	5	5	17.2	145	246	BH07A 6.8m			73.70	-	-	-	-
Nitrate as NO3	mg/kg	2.00	Not Accredited	9	1	<4	5.7	19.4	BH01 6.2m			<4.0	-	-	-	-
Ethylbenzene	mg/kg	0.01	Not Accredited	11	0	<0.01	13.73	<44	BH01 6.2m	27000	0	<0.012	<21	<17	<14	<14
Toluene	mg/kg	0.01	Not Accredited	11	0	<0.01	13.73	<44	BH01 6.2m	180000	0	<0.012	<21	<17	<14	<14
Anthracene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	540000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Pyrene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.2	0.56	BH07A 6.8m	54000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Coronene	mg/kg	0.08	Not Accredited	4	0	<0.08	0.15	<0.28	BH02A 7.5m			<0.10	-	-	-	-
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	4000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	510	0	<0.10	<0.17	<0.13	<0.11	<0.11
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	45	0	<0.10	<0.17	<0.13	<0.11	<0.11
Fluoranthene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.21	0.65	BH07A 6.8m	23000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Benzo(k)fluoranthene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	1200	0	<0.10	<0.17	<0.13	<0.11	<0.11
Acenaphthylene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	100000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Chrysene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.18	<0.35	BH01 6.2m	350	0	<0.10	<0.17	<0.13	<0.11	<0.11
PCB-118 2,3',4,4',5 - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
PCB-153 2,2',3,4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
PCB-138 2,2',3,4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
Benzo(a)pyrene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	36	0	<0.10	<0.17	<0.13	<0.11	<0.11
Dibenz-a-h-anthracene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	3.6	0	<0.10	<0.17	<0.13	<0.11	<0.11
Benzo(a)anthracene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.17	<0.35	BH01 6.2m	180	0	<0.10	<0.17	<0.13	<0.11	<0.11
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	0.01	Not Accredited	4	0	<0.005	0.009	<0.017	BH02A 7.5m			<0.006	-	-	-	-
Benzene	mg/kg	0.01	Not Accredited	11	0	<0.01	13.73	<44	BH01 6.2m	90	0	<0.012	<21	<17	<14	<14
Boron	mg/kg	0.50	Not Accredited	11	11	0.9	18.8	62.8	BH01 7.8m	240000	0	2.30	16.10	13.10	11.40	7.60
Acenaphthene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	100000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Phenanthrene	mg/kg	0.08	Not Accredited	11	1	<0.08	0.18	0.38	BH07A 6.8m	23000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Fluorene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	71000	0	<0.10	<0.17	<0.13	<0.11	<0.11
Naphthalene	mg/kg	0.08	Not Accredited	11	0	<0.08	0.16	<0.35	BH01 6.2m	1100	0	<0.10	<0.17	<0.13	<0.11	<0.11
O-Xylene	mg/kg	0.01	Not Accredited	11	0	<0.01	13.73	<44	BH01 6.2m	33000	0	<0.012	<21	<17	<14	<14
m,p xylenes	mg/kg	0.02	Not Accredited	11	0	<0.021	27.29</									

Strata Description												CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK
Report No.:												23060477	23062650	23062650	23062652	23062653	23062653	23062653	23052167	23060856	23061283
Client Sample ID.:												BH01	BH01	BH01	BH01	BH01	BH01	BH02A	BH02A	BH02A	BH02A
Sample Type:												ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
Top Depth (m):												19.30	26.76	36.40	42.03	50.40	65.20	75.15	20.60	27.37	37.75
Date Sampled:												19-May-2023	15-Jun-2023	15-Jun-2023	16-Jun-2023	20-Jun-2023	20-Jun-2023	20-Jun-2023	16-May-2023	07-Jun-2023	08-Jun-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances										
Moisture Content at 35 deg	%	0.10	Not Accredited	15	15	15.3	22.2	30.5	BH01 19.3m			30.50	21.40	21.40	21.20	21.40	21.70	15.30	20.50	22.20	18.50
Fraction of material above 4mm	%	0.00	Not Accredited	11	11	0	72.7	100	BH01 26.76m			0.00	100.00	100.00	-	-	100.00	100.00	100.00	100.00	-
Fraction Non Crushable Material	%	0.00	Not Accredited	11	11	0	0	0	BH01 19.3m			0.00	0.00	0.00	-	-	0.00	0.00	0.00	0.00	-
Sulphur	% m/m	0.01	Not Accredited	13	13	0.014	0.036	0.111	BH02A 27.37m			0.03	0.01	0.02	-	-	0.05	0.05	0.03	0.11	0.03
Organic matter	% m/m	0.04	Not Accredited	14	14	0.46	0.9	1.25	BH01 42.03m			1.16	1.12	1.05	1.25	0.96	1.03	0.82	0.46	0.69	-
Total Organic Carbon	% m/m	0.02	Not Accredited	11	11	0.27	0.49	0.67	BH01 19.3m			0.67	0.65	0.61	-	-	0.60	0.47	0.27	0.40	-
Weight of Dry Material	kg	0.00	Not Accredited	11	11	0.09	0.1	0.09	BH01 19.3m			0.09	0.09	0.09	-	-	0.09	0.09	0.09	0.09	-
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	11	11	0.105	0.1	0.118	BH07A 21.1m			0.11	0.12	0.11	-	-	0.11	0.11	0.12	0.12	-
Leachant Volume	l	0.00	Not Accredited	11	11	0.872	0.9	0.885	BH01 19.3m			0.89	0.87	0.88	-	-	0.88	0.88	0.87	0.87	-
Sulphate as SO4	mg/kg	30.00	Not Accredited	15	14	<40	176.3	529	BH02A 37.75m			50.00	60.00	70.00	63.00	43.00	249.00	139.00	40.00	<300	529.00
Chloride	mg/kg	10.00	Not Accredited	13	13	229	588	1390	BH03 31.2m			339.00	546.00	537.00	-	-	229.00	358.00	517.00	507.00	456.00
