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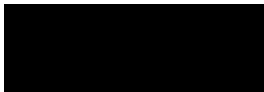
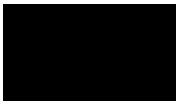
Phase 2 Geo-Environmental Investigation Report

For: Persimmon Homes



Persimmon

Together, we make your home

Job Number:		4070
Report Reference:		4070-02 / A
Issue Status / Revision:	Draft for client review	
Date:	March 2024	
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Previous Revisions and Date:	Original – February 2024 Rev A – Updated Layout	
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1.0 INTRODUCTION

This Phase 2 Geo-Environmental Investigation report has been prepared at the request of Persimmon Homes Ltd. Instructions to proceed were received in December 2023.

This report pertains to a c. 2.7 Ha site located to the west of Hinchley Road, Charlestown, c. 5.0km south west of Oldham Town Centre, at the approximate post code M9 7FG. The National Ordnance Survey Grid Reference for the centre of the site is 387830E, 403130N. The site currently comprises an open field with mounds noted in the west and areas of woodland and dense vegetation in the north. The site is bound by residential properties to the north, Hinchley Road to the east and south and a school with associated playing fields to the west. Access to the site is off Hinchley Road to the south east. An aerial photo of the site is included below:



Figure 1: Drone image of the site dated January 2024 looking south west from off site to the north east. The approximate site boundary is shown in red.

A site location plan is contained in Appendix 2.

Proposed Development

This Phase 2 Geo-Environmental Investigation Report is to be used for submission to the Local Authority as part of a planning application. It is the client's intention to develop the site into a low-rise residential development comprising 101 No. detached, semi-detached and terraced dwellings with associated private gardens, soft landscaping and access roads.

The *Persimmon Homes Viability Layout 2024* is contained in Appendix 2 with an extract below as Figure 2.



Figure 2: Extract of the Permission Homes Layout.

This report should be read in conjunction with the following reports:

- IGE Consulting Phase 1 Geo-Environmental Investigation Report – Hinchley Road, Charlestown (4070-01, February 2024)
- IGE Consulting Coal Mining Risk Assessment – Hinchley Road, Charlestown (4070-03, March 2024)

1.1 Brief

The brief was to carry out an intrusive geo-environmental ground investigation for the site based upon the findings of the IGE Consulting *Phase 1 Geo-Environmental Report (4070-01)* and the proposed development outlined in Section 1.0. The investigation was to include the following tasks:

- a) Undertake / install appropriate exploratory holes and collect representative samples from exploratory holes and arrange appropriate chemical testing in accordance with the latest legal framework, record olfactory and / or visual evidence of contamination during intrusive works and undertake on site in-situ and laboratory geotechnical testing;
- b) Refine conceptual models to accommodate the findings of the ground investigation works in terms of the risk to human health, ground gas, controlled waters and the wider environment;
- c) Identify the risks and evaluate whether a Phase 3 numerical risk assessment and / or a Remedial Strategy, is required.
- d) Undertake an assessment of the ground conditions to provide outline recommendations for the proposed foundations.

A report was to be provided to summarise the findings and recommendations. A coal mining risk assessment has been undertaken as a separate report.

2.0 SCOPE OF INVESTIGATION WORK

This Phase 2 Geo-Environmental Investigation has been designed based on the findings of the IGE Consulting *Phase 1 Geo-Environmental Report (4070-01, February 2024)* and the client's requirements in relation to the proposed development outlined in Section 1.0.

The main ground investigation works were undertaken between the 9th and 12th January 2024 and on the 19th January 2024 and comprised 10 No. dynamic sampling boreholes and 23 No. trial pits undertaken spatially across the site. Subsequent laboratory testing was undertaken between 10th January and 9th February 2024.

As part of the coal mining risk assessment, 4 No. rotary boreholes were undertaken using open-hole techniques between 12th and 20th February 2024.

Drilling of dynamic sampling boreholes was carried out by RP Drilling Ltd. Drilling of rotary boreholes was carried out by DMW Drilling Ltd. Testing of soil samples for environmental purposes was carried out by i2 Analytical and testing of soils for geotechnical laboratory testing was undertaken by The Testing Lab Ltd in accordance with the Environment Agency's MCERTS (Monitoring Certification) quality assurance accreditation scheme. These organisations were appointed directly by IGE Consulting to carry out these contracting works.

The locations of the exploratory holes were topographically surveyed (X-Y-Z axis) with an accuracy of 20mm.

The ground investigation was undertaken in general accordance with:

- BS 5930 (2015) + A1 (2020) Code of Practice for Ground Investigation;
- BS EN ISO 17892 Geotechnical investigation and testing - Laboratory testing of soil;
- BS 10175 (2011) + A2 (2017) Investigation of Potentially Contaminated Sites – Code of Practice; and

- BS EN 1997-2 (2007) Eurocode 7 – Geotechnical Design – Ground Investigation and Testing.

The design of the investigation was carried out in accordance with R&D Technical Report P 5-TR066, LCRM (2023) and BS 8485 (2015) + A1 (2019). Further details pertaining to the ground investigation works are outlined in the following sections.

The limitations of the investigation work and report are included in Appendix 1.

The trial pits and dynamic sample boreholes were undertaken in order to achieve the following:

- to establish the thickness, extent and characteristics of any possible Made Ground and underlying natural superficial deposits, including possible peat deposits in the northern site section, as detailed in the IGE Phase 1 report;
- to undertake in-situ geotechnical testing within these deposits;
- to obtain samples from these deposits for classification and laboratory testing;
- investigate the on-site mounds / stockpiles; and
- to allow for the installation of ground gas and groundwater monitoring wells.

The Phase 1 report identified 'Moss House' in the south of site and the shading in the earlier historical maps suggested marshy ground. Additionally, possible streams or drains were noted running north to south on earlier historical maps. Consequently, the site works were also undertaken to identify if there was any evidence of the former streams or drains and to establish the surface ground conditions, including determining the presence or absence of a shallow groundwater regime on site.

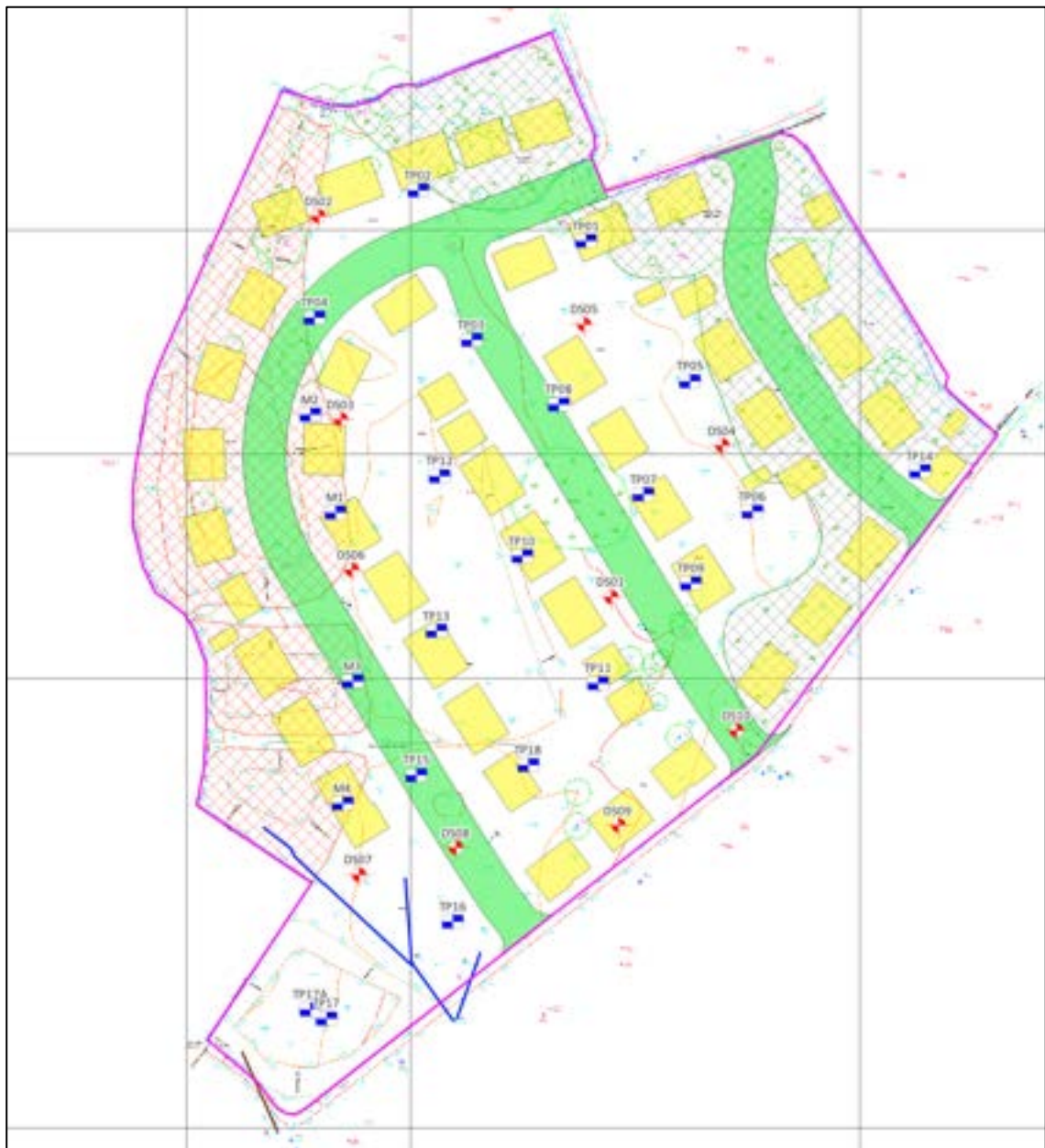


Figure 3: Extract of SI-02 Exploratory Hole Location Plan.

Areas of the site were inaccessible during the site investigation due to woodland and dense vegetation in the north of site (grey hatch on Figure 3 above) and due to the mounds in the west of site (red hatch above).

The ground was noted to be extremely soft in places, particularly in the central site section. The site was noted to sit at a lower elevation compared to the surrounding areas. Therefore, the presence of the raised area in the south and the mounds in the west combined with the lower site elevation creates a 'bowl' effect in the centre of site, potentially contributing to the softer ground conditions.

2.1 Trial Pits

In total, 23 No. trial pits (TP01-TP18 inclusive, TP17A and MP01-MP04 inclusive) were excavated to depths of between 1.10m and 3.50m bgl (99.44m and 96.47m AOD). The trial pits were placed spatially across the site to gain a representative view of the ground conditions and targeting the raised area in the south. The primary aim of the trial pits was to determine the thickness and extent of any Peat deposits on site. 4 No. of the trial pits were undertaken into the mounds in the west of site.

The locations of the trial pits are shown on the exploratory hole location plan in Appendix 2 and trial pit logs and photographs are contained in Appendix 3.

2.2 Dynamic Sampling Boreholes

10 No. dynamic sampling boreholes (DS01 to DS10, inclusive) were constructed spatially across the site to depths of between 4.45m and 5.45m bgl (95.33m to 93.62m AOD).

The locations of the dynamic sampling boreholes are shown on the exploratory hole location plan in Appendix 2 and the dynamic sampling borehole logs are contained in Appendix 4.

2.3 Rotary Boreholes

4 No. rotary boreholes were undertaken utilising open-hole techniques as part of the coal mining risk assessment to depths of between 30.00m and 40.50m bgl (69.37m to 61.15m AOD). The boreholes were completed under a Coal Authority permit using water flush.

The locations of the rotary boreholes are shown on the exploratory hole location plan in Appendix 2 and the rotary borehole logs are contained in Appendix 5.

2.4 Site Testing and Sampling

The following site tests and sampling were carried out:

- a) Retrieval of environmental samples and bulk disturbed samples from trial pits and dynamic sampling sleeves for the purposes of chemical and geotechnical laboratory testing and classification.
- b) Where possible, in-situ and ex-situ shear strength testing was undertaken within fine grained material (clay) from the trial pits and from the dynamic sampling borehole sleeve samples using a 19mm hand shear vane in accordance with BS1377-9.
- c) Standard Penetration Tests (SPTs) were undertaken at regular 1.00m intervals between 1.20m and 5.00m bgl within the dynamic sampling boreholes.

2.5 Laboratory Testing

2.5.1 Chemical Laboratory Testing

25 No. soil samples were obtained during exploratory hole construction and sent to i2 Analytical laboratories for chemical testing. These samples were placed into sterile sealed containers to facilitate MCERTS chemical laboratory testing of potential contaminants. Chemical testing suites are outlined below and are based upon a wide range of possible contaminative sources.

Asbestos ID, sulfate, pH, nitrate, total and free cyanide, arsenic, barium, beryllium, boron, cadmium, chromium, chromium (hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, Total Petroleum Hydrocarbon screen and Speciated Polyaromatic Hydrocarbons.

2.5.2 Geotechnical Laboratory Testing

The following geotechnical laboratory tests were carried out on selected samples obtained from across the site:

- a) Determination of moisture content, liquid limit and plastic limit in accordance with BS1377: Part 2: 1990.

- b) Determination of particle size analysis by dry/wet sieving and sedimentation in accordance with BS1377: Part 2: 1990, clause 9.2.
- c) Determination of concrete aggressivity in line with BRE SD1 (2005).

3.0 FINDINGS

3.1 Ground Conditions

The typical ground surface encountered across the site was as follows:

- **Topsoil** comprising soft, dark brown, slightly gravelly, sandy CLAY with frequent rootlets to a depth of 0.30m bgl (100.32m to 99.15m AOD)
or:
- **‘Typical’ Made Ground** comprising soft, dark brown, slightly gravelly, slightly sandy CLAY with occasional rootlets to a depth of between 0.30m and 2.00m bgl (100.01m to 97.57m AOD).

Underlain by:

- **Peat** comprising dark brown, plastic, pseudofibrous PEAT to a depth of between 0.45m and 1.80m bgl (99.62m to 97.86m AOD), underlain by:
- **Glacial Till** comprising soft to firm, becoming firm to stiff with depth, light grey, slightly gravelly, slightly sandy, silty CLAY to a depth of between 21.00m and 30.00m bgl (80.65m to 69.63m AOD), underlain by:
- **Glacial Till** comprising SAND and GRAVEL (driller’s description) to depths of between at least 30.00m and 40.50m bgl (69.37m to 61.15m AOD) at termination. The base of this stratum was not proven at any location.

‘Typical’ Made Ground

‘Typical’ Made Ground was encountered sporadically across the site and generally comprised sandy CLAY with gravel of red brick, ceramic and concrete.

The typical Made Ground was noted to be deeper in places, as detailed below:

- DS02, DS07 and TP14 to depths of between 1.45m and 2.00m bgl (100.01m to 97.82m AOD), due to the presence of land drains.
- DS08 and TP16 to depths of between 1.30m and 1.50m bgl (97.87m to 97.57m AOD), possibly associated with the surface water drains noted in the area.

'Atypical' Made Ground

Made Ground of a different composition was encountered in DS10 to a depth of 0.50m bgl (100.28m AOD) and comprised greyish brown, very gravelly, clayey, fine to coarse SAND. This atypical Made Ground is believed to be associated with the proximity to the road and therefore a possible increase in level. This material was underlain by the typical Made Ground observed across the majority of the site to 1.00m bgl (99.78m AOD).

Peat Deposits

Peat was encountered in the majority of exploratory holes during the investigation works and was very consistent in terms of composition, comprising dark brown, plastic, pseudofibrous PEAT. The peat excavated in gravel to cobble sized pieces and was noted to remain stable within the pits during excavation. Photographs showing the Peat deposits after excavation and in-situ within TP10 are included below as Figure 4.



Figure 4: Photographs of the typical peat deposits encountered on site (left) and the peat in situ within TP10 (right).

However, in TP12, TP15, DS05 and DS09, the Peat comprised soft, dark brown, slightly gravelly, slightly sandy ORGANIC CLAY with occasional rootlets and gravel to cobble sized pockets of dark brown, spongy, pseudofibrous PEAT to depths of

between 0.60m and 1.10m bgl (99.60m to 98.65m AOD). This material is an organic clay and was present at the depths and thicknesses of the Peat encountered on site.

The Peat ranged in thickness between 0.15m and 1.00m and was noted to be thickest in the central site section. An estimated **12,000m³ of Peat is present on site**. The thickness of the Peat or otherwise is illustrated in Figure 5 below. The varying thicknesses are indicated as follows:

- Red: Peat greater than 0.50m thick;
- Orange: Peat less than or equal to 0.50m thick;
- Yellow: Organic clay;
- Green: deeper Made Ground.

The Peat was generally absent in areas of deeper Made Ground.

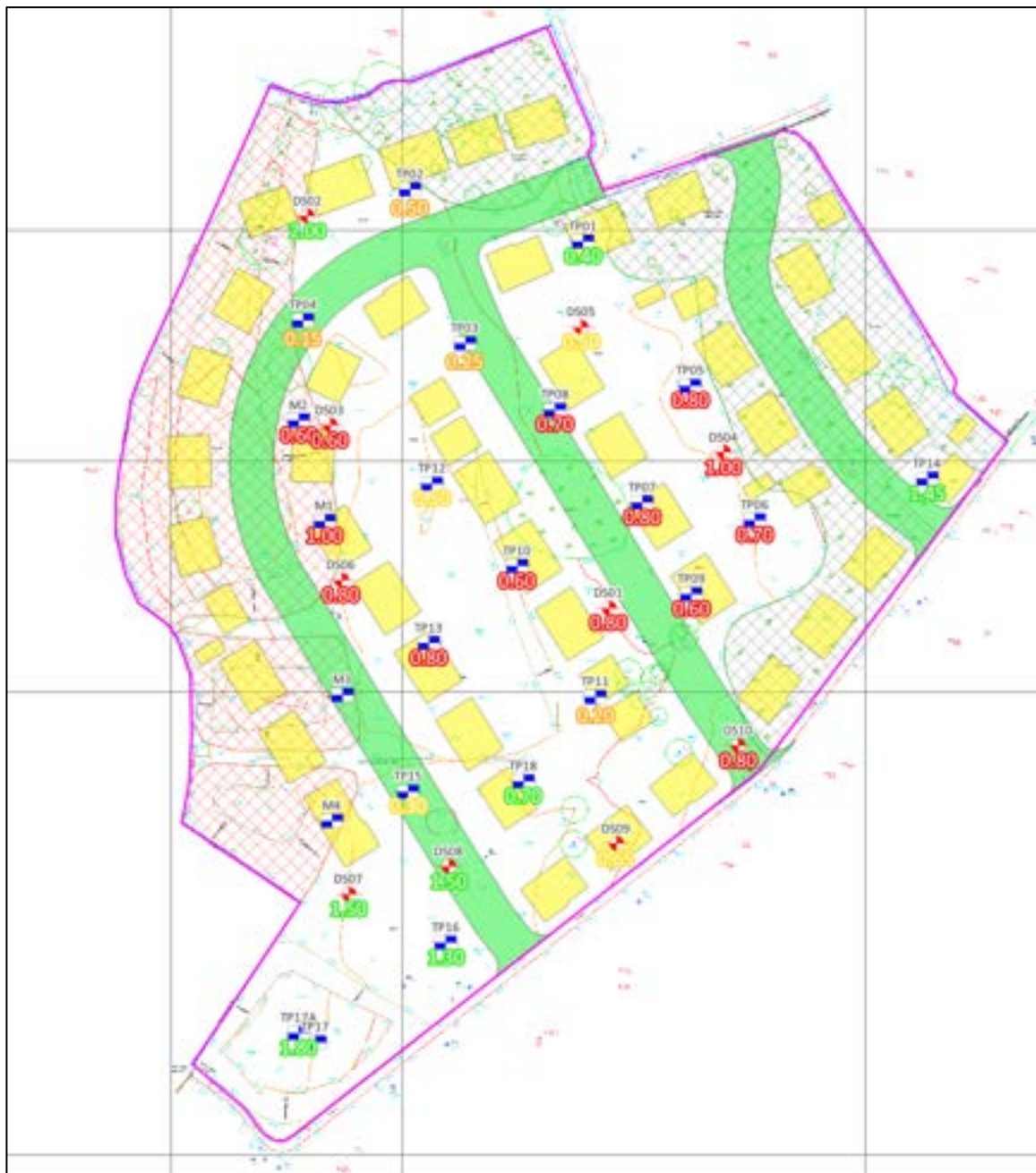


Figure 5: Extract of SI-03 P4 Peat, organic clay and Made Ground thickness plan showing Peat greater than 0.50m in thickness in red, 0.50m or less in orange, organic clay thickness in yellow and deeper Made Ground in green.