Fluoride	mg/kg	1.00	Not Accredited	11	9	<1	2.8	5	BH01 65.2m			<1	2.00	3.00	-	-	5.00	5.00	2.00	2.00	-
Lead	mg/kg	0.01	Not Accredited	14	3	<0.01	0.29	1.6	BH03 26m	2300	0	<0.01	<0.01	<0.01	1.20	1.20	<0.01	<0.01	<0.01	<0.01	-
Mercury	mg/kg	0.00	Not Accredited	14	0	<0.0003	0.1074	<0.5	BH01 42.03m	1100	0	<0.0003	<0.0003	<0.0003	<0.5	<0.5	<0.0003	<0.0003	<0.0003	<0.0003	-
Molybdenum	mg/kg	0.01	Not Accredited	11	4	<0.01	0.01	0.02	BH01 19.3m	17000	0	0.02	<0.01	<0.01	-	-	<0.01	0.02	<0.01	<0.01	-
Nickel	mg/kg	0.01	Not Accredited	14	4	<0.01	0.79	4.2	BH03 26m	980	0	<0.01	<0.01	<0.01	4.10	2.60	<0.01	<0.01	0.02	<0.01	-
Antimony	mg/kg	0.01	Not Accredited	11	1	<0.01	0.01	0.02	BH02A 48m	7500	0	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	-
Arsenic	mg/kg	0.01	Not Accredited	14	2	<0.01	0.07	0.3	BH03 26m	640	0	0.02	<0.01	<0.01	<0.3	<0.3	<0.01	<0.01	<0.01	<0.01	-
Barium	mg/kg	0.10	Not Accredited	11	4	<0.1	0.2	<1	N/A	22000	0	<0.1	<0.1	<0.1	-	-	0.20	0.40	<0.1	<1.0	-
Cadmium	mg/kg	0.00	Not Accredited	14	1	<0.0002	0.0502	0.3	BH01 50.4m	190	0	<0.0002	<0.0002	<0.0002	<0.2	0.30	<0.0002	<0.0002	<0.0002	<0.0002	-
Chromium	mg/kg	0.01	Not Accredited	14	2	<0.01	0.31	1.7	BH03 26m	8600	0	<0.01	<0.01	<0.01	1.30	<1.2	<0.01	<0.01	<0.01	<0.01	-
Copper	mg/kg	0.01	Not Accredited	14	1	<0.01	1.06	11.5	BH03 26m	68000	0	<0.01	<0.01	<0.01	<1.6	<1.6	<0.01	<0.01	<0.01	<0.01	-
Zinc	mg/kg	0.02	Not Accredited	14	1	<0.02	3.45	<16	N/A	730000	0	<0.02	<0.02	<0.02	<16.0	<16.0	<0.02	<0.02	<0.02	<0.02	-
Selenium	mg/kg	0.01	Not Accredited	11	1	<0.01	0.01	0.02	BH02A 48m	12000	0	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	-
Total dissolved solids	mg/kg	700.00	Not Accredited	11	11	1180	1899.1	3970	BH03 31.2m			1300.00	1700.00	1670.00	-	-	1180.00	1310.00	1810.00	1710.00	-
Phenol Index	mg/kg	0.50	Not Accredited	14	0	<0.5	0.5	<0.7	BH03 26m	760	0	<0.5	<0.5	<0.5	<0.6	<0.6	<0.5	<0.5	<0.5	<0.5	-
TOC (filtered)	mg/kg	2.00	Not Accredited	11	11	5.3	8	11.8	BH02A 27.37m			10.60	8.40	9.00	-	-	6.20	5.30	7.60	11.80	-
Nitrate as NO3	mg/kg	2.00	Not Accredited	12	0	<4	4	<4	N/A			<4.0	<4.0	<4.0	-	-	<4.0	<4.0	<4.0	<4.0	<4.0
Ethylbenzene	mg/kg	0.01	Not Accredited	14	0	<0.012	2.8	<13	BH01 42.03m	5700	0	<0.014	<0.013	<0.013	<13	<13	<0.013	<0.012	<0.013	<0.013	-
Toluene	mg/kg	0.01	Not Accredited	14	0	<0.012	2.8	<13	BH01 42.03m	56000	0	<0.014	<0.013	<0.013	<13	<13	<0.013	<0.012	<0.013	<0.013	-
Anthracene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	520000	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	<0.10	-
Pyrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	54000	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Coronene	mg/kg	0.08	Not Accredited	11	0	<0.09	0.1	<0.12	BH01 19.3m			<0.12	<0.10	<0.10	-	-	<0.10	<0.09	<0.10	<0.10	-
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	3900	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	500	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	44	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Fluoranthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	23000	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Benzo(k)fluoranthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	1200	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Acenaphthylene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	83000	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Chrysene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	350	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
PCB-153 2,2',3,4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
PCB-138 2,2',3,4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
PCB-52 2,2',3,4,4',5,5' - Tetrachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
Benzo(a)pyrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	35	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	<0.10	-
Dibenz-a-h-anthracene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	3.5	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
Benzo(a)anthracene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	170	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.007	<0.006	<0.006	-	-	<0.006	<0.006	<0.006	<0.006	-
Benzene	mg/kg	0.01	Not Accredited	14	0	<0.012	2.8	<13	BH01 42.03m	27	0	<0.014	<0.013	<0.013	<13	<13	<0.013	<0.012	<0.013	<0.013	-
Boron	mg/kg	0.50	Not Accredited	14	7	<0.5	0.7	1.1	BH02A 57.92m	240000	0	0.90	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.60	-
Acenaphthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	84000	0	<0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.09	<0.10	<0.10	-

Strata Description												CHALK	CHALK	CHALK	CHALK	CHALK
Report No.:												23061283	23061652	23060514	23060514	23060479
Client Sample ID.:												BH02A	BH02A	BH03	BH03	BH07A
Sample Type:												ES	ES	ES	ES	ES
Top Depth (m):												48.00	57.92	26.00	31.20	21.10