Glacial Till

Glacial Till was encountered in all exploratory holes and was consistent in terms of its composition, comprising light grey, slightly gravelly, slightly sandy, silty CLAY. The clay was initially assessed to be soft to firm, increasing to firm to stiff with depth.

During the formation of the rotary boreholes, SAND and GRAVEL was encountered between 15.00 and 30.00m bgl (86.65 and 69.63m AOD) to a maximum depth of 40.50m bgl (61.15m AOD). The base of this formation was not proven.

Glacial Till comprising soft, light grey, sandy SILT was encountered within TP05 and TP09 from depths of between 2.10m and 2.80m bgl (97.49m to 98.43m AOD) to depths of between at least 3.40m and 3.50m bgl (97.13m to 96.79m AOD).

A photo of the spoil from TP09 is included below as Figure 6 showing the silt deposits:



Figure 6: Spoil photo from TP09.

Stockpiles / Mounds and Raised Area

3 No. raised mounds are present in the western site section, the largest of which has a footprint of approximately 3,395m² and a maximum height of 3.27m. A raised area is also present in the far south of site, approximately 1.00m higher than its surroundings. The estimated volume of the mounds / stockpiles and raised area is 7,500m³. A drone photo of the largest mound / stockpile is included below as Figure 7.



Figure 7: Drone photo of the largest mound / stockpile in the west of site.

4 No. trial pits were excavated into the side of the 3 No. mounds and 2 No. trial pits were undertaken in the raised area. The mounds generally consisted of two separate **Made Ground** strata comprising dark greyish brown, gravelly, clayey, fine to coarse SAND with a low cobble content and soft to firm, dark greyish brown, slightly gravelly, slightly sandy CLAY. The mounds were underlain by the natural deposits found elsewhere on site (Peat and/or Glacial Till). A photograph of the arisings from one of the mound pits is included below as Figure 8:



Figure 8: Photographs of the spoil from MP03.

The raised area consisted of **Made Ground** comprising soft to firm, dark greyish brown, lightly gravelly, slightly sandy CLAY with a high boulder content and moderate cobble content. The raised area contained a higher proportion of very coarse materials (cobbles and boulders) compared to the mounds.

A cross section has been included below as Figure 9 from south west to north east, highlighting the depths of the various strata. The cross section suggests that where Made Ground is present, Peat is generally absent. The cross section also suggests that a topographical low point is present in the south of site, potentially a result of the earthworks associated with the Made Ground present in this area. The deeper Peat in TP16 is likely present as a result of the earthworks undertaken when the Made Ground was placed and therefore is not naturally occurring at that depth. Detailed cross sections are included in Appendix 2.

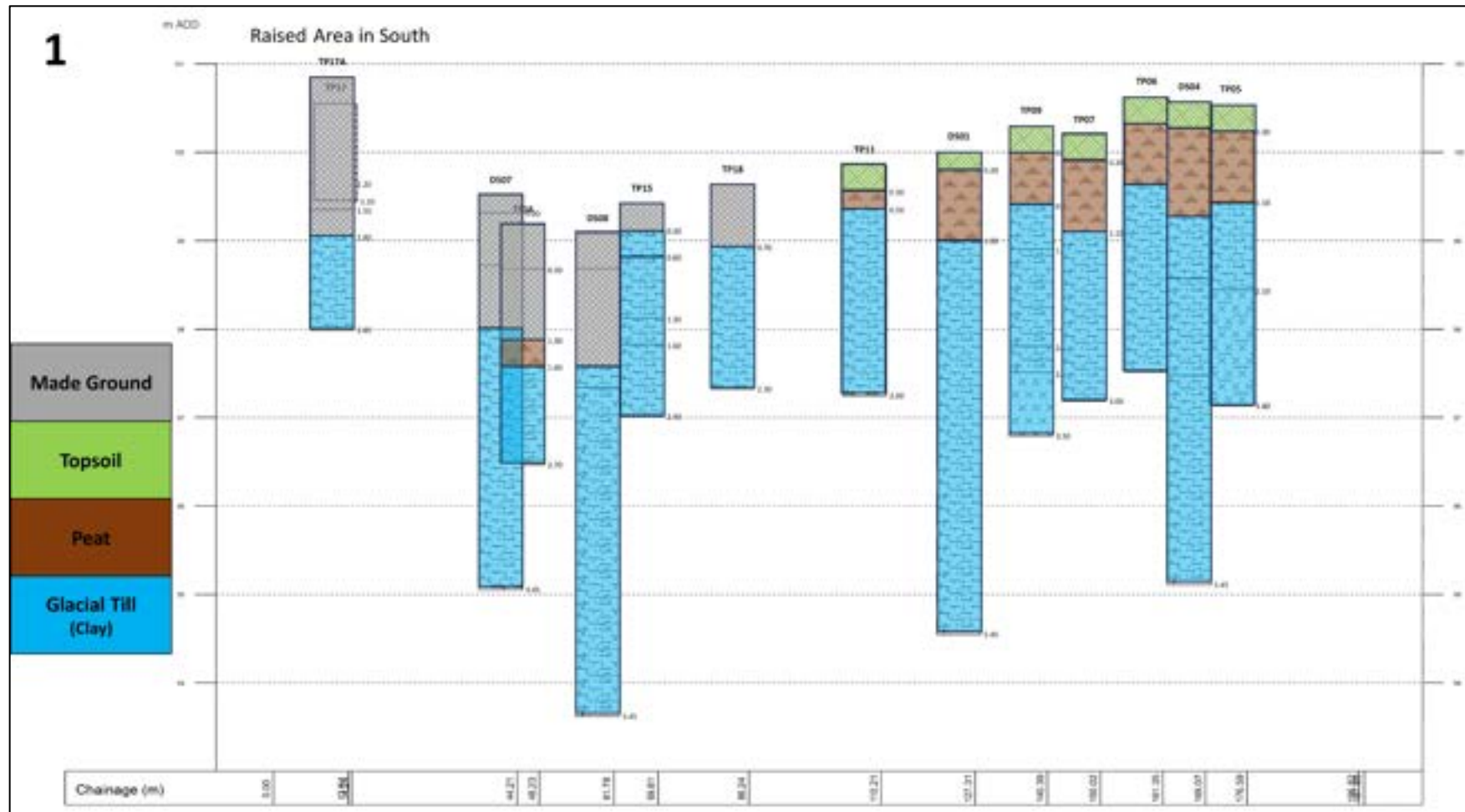


Figure 9: Indicative Cross Section from south west to north east.

3.2 Visual and Olfactory Contamination Findings

During the intrusive exploratory hole investigation works, the soils were examined carefully for both visual and olfactory evidence of contamination. No visual and / or olfactory evidence of contamination was encountered during the ground investigation.

3.3 Water Strikes

Water strikes were only recorded in 3 No. exploratory holes during the site investigation works, all within dynamic sample boreholes and two of which were due to the presence of land drains. The water strikes are summarised in the table below:

Exploratory Hole	Depth	Comments
DS02	1.90	Water present in land drain
DS05	3.00	N/A
DS07	1.40	Water present in land drain

The land drains encountered in DS02 and DS07 were noted to contain a significant volume of water, indicating that they are still operational across the site and may be the reason for the lack of water strikes elsewhere on site.

3.4 Services

2 No. manholes are present on site, relating to surface water drainage as determined by the utility survey undertaken for the site. 2 No. pipes were recorded during the utility survey leaving the manholes and heading into the larger site area but they were not able to trace them further into site.

3.5 Conceptual Ground Model

The findings of the Phase 2 ground investigation works have been used to create a conceptual ground model of the site. The conceptual ground model demonstrates the consistent geological strata encountered across the site:

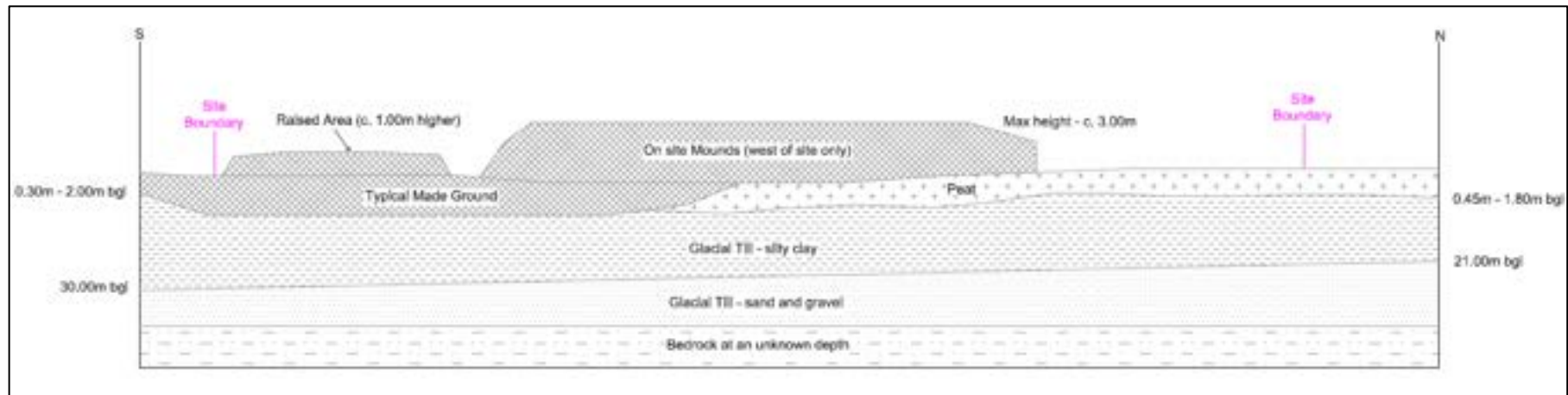


Figure 10: Extract of the conceptual ground model for the site.

The detailed conceptual ground model is included in Appendix 2.