Date Sampled:												08-Jun-2023	12-Jun-2023	30-May-2023	31-May-2023	31-May-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances					
Moisture Content at 35 deg	%	0.10	Not Accredited	15	15	15.3	22.2	30.5	BH01 19.3m			22.60	18.70	25.10	22.70	29.20
Fraction of material above 4mm	%	0.00	Not Accredited	11	11	0	72.7	100	BH01 26.76m			0.00	0.00	-	100.00	100.00
Fraction Non Crushable Material	%	0.00	Not Accredited	11	11	0	0	0	BH01 19.3m			0.00	0.00	-	0.00	0.00
Sulphur	% m/m	0.01	Not Accredited	13	13	0.014	0.036	0.111	BH02A 27.37m			0.02	0.05	0.02	0.02	0.02
Organic matter	% m/m	0.04	Not Accredited	14	14	0.46	0.9	1.25	BH01 42.03m			0.57	0.95	1.07	1.00	0.48
Total Organic Carbon	% m/m	0.02	Not Accredited	11	11	0.27	0.49	0.67	BH01 19.3m			0.33	0.55	-	0.58	0.28
Weight of Dry Material	kg	0.00	Not Accredited	11	11	0.09	0.1	0.09	BH01 19.3m			0.09	0.09	-	0.09	0.09
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	11	11	0.105	0.1	0.118	BH07A 21.1m			0.12	0.11	-	0.11	0.12
Leachant Volume	l	0.00	Not Accredited	11	11	0.872	0.9	0.885	BH01 19.3m			0.87	0.88	-	0.88	0.87
Sulphate as SO4	mg/kg	30.00	Not Accredited	15	14	<40	176.3	529	BH02A 37.75m			89.00	100.00	474.00	368.00	70.00
Chloride	mg/kg	10.00	Not Accredited	13	13	229	588	1390	BH03 31.2m			725.00	627.00	639.00	1390.00	774.00
Fluoride	mg/kg	1.00	Not Accredited	11	9	<1	2.8	5	BH01 65.2m			4.00	4.00	-	2.00	<1
Lead	mg/kg	0.01	Not Accredited	14	3	<0.001	0.29	1.6	BH03 26m	2300	0	<0.001	<0.001	1.60	<0.01	<0.01
Mercury	mg/kg	0.00	Not Accredited	14	0	<0.0003	0.1074	<0.5	BH01 42.03m	1100	0	<0.0003	<0.0003	<0.5	<0.0003	<0.0003
Molybdenum	mg/kg	0.01	Not Accredited	11	4	<0.01	0.01	0.02	BH01 19.3m	17000	0	0.02	0.02	-	<0.01	<0.01
Nickel	mg/kg	0.01	Not Accredited	14	4	<0.01	0.79	4.2	BH03 26m	980	0	<0.01	<0.01	4.20	<0.01	<0.01
Antimony	mg/kg	0.01	Not Accredited	11	1	<0.01	0.01	0.02	BH02A 48m	7500	0	0.02	<0.01	-	<0.01	<0.01
Arsenic	mg/kg	0.01	Not Accredited	14	2	<0.01	0.07	0.3	BH03 26m	640	0	<0.01	<0.01	0.30	<0.01	<0.01
Barium	mg/kg	0.10	Not Accredited	11	4	<0.1	0.2	<1	N/A	22000	0	<0.1	0.20	-	0.30	<0.1
Cadmium	mg/kg	0.00	Not Accredited	14	1	<0.0002	0.0502	0.3	BH01 50.4m	190	0	<0.0002	<0.0002	<0.2	<0.0002	<0.0002
Chromium	mg/kg	0.01	Not Accredited	14	2	<0.01	0.31	1.7	BH03 26m	8600	0	<0.01	<0.01	1.70	<0.01	<0.01
Copper	mg/kg	0.01	Not Accredited	14	1	<0.01	1.06	11.5	BH03 26m	68000	0	<0.01	<0.01	11.50	<0.01	<0.01
Zinc	mg/kg	0.02	Not Accredited	14	1	<0.02	3.45	<16	N/A	730000	0	<0.02	<0.02	<16.0	0.04	<0.02
Selenium	mg/kg	0.01	Not Accredited	11	1	<0.01	0.01	0.02	BH02A 48m	12000	0	0.02	<0.01	-	<0.01	<0.01
Total dissolved solids	mg/kg	700.00	Not Accredited	11	11	1180	1899.1	3970	BH03 31.2m			2060.00	1790.00	-	3970.00	2390.00
Phenol Index	mg/kg	0.50	Not Accredited	14	0	<0.5	0.5	<0.7	BH03 26m	760	0	<0.5	<0.5	<0.7	<0.5	<0.5
TOC (filtered)	mg/kg	2.00	Not Accredited	11	11	5.3	8	11.8	BH02A 27.37m			5.60	8.00	-	8.80	6.80
Nitrate as NO3	mg/kg	2.00	Not Accredited	12	0	<4	4	<4	N/A			<4.0	<4.0	<4.0	<4.0	-
Ethylbenzene	mg/kg	0.01	Not Accredited	14	0	<0.012	2.8	<13	BH01 42.03m	5700	0	<0.013	<0.012	<13	<0.013	<0.014
Toluene	mg/kg	0.01	Not Accredited	14	0	<0.012	2.8	<13	BH01 42.03m	56000	0	<0.013	<0.012	<13	<0.013	<0.014
Anthracene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	520000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Pyrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	54000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Coronene	mg/kg	0.08	Not Accredited	11	0	<0.09	0.1	<0.12	BH01 19.3m			<0.10	<0.10	-	<0.10	<0.11
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	3900	0	<0.10	<0.10	<0.11	<0.10	<0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	500	0	<0.10	<0.10	<0.11	<0.10	<0.11
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	44	0	<0.10	<0.10	<0.11	<0.10	<0.11
Fluoranthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	23000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Benzo(k)fluoranthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	1200	0	<0.10	<0.10	<0.11	<0.10	<0.11
Acenaphthylene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	83000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Chrysene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	350	0	<0.10	<0.10	<0.11	<0.10	<0.11
PCB-118 2,3',4,4',5 - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
PCB-138 2,2',3,4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
Benzo(a)pyrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	35	0	<0.10	<0.10	<0.11	<0.10	<0.11
Dibenzo-a-h-anthracene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	3.5	0	<0.10	<0.10	<0.11	<0.10	<0.11
Benzo(a)anthracene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	170	0	<0.10	<0.10	<0.11	<0.10	<0.11
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	0.01	Not Accredited	11	0	<0.006	0.006	<0.007	BH01 19.3m			<0.006	<0.006	-	<0.006	<0.007
Benzene	mg/kg	0.01	Not Accredited	14	0	<0.012	2.8	<13	BH01 42.03m	27	0	<0.013	<0.012	<13	<0.013	<0.014
Boron	mg/kg	0.50	Not Accredited	14	7	<0.5	0.7	1.1	BH02A 57.92m	240000	0	0.90	1.10	1.00	0.90	0.60
Acenaphthene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	84000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Phenanthrene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	22000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Fluorene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m	63000	0	<0.10	<0.10	<0.11	<0.10	<0.11
Naphthalene	mg/kg	0.08	Not Accredited	14	0	<0.09	0.1	<0.12	BH01 19.3m</							

Strata Description												MADE GROUND - CLAY	MADE GROUND - GRAVEL	MADE GROUND - SAND	MADE GROUND - SAND	MADE GROUND - SAND	MADE GROUND - SAND	MADE GROUND - SAND	MADE GROUND - GRAVEL	MADE GROUND - SAND	MADE GROUND - GRAVEL	MADE GROUND - CLAY
Report No.:												23052167	23052120	23052120	23052120	23060476	23060476	23060478	23060478	23060477	23052122	23052122
Client Sample ID.:												BH01	BH02A	BH02A	BH02A	BH07	BH07A	RTPO1	RTPO1B	RTPO2	TP01	TP01
Sample Type:												ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
Top Depth (m):												2.10	0.10	0.65	1.60	0.30	1.10	0.80	0.45	0.35	0.20	0.60
Date Sampled:												16-May-2023	10-May-2023	10-May-2023	10-May-2023	22-May-2023	22-May-2023	23-May-2023	23-May-2023	19-May-2023	15-May-2023	15-May-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances											
Moisture Content at 35 deg	%	0.10	Not Accredited	22	22	6	18.7	37.3	TP04 2.2m			34.80	6.00	14.30	23.30	19.70	31.00	10.20	6.10	25.40	7.50	28.00
Fraction of material above 4mm	%	0.00	Not Accredited	11	11	0	42	100	TP01 0.2m			0.00	-	-	-	48.90	0.00	67.30	76.00	69.50	100.00	-
Fraction Non Crushable Material	%	0.00	Not Accredited	11	11	0	0	0	BH01 2.1m			0.00	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	-
Sulphur	% m/m	0.01	Not Accredited	7	7	0.062	0.333	1.42	BH07A 1.1m			0.15	-	-	-	0.24	1.42	-	-	-	-	-
Organic matter	% m/m	0.04	Not Accredited	21	21	0.25	3.38	9.45	TP06 0.35m			1.82	0.72	6.06	2.27	0.25	6.96	2.50	0.71	6.80	1.93	1.81
Total Organic Carbon	% m/m	0.02	Not Accredited	11	11	0.15	2.15	5.48	TP06 0.35m			1.05	-	-	-	0.15	4.04	1.45	0.41	3.95	1.12	-
Weight of Dry Material	kg	0.00	Not Accredited	11	11	0.09	0.1	0.09	BH01 2.1m			0.09	-	-	-	0.09	0.09	0.09	0.09	0.09	0.09	-
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	11	11	0.095	0.1	0.154	BH01 2.1m			0.15	-	-	-	0.11	0.12	0.10	0.10	0.12	0.10	-
Leachant Volume	l	0.00	Not Accredited	11	11	0.836	0.9	0.895	RTPO1B 0.45m			0.84	-	-	-	0.88	0.87	0.89	0.90	0.87	0.89	-
Sulphate as SO4	mg/kg	30.00	Not Accredited	22	22	85	1945.8	16000	BH07A 1.1m			971.00	123.00	770.00	4140.00	1250.00	16000.00	90.00	1040.00	149.00	389.00	315.00
Chloride	mg/kg	10.00	Not Accredited	14	14	20	301.9	1680	TP04 2.2m			912.00	-	-	-	259.00	307.00	30.00	20.00	30.00	30.00	-
Fluoride	mg/kg	1.00	Not Accredited	11	11	2	6.2	17	RTPO2 0.35m			6.00	-	-	-	4.00	2.00	7.00	6.00	17.00	6.00	-
Lead	mg/kg	0.01	Not Accredited	21	11	<0.01	48.83	442.8	TP02 0.2m	2300	0	<0.01	13.80	138.60	44.60	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	38.40
Mercury	mg/kg	0.00	Not Accredited	21	3	<0.0003	0.2383	<0.5	BH02A 0.1m	1100	0	0.00	<0.5	<0.5	<0.5	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.5
Molybdenum	mg/kg	0.01	Not Accredited	11	11	0.09	0.28	0.49	BH01 2.1m	17000	0	0.49	-	-	-	0.28	0.43	0.17	0.31	0.09	0.09	-
Nickel	mg/kg	0.01	Not Accredited	21	17	<0.01	12.03	51.6	TP04 0.4m	980	0	0.02	5.90	33.40	16.90	0.03	0.04	<0.01	<0.01	<0.01	<0.01	33.90
Antimony	mg/kg	0.01	Not Accredited	11	10	<0.01	0.05	0.17	BH07A 1.1m	7500	0	0.02	-	-	-	0.06	0.17	0.02	<0.01	0.06	0.07	-
Arsenic	mg/kg	0.01	Not Accredited	21	21	0.03	5.54	26.7	TP06 0.9m	640	0	0.09	0.50	7.90	10.00	0.03	0.05	0.33	0.06	0.71	0.11	18.00
Barium	mg/kg	0.10	Not Accredited	11	5	<0.1	0.3	1.1	BH07 0.3m	22000	0	<0.1	-	-	-	1.10	0.40	<0.1	0.40	0.40	<0.1	-
Cadmium	mg/kg	0.00	Not Accredited	21	10	<0.0002	0.1573	0.6	TP04 0.4m	190	0	<0.0002	0.20	0.50	0.20	0.00	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.20
Chromium	mg/kg	0.01	Not Accredited	21	11	<0.01	13.63	61.8	BH02A 0.65m	8600	0	<0.01	9.40	61.80	23.00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	43.20
Copper	mg/kg	0.01	Not Accredited	21	17	<0.01	19.62	144.3	TP04 0.4m	68000	0	<0.01	11.30	49.80	17.70	0.08	0.02	0.03	<0.01	0.03	0.02	21.10
Zinc	mg/kg	0.02	Not Accredited	21	13	<0.02	107.54	1010	TP02 0.2m	730000	0	0.03	117.90	219.60	70.40	0.15	0.03	<0.02	<0.02	<0.02	<0.02	105.10
Selenium	mg/kg	0.01	Not Accredited	11	4	<0.01	0.02	0.06	TP01 0.2m	12000	0	<0.01	-	-	-	<0.01	<0.01	0.02	0.02	0.03	0.06	-
Total dissolved solids	mg/kg	700.00	Not Accredited	11	10	<700	3978.2	15700	BH07A 1.1m			4610.00	-	-	-	2950.00	15700.00	<700	1930.00	1050.00	1170.00	-
Phenol Index	mg/kg	0.50	Not Accredited	21	0	<0.5	0.6	<0.7	BH02A 1.6m	1500	0	<0.5	<0.5	<0.6	<0.7	<0.6	<0.5	<0.6	<0.5	<0.5	<0.5	<0.7
TOC (filtered)	mg/kg	2.00	Not Accredited	11	11	17.6	71.4	183	TP02 0.75m			110.00	-	-	-	44.20	50.90	20.00	17.60	38.10	25.80	-