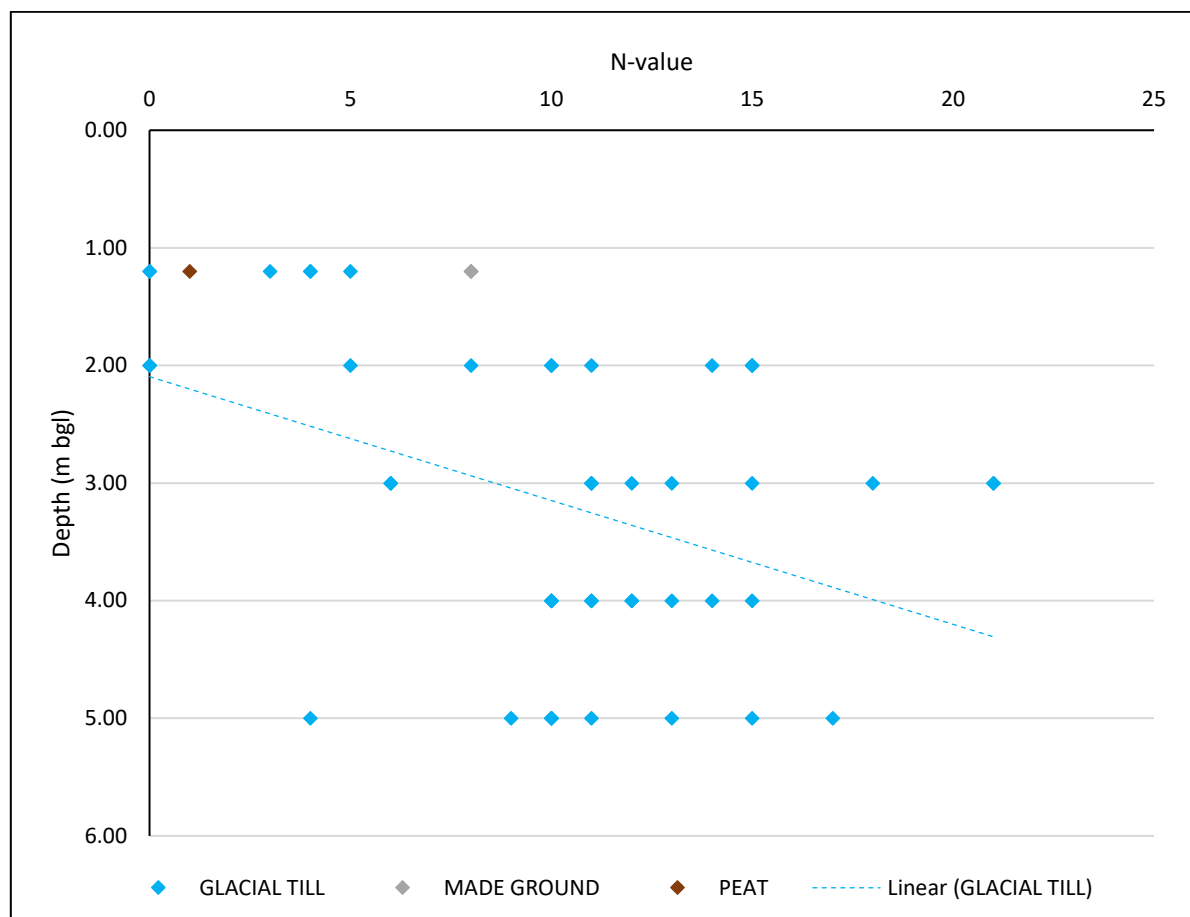
3.6 Geotechnical Site Testing

The results of the geotechnical testing undertaken during the ground investigation are summarised below.

3.6.1 Standard Penetration Tests

Standard penetration tests (SPTs) were undertaken at regular 1.00m intervals during the construction of the dynamic sampling boreholes.

The following scatter graphs show that there was a weak positive correlation between increasing N-value with depth within the Glacial Till deposits.

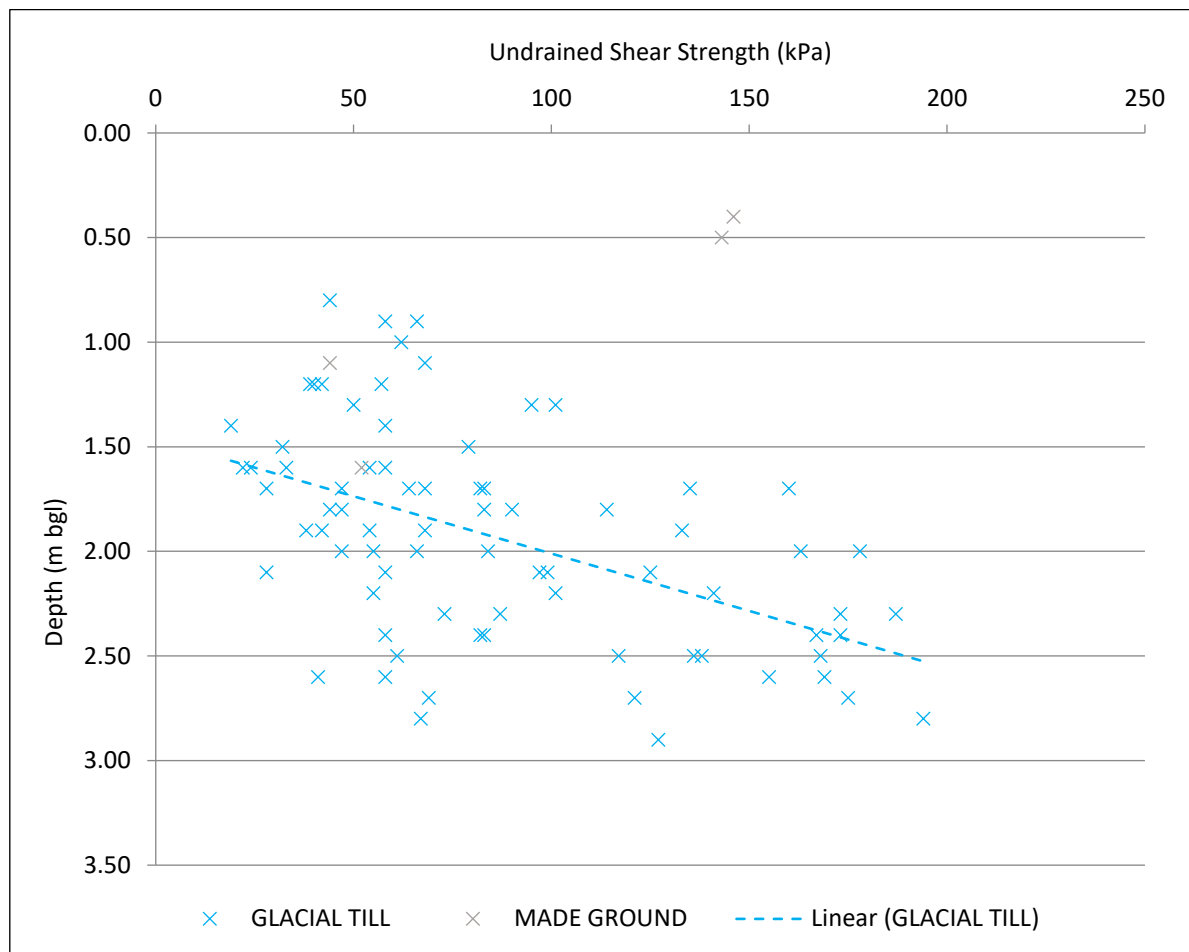


SPT results are included on the dynamic sample borehole logs presented in Appendix 4.

3.6.2 Hand Shear Vane (19mm) Tests

Where possible, both in-situ and ex-situ undrained shear strength testing was undertaken on samples of fine-grained material (clay) within trial pits and dynamic sampling boreholes using a 19mm hand shear vane in accordance with BS 1377-9. It should be noted that undertaking hand shear vane tests below 3.00m bgl within dynamic sample boreholes is considered inappropriate; the increased sampling disturbance at depth can produce unrepresentative results.

The following scatter graphs show that there was a weak positive correlation between increasing shear strength and depth within the Glacial Till deposits.



3.7 Geotechnical Laboratory Testing

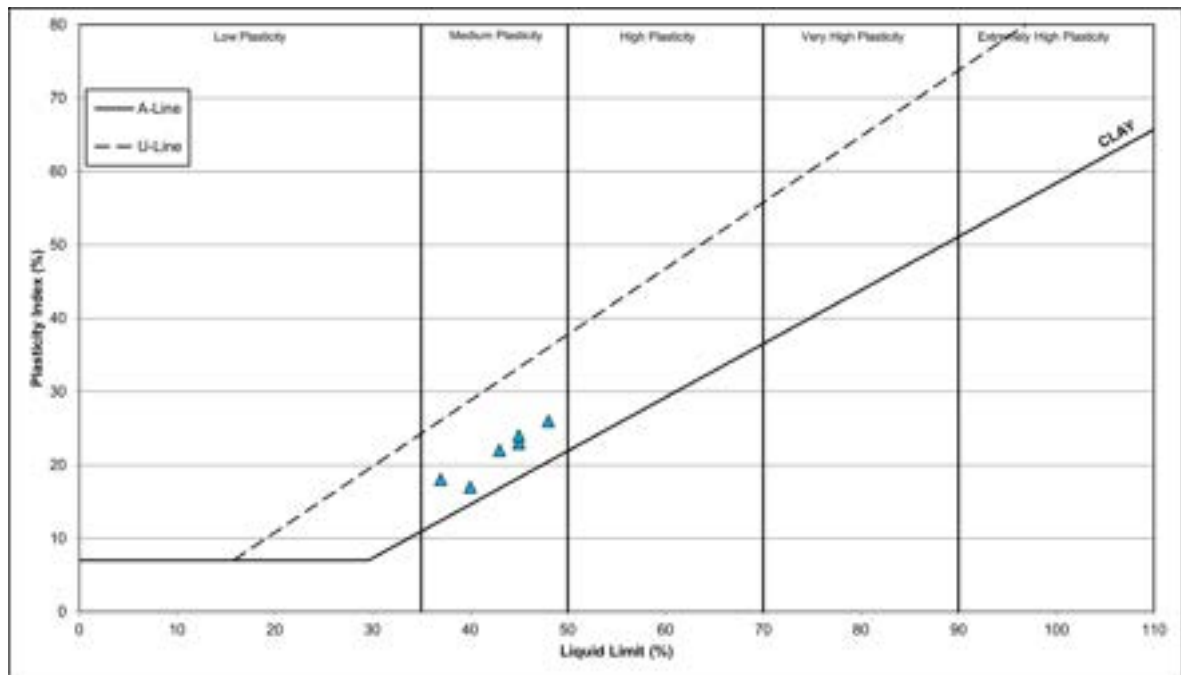
The results of the geotechnical laboratory tests undertaken during the ground investigation are summarised below. The full geotechnical laboratory test results are included in Appendix 6.