Nitrate as NO3	mg/kg	2.00	Not Accredited	7	3	<4	7.6	23.2	BH07A 1.1m			<4.0	-	-	-	7.50	23.20	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	Not Accredited	21	0	<0.011	7.48	<14	TP01 0.6m	13000	0	<0.015	<11	<12	<13	<0.015	<11	<11	<0.013	<0.011	<14	
Toluene	mg/kg	0.01	Not Accredited	21	0	<0.011	7.48	<14	TP01 0.6m	110000	0	<0.015	<11	<12	<13	<0.015	<11	<11	<0.013	<0.011	<14	
Anthracene	mg/kg	0.08	Not Accredited	21	9	<0.09	0.16	0.46	BH07A 1.1m	540000	0	<0.12	<0.09	0.12	0.21	0.13	0.46	<0.09	<0.09	<0.11	<0.09	<0.11
Pyrene	mg/kg	0.08	Not Accredited	21	15	<0.09	0.68	3.53	BH07A 1.1m	54000	0	0.18	<0.09	0.69	0.83	0.81	3.53	0.42	<0.09	0.16	0.11	<0.11
Coronene	mg/kg	0.08	Not Accredited	8	2	<0.09	0.14	0.27	BH07A 1.1m			<0.12	-	-	-	0.27	-	-	<0.11	<0.09	-	
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	21	9	<0.09	0.28	1.41	TP03 0.3m	4000	0	<0.12	<0.09	0.31	0.25	<0.10	0.99	0.11	<0.09	<0.11	<0.09	<0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	Not Accredited	21	8	<0.09	0.26	1.42	TP03 0.3m	510	0	<0.12	<0.09	0.24	0.22	<0.10	0.84	<0.09	<0.09	<0.11	<0.09	<0.11
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	21	10	<0.09	0.47	2.82	TP03 0.3m	44	0	<0.12	<0.09	0.48	0.47	0.19	1.89	0.22	<0.09	<0.11	<0.09	<0.11

Strata Description											MADE GROUND - GRAVEL	MADE GROUND - CLAY	MADE GROUND - SAND	MADE GROUND - SAND	MADE GROUND - CLAY	MADE GROUND - SAND	MADE GROUND - GRAVEL	MADE GROUND - SAND	MADE GROUND - GRAVEL	MADE GROUND - GRAVEL	MADE GROUND - SAND	MADE GROUND - SAND
Report No.:											23052122	23052122	23052167	23052167	23052167	23052167	23052167	23052167	23052167	23052201	23052169	23052169
Client Sample ID.:											TP02	TP02	TP03	TP04	TP04	TP05	TP05	TP05	TP05A	TP05	TP06	TP06
Sample Type:											ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
Top Depth (m):											0.20	0.75	0.30	0.40	2.20	0.30	1.60	2.10	1.90	0.35	0.90	0.90
Date Sampled:											15-May-2023	15-May-2023	16-May-2023	16-May-2023	16-May-2023	16-May-2023	16-May-2023	16-May-2023	17-May-2023	17-May-2023	17-May-2023	17-May-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances											
Moisture Content at 35 deg	%	0.10	Not Accredited	22	22	6	18.7	37.3	TP04 2.2m			10.10	30.00	10.40	26.00	37.30	6.10	19.20	21.60	17.90	6.20	19.30
Fraction of material above 4mm	%	0.00	Not Accredited	11	11	0	42	100	TP01 0.2m			-	0.00	-	-	0.00	-	0.00	-	-	100.00	-
Fraction Non Crushable Material	%	0.00	Not Accredited	11	11	0	0	0	BH01 2.1m			-	0.00	-	-	0.00	-	0.00	-	-	0.00	-
Sulphur	% m/m	0.01	Not Accredited	7	7	0.062	0.333	1.42	BH07A 1.1m			-	-	-	0.15	-	0.22	0.10	-	0.06	-	-
Organic matter	% m/m	0.04	Not Accredited	21	21	0.25	3.38	9.45	TP06 0.35m			3.33	4.43	1.93	7.93	4.04	1.75	1.84	3.04	-	9.45	1.51
Total Organic Carbon	% m/m	0.02	Not Accredited	11	11	0.15	2.15	5.48	TP06 0.35m			-	2.57	-	-	2.34	-	1.07	-	-	5.48	-
Weight of Dry Material	kg	0.00	Not Accredited	11	11	0.09	0.1	0.09	BH01 2.1m			-	0.09	-	-	0.09	-	0.09	-	-	0.09	-
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	11	11	0.095	0.1	0.154	BH01 2.1m			-	0.13	-	-	0.15	-	0.11	-	-	0.10	-
Leachant Volume	l	0.00	Not Accredited	11	11	0.836	0.9	0.895	RTPO18 0.45m			-	0.86	-	-	0.84	-	0.88	-	-	0.89	-
Sulphate as SO4	mg/kg	30.00	Not Accredited	22	22	85	1945.8	16000	BH07A 1.1m			503.00	385.00	3080.00	1070.00	2370.00	4670.00	299.00	3570.00	739.00	799.00	85.00
Chloride	mg/kg	10.00	Not Accredited	14	14	20	301.9	1680	TP04 2.2m			-	30.00	-	352.00	1680.00	43.00	109.00	-	275.00	150.00	-
Fluoride	mg/kg	1.00	Not Accredited	11	11	2	6.2	17	RTPO2 0.35m			-	6.00	-	-	7.00	-	3.00	-	-	4.00	-
Lead	mg/kg	0.01	Not Accredited	21	11	<0.01	48.83	442.8	TP02 0.2m	2300	0	442.80	<0.01	86.70	109.70	<0.01	60.70	<0.01	69.20	-	<0.01	20.90
Mercury	mg/kg	0.00	Not Accredited	21	3	<0.0003	0.2383	<0.5	BH02A 0.1m	1100	0	<0.5	<0.0003	<0.5	<0.5	0.00	<0.5	<0.0003	<0.5	-	0.00	<0.5
Molybdenum	mg/kg	0.01	Not Accredited	11	11	0.09	0.28	0.49	BH01 2.1m	17000	0	-	0.23	-	-	0.43	-	0.40	-	-	0.11	-
Nickel	mg/kg	0.01	Not Accredited	21	17	<0.01	12.03	51.6	TP04 0.4m	980	0	19.40	0.06	20.00	51.60	0.02	12.90	0.02	23.50	-	0.02	34.90
Antimony	mg/kg	0.01	Not Accredited	11	10	<0.01	0.05	0.17	BH07A 1.1m	7500	0	-	0.03	-	-	0.02	-	0.04	-	-	0.08	-
Arsenic	mg/kg	0.01	Not Accredited	21	21	0.03	5.54	26.7	TP06 0.9m	640	0	13.00	0.07	8.40	15.70	0.16	4.90	0.03	9.60	-	0.07	26.70
Barium	mg/kg	0.10	Not Accredited	11	5	<0.1	0.3	1.1	BH07 0.3m	22000	0	-	<0.1	-	-	<0.1	-	0.20	-	-	<0.1	-
Cadmium	mg/kg	0.00	Not Accredited	21	10	<0.0002	0.1573	0.6	TP04 0.4m	190	0	0.40	<0.0002	0.30	0.60	<0.0002	0.30	<0.0002	0.40	-	<0.0002	<0.2
Chromium	mg/kg	0.01	Not Accredited	21	11	<0.01	13.63	61.8	BH02A 0.65m	8600	0	19.20	<0.01	23.70	26.50	<0.01	15.10	<0.01	16.90	-	0.32	47.00
Copper	mg/kg	0.01	Not Accredited	21	17	<0.01	19.62	144.3	TP04 0.4m	68000	0	43.50	0.11	37.70	144.30	<0.01	20.20	<0.01	51.10	-	0.39	14.60
Zinc	mg/kg	0.02	Not Accredited	21	13	<0.02	107.54	1010	TP02 0.2m	730000	0	1010.00	<0.02	119.10	314.80	<0.02	92.00	<0.02	123.80	-	<0.02	85.30