3.7.1 Atterberg Limit Tests

Atterberg limit tests were undertaken on 6 No. samples of fine Glacial Till and 3 No. samples of Peat. The results of the Atterberg testing are as follows:

Sample	Sample Depth (m bgl)	Strata	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Passing through 425 micron (%)	Modified Plasticity Index
TP06	0.50	P	442	416	237	179	99	177
TP08	0.60	P	332	302	159	143	100	143
TP13	1.00	P	261	321	184	137	100	137
Average			345	346	193	153	-	-
TP02	1.60	GT	28	43	21	22	100	22
TP03	2.00	GT	22	45	22	23	100	23
TP06	2.30	GT	21	37	19	18	100	18
TP11	1.20	GT	27	45	21	24	100	24
TP12	1.20	GT	30	40	23	17	100	17
TP15	2.10	GT	21	48	22	26	100	26
Average			25	43	21	22	-	-

GT = Glacial Till deposits. P = Peat. Green = low volume change potential. Orange = medium volume change potential. Red = high volume change potential.

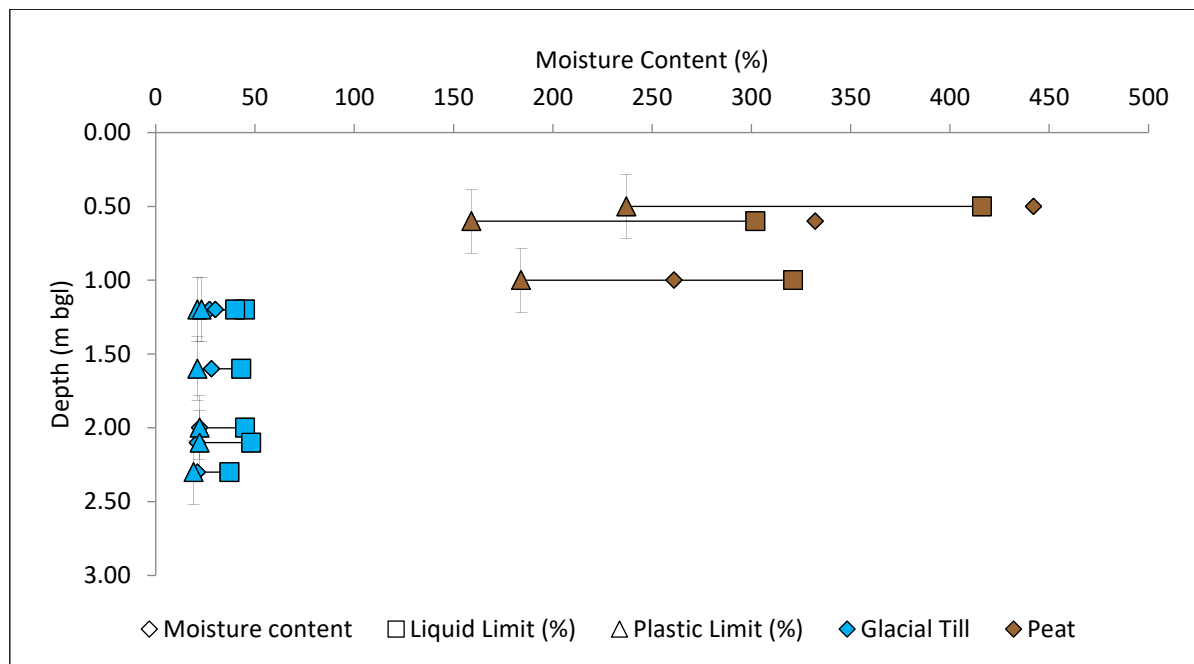


Peat deposits not shown on the above Casagrande chart.

The Atterberg Limit tests indicate that the Glacial Till deposits are of medium plasticity in-line with BS14688 Part 2. The Glacial Till is of low to medium volume change potential in-line with NHBC Chapter 4.2 guidance.

The Atterberg Limit tests indicate that the Peat deposits are of extremely high plasticity in-line with BS14688 Part 2. The Peat is of high volume change potential in-line with NHBC Chapter 4.2 guidance.

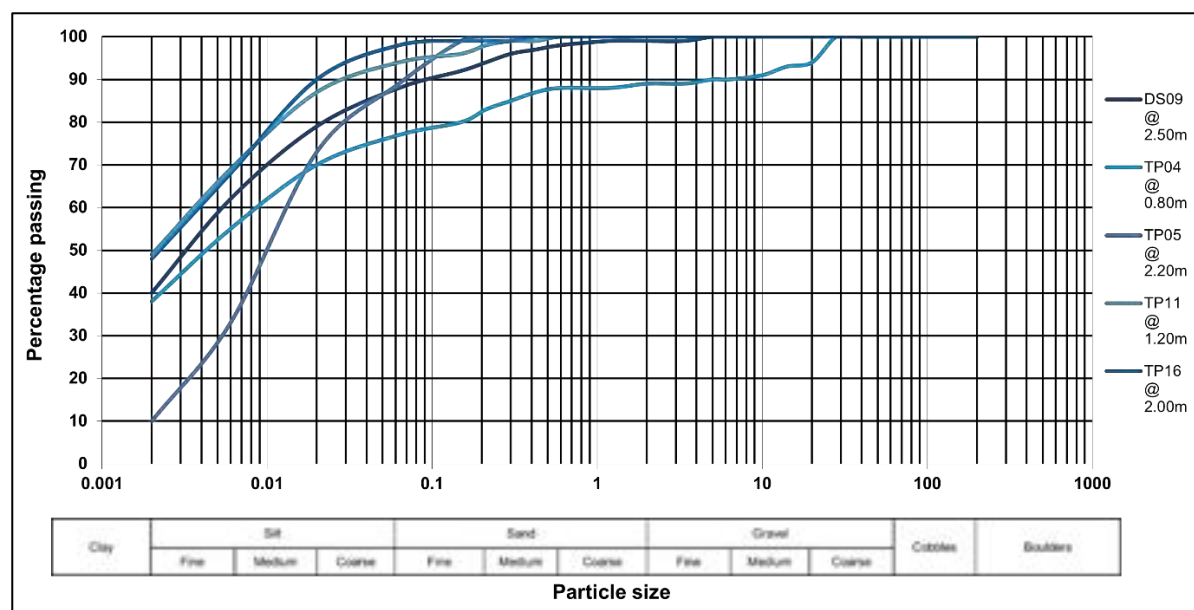
The change in Index Properties with depth between the Glacial Till and the Peat is demonstrated on the below plot:



3.7.2 Particle Size Distribution Tests

Particle size distribution (PSD) tests were undertaken on 5 No. samples of Glacial Till. The results have been summarised below:

Exploratory Hole	Depth (m bgl)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)
DS09	2.50	40	48	11	1
TP04	0.80	38	39	12	11
TP05	2.20	10	79	11	0
TP11	1.20	49	45	6	0
TP16	2.00	48	50	2	0



The PSDs confirm that the fine Glacial Till, though generally noted to behave as a clay, exhibit relatively high silt contents of between 39% and 50%. The results of the sample tested at 2.20m in TP05 confirms that the material is a clayey silt.

3.7.3 BRE Special Digest Suite Testing

In accordance with BRE Special Digest 1: Concrete in Aggressive Ground (2005), the site has been classified as brownfield with mobile groundwater. BRE SD1 testing suites were undertaken on 3 No. samples of Glacial Till, 4 No. samples of Peat and 1 No. sample of Made Ground in order to determine the Design Sulfate (DS) levels and the Aggressive Chemical Environment for Concrete (ACEC), with the findings detailed below:

Sample	Depth (m bgl)	Formation	DS Class	ACEC Class
TP16	0.60	Made Ground	1	AC-2z
TP06	0.50	Peat	2	- *
TP08	0.60	Peat	3	- *
TP10	0.90	Peat	1	AC-3z
DS06	0.70	Peat	2	- *
TP03	2.00	Glacial Till	1	AC-1
TP09	1.60	Glacial Till	1	AC-1
TP15	2.10	Glacial Till	1	AC-1

**Unable to complete assessment as a pH value could not be obtained as the sample absorbed all the water used for extraction.*

3.8 Environmental Laboratory Test Results

The findings of the chemical test results, summarised below, will be assessed against generic assessment criteria (GAC) for the purposes of screening allowable concentrations in comparison to the measured site concentrations. The GAC are defined based on the critical receptors identified at the site, detailed in the Phase 1 Investigation. Receptors are considered in relation to:

- Human health receptors (e.g. end-users, construction workers and the general public) via measured solid concentrations, and;

- Additional receptors which may be relevant e.g. flora/fauna, water, buried concrete.

The GAC adopted for assessment of soils in relation to Human Health are based on published LQM/CIEH S4ULs (2015) for those compounds for which published criteria are available for varying scenarios (residential, commercial, allotment, public open space). In the absence of LQM/CIEH S4ULs (2015) the following GAC defining documents are adopted - CL:AIRE Soil GAC for Human Health Assessment (2010) and Category 4 Screening Levels (C4SLs) (2014).

The primary risk to human receptors from free cyanide in soils is an acute risk (i.e. a single dose could have a lethal affect as opposed to adverse effects from cumulative intake (chronic affect)). There is no current UK guidance available for calculating acute risks from free cyanide, therefore an in-house methodology has been used to derive an acute GAC of 60 mg/kg for all exposure scenarios. The value is given for Free or Easily Liberatable Cyanide but should be used to assess Total Cyanide in the absence of cyanide speciation. In cases where the Total Cyanide exceeds the GAC then analysis for Free or Easily Liberatable Cyanide should be completed.

Appendix 8 contains the full screening tables for 12 No. samples of Topsoil and 'typical' Made Ground deposits, 4 No. samples of 'atypical' Made Ground, 4 No. samples of Peat and 5 No. samples of Glacial Till. Any exceedances of GACs are indicated below. All results have been assessed against the relevant GACs for a **residential with home grown produce** scenario based on a measured organic matter content of **6%**, excluding Glacial Till which was based on a measured organic matter content of **2.5%**.