Selenium	mg/kg	0.01	Not Accredited	11	4	<0.01	0.02	0.06	TP01 0.2m	12000	0	-	<0.01	-	-	<0.01	-	<0.01	-	-	<0.01	-
Total dissolved solids	mg/kg	700.00	Not Accredited	11	10	<700	3978.2	15700	BH07A 1.1m	-	-	-	2000.00	-	-	8780.00	-	1590.00	-	-	3280.00	-
Phenol Index	mg/kg	0.50	Not Accredited	21	0	<0.5	0.6	<0.7	BH02A 1.6m	1500	0	<0.6	<0.5	<0.6	<0.7	<0.5	<0.5	<0.5	<0.6	-	<0.5	<0.6
TOC (filtered)	mg/kg	2.00	Not Accredited	11	11	17.6	71.4	183	TP02 0.75m	-	-	-	183.00	-	-	145.00	-	43.90	-	-	107.00	-
Nitrate as NO3	mg/kg	2.00	Not Accredited	7	3	<4	7.6	23.2	BH07A 1.1m	-	-	-	-	<4.0	-	-	6.70	<4.0	-	<4.0	-	-
Ethylbenzene	mg/kg	0.01	Not Accredited	21	0	<0.011	7.48	<14	TP01 0.6m	13000	0	<11	<0.014	<11	<14	<0.016	<11	<0.012	<13	-	<0.011	<12
Toluene	mg/kg	0.01	Not Accredited	21	0	<0.011	7.48	<14	TP01 0.6m	110000	0	<11	<0.014	<11	<14	<0.016	<11	<0.012	<13	-	<0.011	<12
Anthracene	mg/kg	0.08	Not Accredited	21	9	<0.09	0.16	0.46	BH07A 1.1m	540000	0	0.12	<0.11	0.27	<0.11	<0.13	0.09	<0.10	0.31	-	0.31	<0.10
Pyrene	mg/kg	0.08	Not Accredited	21	15	<0.09	0.68	3.53	BH07A 1.1m	54000	0	0.43	0.12	2.57	<0.11	<0.13	0.36	<0.10	1.99	-	1.37	0.12
Coronene	mg/kg	0.08	Not Accredited	8	2	<0.09	0.14	0.27	BH07A 1.1m	-	-	-	<0.11	-	-	<0.13	-	<0.10	-	-	0.17	-
Benzo [g,h,i] perylene	mg/kg	0.08	Not Accredited	21	9	<0.09	0.28	1.41	TP03 0.3m	4000	0	0.36	<0.11	1.41	<0.11	<0.13	0.20	<0.10	0.50	-	0.61	<0.10
Indeno[1,2,3-cd]pyrene	mg/kg	0.08	Not Accredited	21	8	<0.09	0.26	1.42	TP03 0.3m	510	0	0.20	<0.11	1.42	<0.11	<0.13	0.18	<0.10	0.48	-	0.50	<0.10
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	21	10	<0.09	0.47	2.82	TP03 0.3m	44	0	0.33	<0.11	2.82	<0.11	<0.13	0.27	<0.10	1.08	-	0.95	<0.10
Fluoranthene	mg/kg	0.08	Not Accredited	21	15	<0.09	0.74	4.05	BH07A 1.1m	23000	0	0.44	0.13	2.52	<0.11	0.15	0.40	<0.10	2.16	-	1.49	0.13
Benzo(k)fluoranthene	mg/kg	0.08	Not Accredited	21	8	<0.09	0.25	1.29	TP03 0.3m	1200	0	0.16	<0.11	1.29	<0.11	<0.13	0.15	<0.10	0.58	-	0.45	<0.10
Acenaphthylene	mg/kg	0.08	Not Accredited	21	1	<0.09	0.1	<0.13	TP04 2.2m	97000	0	<0.09	<0.11	0.11	<0.11	<0.13	<0.09	<0.10	<0.10	-	<0.09	<0.10
Chrysene	mg/kg	0.08	Not Accredited	21	11	<0.09	0.39	2.06	TP03 0.3m	350	0	0.28	<0.11	2.06	<0.11	<0.13	0.29	<0.10	0.96	-	0.81	<0.10
PCB-118 2,3',4,4',5 - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
PCB-138 2,2',3,4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
Benzo(a)pyrene	mg/kg	0.08	Not Accredited	21	10	<0.09	0.41	2.36	TP03 0.3m	35	0	0.29	<0.11	2.36	<0.11	<0.13	0.26	<0.10	0.96	-	0.85	<0.10
Dibenz-a-h-anthracene	mg/kg	0.08	Not Accredited	21	4	<0.09	0.12	0.33	TP03 0.3m	3.6	0	<0.09	<0.11	0.33	<0.11	<0.13	<0.09	<0.10	0.12	-	0.13	<0.10
Benzo(a)anthracene	mg/kg	0.08	Not Accredited	21	10	<0.09	0.36	1.82	TP03 0.3m	170	0	0.21	<0.11	1.82	<0.11	<0.13	0.15	<0.10	1.04	-	0.69	<0.10
PCB-28 2,4,4' - Trichlororbiphenyl	mg/kg	0.01	Not Accredited	8	0	<0.005	0.007	<0.008	BH01 2.1m	-	-	-	<0.007	-	-	<0.008	-	<0.006	-	-	<0.005	-
Benzene	mg/kg	0.01	Not Accredited	21	0	<0.011	7.48	<14	TP01 0.6m	47	0	<11	<0.014	<11	<14	<0.016	<11	<0.012	<13	-	<0.011	<12
Boron	mg/kg	0.50	Not Accredited	21	20	<0.5	4.4	14.2	TP04 2.2m	240000	0	2.80	11.30	0.60	4.70	14.20	<0.5	1.40	1.40	-	4.00	5.80
Acenaphthene	mg/kg	0.08	Not Accredited	21	0	<0.09	0.1	<0.13	TP04 2.2m	97000	0	<0.09	<0.11	<0.09	<0.11	<0.13	<0.09	<0.10	<0.10	-	<0.09	&

Strata Description												RIVER TERRACE DEPOSITS - CLAY	RIVER TERRACE DEPOSITS - GRAVEL	RIVER TERRACE DEPOSITS - GRAVEL
Report No.:												23060477	23060477	23052121
Client Sample ID:												BH01	BH01	BH02A
Sample Type:												ES	ES	ES
Top Depth (m):												16.20	16.70	16.50
Date Sampled:												19-May-2023	19-May-2023	11-May-2023
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 2.5% SOM Commercial	Number of Exceedances			
Moisture Content at 35 deg	%	0.10	Not Accredited	3	3	11.6	22.1	27.7	BH01 16.2m			27.70	27.00	11.60
Fraction of material above 4mm	%	0.00	Not Accredited	2	2	100	100	100	BH01 16.2m			100.00	-	100.00
Fraction Non Crushable Material	%	0.00	Not Accredited	2	2	0	0	0	BH01 16.2m			0.00	-	0.00
Sulphur	% m/m	0.01	Not Accredited	3	3	0.048	0.582	0.968	BH01 16.2m			0.97	0.73	0.05
Organic matter	% m/m	0.04	Not Accredited	2	2	0.32	2.63	4.94	BH01 16.2m			4.94	-	0.32
Total Organic Carbon	% m/m	0.02	Not Accredited	2	2	0.18	1.53	2.87	BH01 16.2m			2.87	-	0.18
Weight of Dry Material	kg	0.00	Not Accredited	2	2	0.09	0.1	0.09	BH01 16.2m			0.09	-	0.09
Weight of Sample Leached (Kg)	kg	0.00	Not Accredited	2	2	0.097	0.1	0.099	BH02A 16.5m			0.10	-	0.10
Leachant Volume	l	0.00	Not Accredited	2	2	0.891	0.9	0.893	BH01 16.2m			0.89	-	0.89
Sulphate as SO4	mg/kg	30.00	Not Accredited	3	3	90	1870	5320	BH01 16.7m			200.00	5320.00	90.00
Chloride	mg/kg	10.00	Not Accredited	3	3	150	1103.3	3000	BH01 16.7m			160.00	3000.00	150.00
Fluoride	mg/kg	1.00	Not Accredited	2	0	<1	1	<1	N/A			<1	-	<1
Lead	mg/kg	0.01	Not Accredited	2	0	<0.01	0.01	<0.01	N/A	2300	0	<0.01	-	<0.01