3.8.1 Topsoil and 'typical' Made Ground

As noted in section 3.1, the majority of Made Ground encountered beneath the ground surface (i.e. not in the mounds or raised areas) generally comprised clay with anthropogenic gravel of red brick and concrete. 4 No. samples of Made Ground and 8 No. samples of Topsoil were sent for chemical testing. The samples were tested for metals and metalloids, polyaromatic hydrocarbons (PAHs) and a total hydrocarbon (TPH) screen. The samples were also tested for the presence of

asbestos. No exceedances with respect to the relevant GACs were recorded for metals & metalloids, PAHs or TPH and no asbestos was detected in any of the samples.

Consequently, the Topsoil and Made Ground are **chemically** suitable for reuse within private gardens within the proposed development. No cobbles or boulders were noted in this material. It is likely that this material will be physically suitable for use in private gardens though visual inspection of the material during the construction process should take place to confirm this.

3.8.2 Peat and Glacial Till

5 No. Glacial Till samples and 4 No. samples of peat were sent for chemical testing. The samples were tested for metals and metalloids, polyaromatic hydrocarbons (PAHs) and a total hydrocarbon (TPH) screen. No exceedances with respect to the relevant GACs were recorded for metals & metalloids, PAHs or TPH.

Consequently, based upon initial testing, the Glacial Till and Peat deposits are likely to be considered chemically suitable for re-use within private gardens within the proposed development. A greater density of testing should be completed to confirm their suitability for re-use.

3.8.3 Made Ground (Mounds, Raised Area and DS10)

2 No. Made Ground samples taken from the mounds in the west of site, 1 No. sample taken from TP17 undertaken in the raised area and 1 No. sample taken from DS10 (atypical Made Ground) were sent for chemical testing. The samples were tested for metals and metalloids, polyaromatic hydrocarbons (PAHs) and a total hydrocarbon (TPH) screen. The samples were also tested for the presence of asbestos. No asbestos was detected in any of the samples. However, numerous GAC exceedances were recorded for PAHs and a single metals exceedance was recorded pertaining to lead. The recorded exceedances are summarised in the table below with the exceedances shown in bold. The units of measurement are mg/kg throughout.

Location	Depth (m bgl)	Benzo(b)fluoranthene	Benzo(a)pyrene	Dibenz(a,h)anthracene	Lead
TP17	0.60	4.0	3.4	0.38	30
DS10	0.20	3.4	3.0	0.35	150
M2		5.5	4.2	0.72	300
M3		3.0	2.2	0.41	140
GAC		3.7	3.0	0.30	200

Consequently, due to the recorded GAC exceedances, the Made Ground (mounds, raised area and DS10) is not considered suitable for re-use within proposed gardens. The locations of the exceedances are circled in red on the extract of the exploratory hole location plan as Figure 11 below.



Figure 11: Locations of the GAC exceedance circled in red.

3.9 Ground Gas Monitoring

The following dynamic sampling boreholes were installed with a standpipe to allow for monitoring of ground gas concentrations and any underlying groundwater which may be present:

Exploratory Hole	Response Zone Stratum	Response Zone Depth m bgl (m AOD)	
		Top of Response Zone	Base of Response Zone
DS01	Glacial Till comprising dark brown, plastic, pseudofibrous PEAT	0.50 (99.50)	1.00 (99.00)
DS02	Made Ground comprising soft, dark brown, slightly gravelly, slightly sandy CLAY	0.70 (99.12)	1.70 (98.12)
DS05	Glacial Till comprising soft, becoming stiff, light grey, slightly gravelly, slightly sandy CLAY	1.00 (99.40)	4.00 (96.40)
DS06	Glacial Till comprising dark brown, plastic, pseudofibrous PEAT	0.50 (99.15)	1.00 (98.62)
DS08	Made Ground comprising soft, dark greyish brown, slightly gravelly, slightly sandy CLAY	0.50 (98.57)	1.50 (97.57)
DS09	Glacial Till comprising soft to firm, becoming stiff, slightly gravelly, slightly sandy, silty CLAY	1.10 (98.71)	4.10 (95.71)

The monitoring wells are constructed of 51mm diameter HDPE plain pipe to the depth of the response zone. The response zones comprise slotted pipe surrounded by a gravel annulus which are sealed above and below with hydrated bentonite seals. The monitoring wells are topped with a lockable cover.

3 No. visits out of a scheduled programme of 6 No. visits have been completed; the results have been summarised below:

Gas Monitoring Well	Steady O ₂ Concentration (%)	Peak CO ₂ Concentration (%)	Peak CH ₄ Concentration (%)	Peak H ₂ S Concentration (ppm)	Atmospheric Pressure (mbar)	Steady Gas Flow (l/hr)
DS01	18.4 – 21.2	0.6 – 1.8	<0.1	<1	978 – 1018	<0.1
DS02	20.2 – 21.1	0.1 – 0.9	<0.1	<1	979 – 1017	<0.1
DS05	19.5 – 20.9	0.9 – 2.1	<0.1	<1	978 – 1017	<0.1
DS06	19.0 – 20.4	1.6 – 2.3	0.2 – 0.9	<1	978 – 1017	<0.1
DS08	13.8 – 16.9	3.2 – 4.6	<0.1	<1	980 – 1019	<0.1
DS09	19.6 – 21.3	0.2 – 3.8	<0.1	<1	977 – 1018	<0.1

Ground gas monitoring was undertaken utilising a GFM 4300 gas analyser.

The response zones for DS05 and DS09 were flooded during all visits undertaken so far (shaded light blue). Consequently, the gas monitoring results for these 2 No. wells are not deemed a reliable representation of the ground gas regime and subsequent

risk on site. The ground gas monitoring results and calibration certificate are included in Appendix 9.

3.10 Groundwater Depth Monitoring

The above wells were also installed for the purposes of groundwater depth monitoring. Groundwater monitoring is ongoing, however, after 3 No. visits the following range of results has been recorded:

Groundwater Monitoring Well	Response Zone (m bgl)	Water Level (m bgl)	Recharge Rate (metres per hour)
DS01	0.50 – 1.00	0.68 – 0.70	0.33 – 0.82
DS02	0.70 – 1.70	Dry	-
DS05	1.00 – 4.00	0.47 – 0.50	0.80 – 1.56
DS06	0.50 – 1.00	0.75 – Dry	0.10
DS08	0.50 – 1.50	Dry	-
DS09	1.10 – 4.10	0.28 – 0.42	2.00 – 4.00

The groundwater monitoring results are included with the gas monitoring results in Appendix 9.

4.0 ENVIRONMENTAL CONCLUSIONS

4.1 Assessment of Environmental Results

Soil sample analyses have assessed the presence of contaminants on a spatial basis, and the concentrations at which they occur across the site.

No GAC exceedances for the '*residential with home grown produce*' land use scenario were recorded for any of the natural samples (Topsoil, Peat and Glacial Till) sent for laboratory chemical testing. A single lead exceedance and numerous PAH exceedances were recorded within the Made Ground within the raised areas, mounds and the atypical material at DS10. No asbestos was detected in any of the samples tested.

No visual or olfactory evidence of contamination was found.

The majority of the existing subsoil and topsoil are anticipated to be suitable for re-use within the proposed development, subject to further testing during earthworks.

4.2 Revised Conceptual Models

The original conceptual models produced in the IGE Consulting *Phase 1 Geo-Environmental Investigation Report* have been revised and updated using the findings from the Geo-Environmental Ground Investigation.

4.2.1 Human Health Risk Assessment

The possible sources of contamination identified within the Phase 1 report include:

- On-site Made Ground (including within mounds); and
- Off-site cotton waste / sponge cloth mill.

The human health receptors identified within the Phase 1 report include:

- End users (residents – '*residential with home grown produce*' land use scenario);

- Construction workers; and
- The general public and adjacent site users.

The human health pathways identified within the Phase 1 report include:

- Ingestion of dust and soil;
- Dermal contact with soil and dust;
- Inhalation (dust);
- Inhalation (vapours);
- Consumption of homegrown produce; and
- Inhalation and oral backgrounds.

Revised Conceptual Model for Human Health Risk Assessment

‘Typical’ Made Ground was encountered sporadically across the site during the investigation works and predominantly comprised a clay with gravel of bricks, concrete and ceramic. These deposits were deeper in places (maximum depth 2.00m bgl), associated with land drains encountered on site and potentially due to proximity to the existing surface water drains in the southern site section. No human health GAC exceedances for the residential with home grown produce land use scenario were recorded in this typical Made Ground.

‘Atypical’ Made Ground strata were encountered in DS10 (in close proximity to Hinchley Road) and in TP17 and TP17A (undertaken atop the raised area in the far south of site). Human health GAC exceedances for the residential with home grown produce land use scenario were recorded pertaining to PAHs for the Made Ground encountered in DS10 and TP17.

Made Ground was also encountered within 4 No. trial pits undertaken into the side of the on-site mounds in the west of site. 2 No. samples were sent for chemical testing which recorded numerous PAH human health GAC exceedances and 1 No. lead exceedance for the *residential with home grown produce land use scenario*.

Consequently, the Made Ground within the on-site mounds and the raised area cannot be discounted as a contaminative source due to the recorded exceedances. The atypical Made Ground stratum encountered in DS10 is considered to be an anomaly due to its close proximity to Hinchley Road and therefore may be present due to the road construction works.

The majority of the site soils (including the typical Made Ground) are considered suitable for re-use within proposed gardens. The atypical Made Ground within the mounds and raised area is not considered suitable for re-use within proposed gardens, but may be suitable for re-use as general fill, subject to further testing and processing to remove oversize materials. The only remedial measures required will be the removal of any Made Ground hotspots, such as DS10, where the material should be removed down to natural soils.

No evidence of any migration of contamination from the off-site cotton waste mill / sponge cloth mill was encountered during the site investigation works and therefore this can be discounted as a contaminative source.

Consequently, assuming that the Made Ground within the mounds and raised area is appropriately managed, the site is considered to pose a **low risk** to human health of site occupants, the general public and construction workers. Any potential increase in risk to construction workers associated with acute interaction with soils can be mitigated with appropriate PPE and health and safety procedures.

4.2.2 Ground Gas Risk Assessment

Potential ground gas sources identified within the Phase 1 report include:

- On-site Made Ground;
- Off-site historical infilled pond;
- Off-site historical landfills;
- Anticipated peat deposits; and
- Mine Gas (Coal Mine Workings).

Potential ground gas pathways identified within the Phase 1 report include:

- Migration through fractures and fissures in bedrock;
- Preferential migration along foundations & service ducts;
- Migration within groundwater;
- Ingress through cavity walls & floors; and
- Inhalation.

Potential ground gas receptors identified within the Phase 1 report include:

- End users, and to a lesser extent, site workers, if confined spaces are present in which gases are able to accumulate; and
- Building and structures.

Revised Conceptual Model for Ground Gas Risk Assessment

'Typical' Made Ground was encountered sporadically across the site and was generally present to less than 1.00m bgl. The typical Made Ground deposits were deeper in places (maximum depth 2.00m bgl), associated with the presence of land drains or the existing surface water drainage. Peat was encountered in the majority of exploratory holes beneath the Topsoil and had a maximum thickness of 1.00m. Peat is considered a high concentration but low generation ground gas source.

Gas Screening Value

The results of the 3 No. ground gas monitoring visits undertaken so far have been assessed in accordance with BS 8485 (2015) + A1 (2019). The characteristic Gas Screening Value (GSV) is calculated by dividing the maximum methane or carbon dioxide concentration by 100 and multiplying by the maximum steady flow rate recorded at the same monitoring point (the instrument detection limit of 0.1 l/hr is utilised when below detection limit flow rates are recorded). If required, the worst case GSV can be calculated by dividing the maximum carbon dioxide and methane concentration by 100 and multiplying by the maximum steady flow rate on site.

Ground gas monitoring has recorded a maximum peak carbon dioxide concentration of 4.6% v/v in DS08 and a maximum methane concentration of 0.9% v/v in DS06. No steady flow rates above detection limits were recorded.

As no steady flow rates were recorded on site, the GSV and the worst case GSV for carbon dioxide at the site can be calculated as $(4.6/100)*0.1 = 0.0046\text{l/hr}$.

The GSV and the worst case GSV for methane can be calculated as $(0.9/100)*0.1 = 0.0009\text{l/hr}$.

Conclusions

Consequently, the ground gas risk on-site is deemed to be **low** and in-line with Characteristic Situation 1 (CS1). Therefore, no ground gas protection measures are deemed necessary in the proposed development, in accordance with BS 8485 (2015) + A1 (2019).

Possible shallow coal workings were identified as a potential ground gas source in the Phase 1 Geo-Environmental Report. IGE Consulting have undertaken a Coal Mining Risk Assessment (Ref: 4070-03) for the site, including an intrusive site investigation, which concluded that the risk posed by mine gas emissions is low and no protection measures are required.

Radon

The Indicative Atlas of Radon in England and Wales produced by the Health Protection Agency and British Geological Survey indicates that the site lies within a lower probability area, less than 1% of homes are above the action level. Consequently, no radon protection measures are necessary in the construction of new dwellings or extensions.

4.2.3 Controlled Waters Risk Assessment

The possible sources of contamination identified within the Phase 1 report include:

- On-site Made Ground (including within on site mounds); and
- Off-site cotton waste / sponge cloth mill.

The controlled water receptors identified within the Phase 1 report are limited to the groundwater contained within the underlying Secondary Undifferentiated Aquifer within the superficial deposits and the Secondary A within the bedrock (unknown depth). No surface water features were noted within 250m of the site.

The controlled waters pathways identified within the Phase 1 report include:

- Vertical migration through coarse Made Ground and coarse soils;
- Lateral migration along low permeability natural soils & pooling at relative low points;
- Vertical migration along future foundations and pooling at base;
- Migration through porous bedrock;
- Lateral migration along historical drainage; and
- Overland flow.

Revised Conceptual Model for Controlled Waters Risk Assessment

The typical Made Ground did not record any visual or olfactory evidence of contamination during the ground investigation, nor any elevated concentrations of potential contaminants during laboratory analysis. Any elevated concentrations of contaminants were recorded within the on-site mounds and raised area, or within hot spots (atypical Made Ground). Additionally, elevated concentrations were associated with low mobility and low solubility contaminants (PAHs and lead). Therefore, any migration into the underlying aquifers is considered unlikely. Finally, the fine Glacial Till deposits encountered on site are anticipated to be of low permeability and therefore will facilitate lateral migration rather than vertical migration into the underlying Secondary A Aquifer. No surface water features are present within 250m of the site so any lateral migration to any water bodies is considered unlikely. Consequently, the risk to controlled waters is deemed **very low** as no contaminative linkages have been identified. No further assessment or remedial measures are considered necessary.

4.2.4 Conceptual Model for Building Materials & Services

In accordance with BRE Special Digest 1: Concrete in Aggressive Ground (2005), the site has been classified as Brownfield with mobile groundwater. The Glacial Till deposits have been classified as Design Sulfate level DS-1 and subsequently within the Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1. Therefore, no special precautions are required regarding the use of concrete within the Glacial Till deposits.

A single Made Ground sample has been classified as Design Sulfate level DS-1 and subsequently ACEC AC-2z. Therefore, special precautions may be required regarding the use of concrete within the Made Ground.

4 No. samples of Peat were tested in accordance with BRE Special Digest 1: Concrete in Aggressive Ground (2005). However, a full classification could only be obtained from the sample taken from TP10 @ 0.90m bgl. The results classified this sample as Design Sulfate level DS-1 and subsequently ACEC AC-3z.

The remaining three samples absorbed all of the water used for extraction during the test undertaken to obtain a value for pH. An incomplete assessment based on total sulfur would characterise the remaining Peat samples as between DS-2 and DS-3. Therefore, special precautions may be required regarding the use of concrete within the Peat.

The chemical laboratory testing results are contained within Appendix 7.

4.3 Outline Remedial Strategy

The natural soils and 'typical' Made Ground recorded no GAC exceedances. Consequently, it is envisaged that no remedial measures will be required for these materials.

Any recorded human health GAC exceedances were associated with the material within the mounds, raised area or hotspots (atypical Made Ground at DS10). The contents of the mounds and raised area should be appropriately managed and only used as general fill (subject to further testing) and must not be used within proposed garden areas.

A full and detailed remediation strategy and materials management plan (MMP) should be produced for the site to ensure that any site soils are appropriately managed and utilised.

5.0 GEOTECHNICAL CONCLUSIONS

5.1 Existing and Proposed Site Levels

IGE Consulting have been provided with a *Viability Layout – Permission Homes*. This is a preliminary drawing and is therefore subject to change.

Based upon a review of site levels, IGE Consulting have estimated that proposed finished floor levels (FFLs) will be up to c 0.5m - 1.2m compared to the existing site with a reduction in the areas of the proposed mounds. Consequently, the below assessment is based on an average site wide level increase as noted above.

5.2 Geotechnical Assessment of Ground Conditions and Implications for Earthworks

The ground conditions on site generally comprise Topsoil or Made Ground generally underlain by Peat, underlain by Glacial Till deposits. This is illustrated in the cross section shown in Figure 12 below. The below cross section also shows an indication of the proposed IGE calculated FFL of plots across the area (red line).

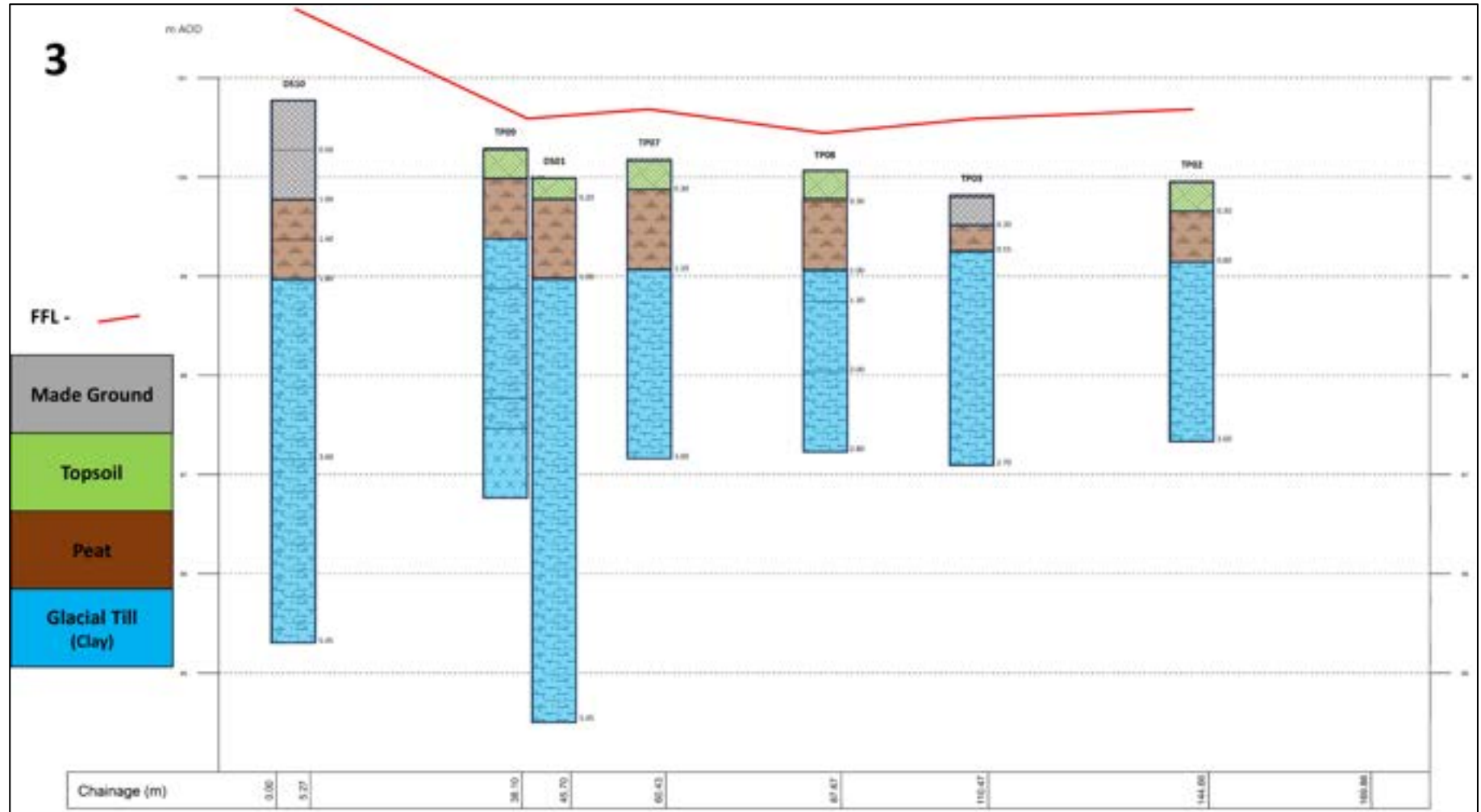


Figure 12: Cross section running south east to north west showing proposed FFLs / Proposed Ground Level (red line).