Mercury	mg/kg	0.00	Not Accredited	2	0	<0.0003	0.0003	<0.0003	N/A	1100	0	<0.0003	-	<0.0003
Molybdenum	mg/kg	0.01	Not Accredited	2	1	<0.01	0.02	0.03	BH01 16.2m	17000	0	0.03	-	<0.01
Nickel	mg/kg	0.01	Not Accredited	2	0	<0.01	0.01	<0.01	N/A	980	0	<0.01	-	<0.01
Antimony	mg/kg	0.01	Not Accredited	2	0	<0.01	0.01	<0.01	N/A	7500	0	<0.01	-	<0.01
Arsenic	mg/kg	0.01	Not Accredited	2	2	0.05	0.05	0.05	BH01 16.2m	640	0	0.05	-	0.05
Barium	mg/kg	0.10	Not Accredited	2	1	<0.1	0.2	0.3	BH01 16.2m	22000	0	0.30	-	<0.1
Cadmium	mg/kg	0.00	Not Accredited	2	0	<0.0002	0.0002	<0.0002	N/A	190	0	<0.0002	-	<0.0002
Chromium	mg/kg	0.01	Not Accredited	2	0	<0.01	0.01	<0.01	N/A	8600	0	<0.01	-	<0.01
Copper	mg/kg	0.01	Not Accredited	2	1	<0.01	0.02	0.02	BH01 16.2m	68000	0	0.02	-	<0.01
Zinc	mg/kg	0.02	Not Accredited	2	0	<0.02	0.02	<0.02	N/A	730000	0	<0.02	-	<0.02
Selenium	mg/kg	0.01	Not Accredited	2	0	<0.01	0.01	<0.01	N/A	12000	0	<0.01	-	<0.01
Total dissolved solids	mg/kg	700.00	Not Accredited	2	2	930	1015	1100	BH01 16.2m			1100.00	-	930.00
Phenol Index	mg/kg	0.50	Not Accredited	2	0	<0.5	0.5	<0.5	N/A	1500	0	<0.5	-	<0.5
TOC (filtered)	mg/kg	2.00	Not Accredited	2	2	8.4	12.7	16.9	BH01 16.2m			16.90	-	8.40
Nitrate as NO3	mg/kg	2.00	Not Accredited	3	0	<4	4	<4	N/A			<4.0	<4.0	<4.0
Ethylbenzene	mg/kg	0.01	Not Accredited	2	0	<0.011	0.01	<0.014	BH01 16.2m	13000	0	<0.014	-	<0.011
Toluene	mg/kg	0.01	Not Accredited	2	0	<0.011	0.01	<0.014	BH01 16.2m	110000	0	<0.014	-	<0.011
Anthracene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	540000	0	<0.11	-	<0.09
Pyrene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	54000	0	<0.11	-	<0.09
Coronene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m			<0.11	-	<0.09
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	4000	0	<0.11	-	<0.09
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	510	0	<0.11	-	<0.09
Benzo(b)fluoranthene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	44	0	<0.11	-	<0.09
Fluoranthene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	23000	0	<0.11	-	<0.09
Benzo(k)fluoranthene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	1200	0	<0.11	-	<0.09
Acenaphthylene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	97000	0	<0.11	-	<0.09
Chrysene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	350	0	<0.11	-	<0.09
PCB-118 2,3',4,4',5 - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
Benzo(a)pyrene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	35	0	<0.11	-	<0.09
Dibenz-a-h-anthracene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	3.6	0	<0.11	-	<0.09
Benzo(a)anthracene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	170	0	<0.11	-	<0.09
PCB-28 2,4,4' - Trichlorororbiphenyl	mg/kg	0.01	Not Accredited	2	0	<0.006	0.007	<0.007	BH01 16.2m			<0.007	-	<0.006
Benzene	mg/kg	0.01	Not Accredited	2	0	<0.011	0.01	<0.014	BH01 16.2m	47	0	<0.014	-	<0.011
Boron	mg/kg	0.50	Not Accredited	2	2	0.7	4.3	7.9	BH01 16.2m	240000	0	7.90	-	0.70
Acenaphthene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	97000	0	<0.11	-	<0.09
Phenanthrene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	22000	0	<0.11	-	<0.09
Fluorene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	68000	0	<0.11	-	<0.09
Naphthalene	mg/kg	0.08	Not Accredited	2	0	<0.09	0.1	<0.11	BH01 16.2m	460	0	<0.11	-	<0.09
O-Xylene	mg/kg	0.01	Not Accredited	2	0	<0.011	0.01	<0.014	BH01 16.2m	15000	0	<0.014	-	<0.011
m,p xylenes	mg/kg	0.02	Not Accredited	2	0	<0.023	0.03	<0.028	BH01 16.2m	14000	0	<0.028	-	<0.023
Total BTEX	mg/kg	0.06	Not Accredited	2	0	<0.068	0.08	<0.083	BH01 16.2m			<0.083	-	<0.068
Aromatics >C7-8	mg/kg	0.01	Not Accredited	2	0	<0.011	0.01	<0.014	BH01 16.2m	110000	0	<0.014	-	<0.011
Aromatics >C8-10	mg/kg	0.04	Not Accredited	2	0	<0.045	0.05	<0.056	BH01 16.2m	8100	0	<0.056	-	<0.045
Aromatics >C10-12	mg/kg	4.00	Not Accredited	2	2	6.67	8.7	10.8	BH01 16.2m	28000	0	10.80	-	6.67
Aromatics >C12-16	mg/kg	4.00	Not Accredited	2	2	13.2	15.4	17.6	BH02A 16.5m	37000	0	13.20	-	17.60
Aromatics >C16-21	mg/kg	4.00	Not Accredited	2	2	11.2	16	20.7	BH02A 16.5m	28000	0	11.20	-	20.70
Aromatics >C21-35	mg/kg	10.00	Not Accredited	2	2	32.3	33.6	34.9	BH01 16.2m	28000	0	34.90	-	32.30
Aromatics >C35-44	mg/kg	6.00	Not Accredited	2	2	17.7	29.5	41.3	BH01 16.2m	28000	0	41.30	-	17.70
GRO >C5-10	mg/kg	0.20	Not Accredited	2	0	<0.226	0.3	<0.277	BH01 16.2m			<0.277	-	<0.226
Aliphatics >C10-40	mg/kg	20.00	Not Accredited	2	1	<22.6	34.5	46.3	BH01 16.2m			46.30	-	<22.6
Aliphatics >C5-6	mg/kg	0.20</												

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Strata												CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK	CHALK
Report No.:												F223717-REP-002		F223717-REP-002		F223717-REP-002		F223717-REP-002	
Client Sample ID.:												MRC1		MRC1		MRC2		MRC3	
Sample Type:												ES		ES		ES		ES	
Top Depth (m):												18.01		24.83		11.10		18.90	
Date Sampled:												15-Mar-2023		16-Mar-2023		17-Mar-2023		17-Mar-2023	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Number of Analyses	Number of Analyses above MDL	Minimum	Average	Maximum	Maximum Sample Reference	Criteria 1% SOM Commercial	Number of Exceedances								
Asbestos (Presence of)	---	0.00	UKAS	8	0	0	0	<0	N/A	Not-detected	0	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos Analysts Comments	---	0.00	UKAS	8	0	0	0		N/A			na	na	na	na	na	na	na	na
Organic matter	% m/m	0.04	UKAS 1252	8	8	0.1	0.16	0.2	N/A			0.20	0.10	0.20	0.20	0.10	0.10	0.20	0.20
Anthracene	mg/kg	0.08	UKAS 1252	8	0	<0.03	0.03	<0.03	N/A	520000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	54000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo (g,h,i) perylene	mg/kg	0.08	Not Accredited	8	0	<0.03	0.03	<0.03	N/A	3900	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-cd)pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	0.03	N/A	500	0	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	44	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	23000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	1200	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	mg/kg	0.08	UKAS 1252	8	0	<0.03	0.03	<0.03	N/A	83000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	350	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	35	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenz-a-h-anthracene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	3.5	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	170	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Cyanide	mg/kg	0.50	UKAS 1252 & MCERTs	8	0	<0.1	0.1	<0.1	N/A			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Lead	mg/kg	0.01	Not Accredited	8	2	<0.05	0.06	0.12	N/A	2300	0	< 0.05	< 0.05	< 0.05	0.12	< 0.05	0.07	< 0.05	< 0.05
Mercury	mg/kg	0.00	Not Accredited	8	0	<0.002	0.002	<0.002	N/A	1100	0	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Nickel	mg/kg	0.01	Not Accredited	8	0	<0.1	0.1	<0.1	N/A	980	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Arsenic	mg/kg	0.01	Not Accredited	8	0	<0.01	0.01	<0.01	N/A	640	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Boron	mg/kg	0.50	UKAS 1252 & MCERTs	8	1	<0.2	0.3	0.8	N/A	240000	0	0.20	< 0.2	< 0.2	< 0.2	< 0.2	0.80	< 0.2	< 0.2
Cadmium	mg/kg	0.00	Not Accredited	8	0	<0.02	0.02	<0.02	N/A	190	0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chromium	mg/kg	0.01	Not Accredited	8	0	<0.1	0.1	<0.1	N/A	8600	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Copper	mg/kg	0.01	Not Accredited	8	3	<0.02	0.02	0.03	N/A	68000	0	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.03	< 0.02	< 0.02
Zinc	mg/kg	0.02	Not Accredited	8	4	<0.01	0.02	0.03	N/A	730000	0	< 0.01	< 0.01	< 0.01	0.03	< 0.01	0.03	0.02	0.02
Acenaphthene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	84000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	22000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	mg/kg	0.08	UKAS 1252 & MCERTs	8	0	<0.03	0.03	<0.03	N/A	63000	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Napthalene	mg/kg	0.00	MCERTs	8	0	<0.03	0	<0.03	N/A	190	0	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenol (Monohydric)	mg/kg	0.00	MCERTs	8	4	<0.3	0.02	1.4	N/A	760	0	1.40	0.80	0.50	0.60	< 0.3	< 0.3	< 0.3	< 0.3
Pah,Total	mg/kg	0.00	UKAS	8	0	<0.1	0.1	<0.1	N/A			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EPH >C10-40	mg/kg	0.00	MCERTs	8	0	<10	10	<10	N/A	9700	0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Sulphate as SO4	mg/kg	30.00	Not Accredited	8	5	<100	108.8	130	N/A			< 100	< 100	130.00	110.00	< 100	130.00	100.00	100.00
pH	pH units	1.00	Not Accredited	8	8	6.6	7.4	8.3	N/A			8.20	8.30	6.60	6.60	8.00	8.20	6.60	6.70
Loss on ignition	%	0.00	MCERTs	2	2	0.27	0.3	0.38	N/A			-	-	-	-	-	-	0.27	0.38
Total Organic Carbon	% m/m	0.02	UKAS 1252	8	8	3.1	4.11	5.3	N/A			3.10	5.30	3.60	3.50	5.20	4.90	3.30	4.00
Ethylbenzene	µg/kg	10.00	UKAS 1252 & MCERTs	8	0	<0.01	0	<0.01	N/A	5700000	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	µg/kg	10.00	UKAS 1252 & MCERTs	8	0	<0.01	0	<0.01	N/A	56000000	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	mg/kg	0.00	MCERTs	8	0	<0.01	0	<0.01	N/A	5900	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB, Total Of 7 Congeners	mg/kg	0.04	UKAS 1252 & MCERTs	8	0	<0.01	0.01	<0.01	N/A			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzene	µg/kg	10.00	UKAS 1252 & MCERTs	8	0	<0.01	0	<0.01	N/A	27000	0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pah,Total	mg/kg	0.00	UKAS	8	0	<0.1	0.1	<0.1	N/A			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total BTEX	mg/kg	0.06	UKAS 1252 & MCERTs	8	0	<0.04	0.04	<0.04	N/A			< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
TPH >C10-40	mg/kg	0.00	MCERTs	8	0	<10	10	<10	N/A	9700	0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Number of Samples												Exceedance		Pass	Pass	Pass	Pass	Pass	Pass
												Total Number	0	N/A	N/A	N/A	N/A	N/A	N/A

Lowest TPH fraction of EPH >C10-C40



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