The principal strata encountered during the intrusive investigation works are identified and outlined in further detail below. The geotechnical properties of each strata are discussed with a focus on their characteristics both in-situ and ex-situ and their subsequent suitability for re-use within site earthworks. A full earthworks programme should be designed and completed for the works once finalised levels have been confirmed.

5.2.1 Topsoil

Topsoil was recorded in all exploratory holes and was consistent in terms of composition. The material generally comprised soft, dark brown, slightly gravelly, sandy clay with frequent rootlets. Based on an average thickness of 0.30m, there is anticipated to be c. 6,000m³ of material suitable for re-use, subject to further chemical testing.

The Topsoil is considered to have minimal engineering properties and should only be re-used within proposed private garden areas.

5.2.2 'Typical' Made Ground

The majority of the typical Made Ground on site comprised clay with limited gravel of bricks, concrete and ceramic. The material is considered to have minimal engineering properties but is chemically suitable for re-use within private gardens.

5.2.3 Made Ground (Mounds)

3 No. mounds are present in the west of site, the largest of which has a maximum height of approximately 3.00m. The mounds and raised area contain an estimated 7,500m³ of material. The Made Ground within the mounds was noted to contain a greater proportion of very coarse material than the typical Made Ground, with a low cobble content of red brick and concrete. Consequently, the material within the mounds may be suitable for re-use on site as general fill to raise site levels, subject to further testing and an earthworks specification. Based on chemical testing, the material is not suitable for re-use within proposed private gardens due to human health GAC exceedances.

A raised area is present in the far south of site. TP17 and TP17A were undertaken in this area and encountered numerous concrete obstructions. Therefore, the material would require processing prior to re-use on site as a general fill.

5.2.4 Peat

Peat was encountered in the majority of exploratory holes on site and generally comprised dark brown, plastic, pseudofibrous peat. The Peat ranged in thickness between 0.15m and 1.00m bgl and was encountered directly beneath the Topsoil or Made Ground. An estimated 12,000m³ of Peat is present on site. 3 No. Atterberg tests were undertaken on samples of Peat, which indicated that the Peat deposits are clays of extremely high plasticity and high volume change potential. The Peat is considered to have minimal engineering properties.

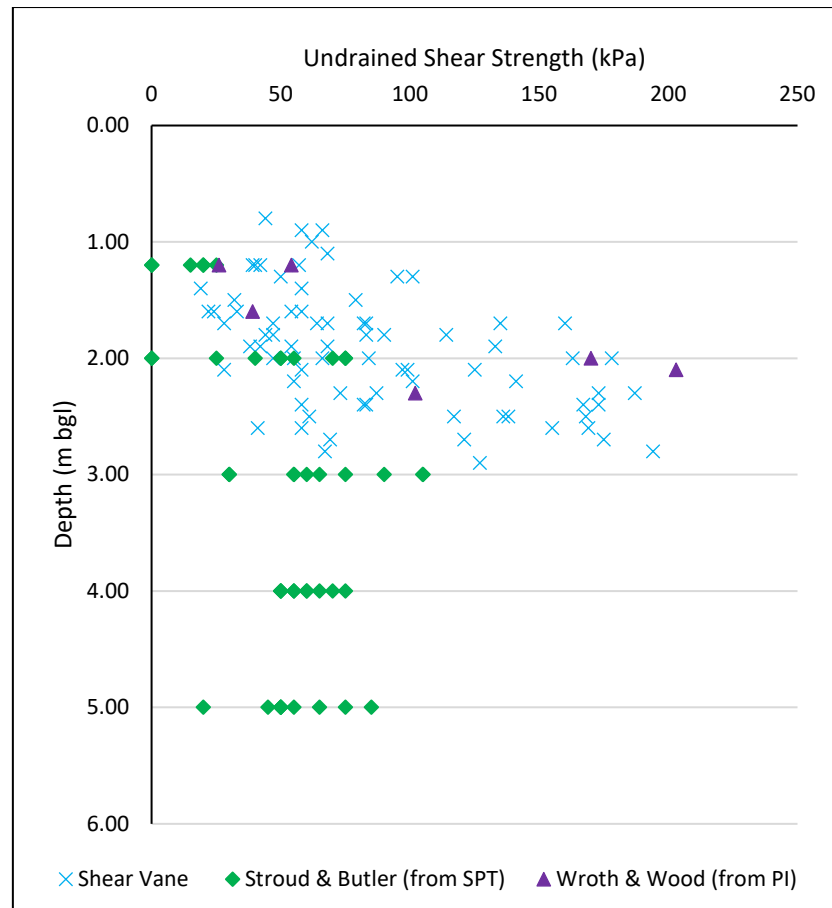
5.2.5 Glacial Till

Glacial Till deposits were encountered in all exploratory holes and were noted to be consistent across the site, comprising soft to firm, becoming firm to stiff with depth, light grey, slightly gravelly, slightly sandy, silty clay.

45 No. SPTs were undertaken in this stratum recording N-values of between 0 and 21 (average 10) which increased with depth. 77 No. hand shear vane results were undertaken within the Glacial Till which recorded undrained shear strengths of between 19kPa and 194kPa (average 86kPa), which were noted to increase with depth. 6 No. Atterberg tests were undertaken on samples of Glacial Till, which indicated that the Glacial Till deposits are clays of medium plasticity and low to medium volume change potential.

Utilising the *Stroud and Butler (1975)* correlation between SPT N-values and undrained shear strengths in clays, the N-values have been used semi-empirically to calculate approximate equivalent undrained shear strength of the Glacial Till. Similarly, approximate equivalent undrained shear strengths have been calculated using the *Wroth and Wood (1978)* empirical correlation between plasticity indices and undrained shear strength. The results have been plotted against the direct undrained shear strength testing undertaken on samples of fine-grained material (clay) within trial pits and dynamic sampling boreholes using a 19mm hand shear vane (HSV) in

accordance with BS1377-9. A general increase in undrained shear strength with depth is observed until 3.00m bgl where minimal change is observed based on the Stroud and Butler correlation.



In order to achieve the proposed construction levels, an engineering earthworks specification should be authored by a suitably qualified engineer, in conjunction with the groundworks / enabling works contractor for the development.

This specification should include in-situ and laboratory testing to ascertain the suitability of any materials, whether site-won or imported, for their use in the programme. 5 No. particle size distribution tests were undertaken on samples of Glacial Till. The results show that the Glacial Till comprises clays with a high silt content (39% - 50%). Consequently, the material is considered to have a much higher strength in-situ compared to post-excavation. Therefore, the Glacial Till is likely to be difficult to manage with regards to earthworks. The high silt content will make the material extremely susceptible to fluctuations in moisture content. If re-use is

necessary, the careful control of the moisture content of the material is considered essential.

The earthworks programme should be completed through the excavation, placement and compaction of appropriate materials in conjunction with the earthworks specification. The earthworks specification should take into account the requirements for foundations and the impact of groundwater control. The earthworks programme should be undertaken in conjunction with the guidance set out in *The Manual of Contract Documents for Highway Works, Volume 1, Specification for Highway Works, Series 600, Earthworks* (as amended in November 2005).

The following items are guidelines for a successful earthworks programme but may be incorporated into / overridden by the engineering specification:

- The contractor should employ a suitably experienced engineer to be present on site during any earthwork operations to ensure soil suitability, placement, compaction and testing is undertaken in accordance with this specification and to ensure that any unforeseen circumstances, such as adverse weather, do not compromise the earthworks process.
- Works should be halted during periods of intermittent or prolonged rainfall to ensure the materials are not placed in a manner that would result in softening of either the formation or the newly placed material. It will be the contractor's responsibility to determine appropriate weather conditions and determine the suitability of works. Particular attention must be given to variable weather conditions when re-engineering clay soils as a moisture content fluctuation (2%+/-) of the tolerable limit will result in unacceptable degree of compaction loss.
- The contractor should ensure that all earthworks materials comply with **Clause 601** of the *Specification for Highway Works* and shall fall into one of the other of the following general classifications as defined in **Table 6/1** of the same document:
 - General granular fill (Class 1);
 - General cohesive fill (Class 2), excluding class 2A and 2E; and

- Selected granular fill (Class 6).

- In addition to any grading requirement the maximum particle size of any fill material shall be no more than two-thirds of the compacted layer thickness. The only exception to this shall be that cobbles having an equivalent diameter of more than 150mm shall not be deposited within the restored surface level unless directed otherwise by the engineer. Un-burnt colliery spoil, pulverised fuel ash (PFA) or furnace bottom ash shall not be imported for use as a fill material.
- During the course of the development there will be areas of stockpiled soils intended for use within the proposed gardens. These will have been subjected to off-site testing and approved for use on site. It is imperative that the stockpiles are well managed to avoid inadvertent mixing or depositing of surplus or deleterious materials that would compromise the continued use. The site management should review the proposed positions for placement of stockpiles and place either fencing or warning signs to ensure compliance. Stockpile placement and management should take groundwater control into consideration to ensure no mixing or improper storage is taking place.

5.2.6 Stockpile Management

During the course of the development there will be areas of stockpiled soils intended for use within the proposed gardens. These will have been subjected to off-site testing and approved for use on site. It is imperative that the stockpiles are well managed to avoid inadvertent mixing or depositing of surplus or deleterious materials that would compromise the continued use. We would recommend that the site management reviews the proposed positions for placement of stockpiles and places either fencing or warning signs to ensure compliance.

5.2.7 Export of Materials

Any soils to be removed from site must be classified in accordance with WM3 under the definition of waste and chemically tested to determine their destination, i.e. reuse or landfill. Waste ticket records must also be retained as proof of the export of materials from site.

5.3 Excavations and Groundwater

The majority of excavations through the Made Ground, Peat and Glacial Till undertaken during the investigation works were stable throughout with no collapses. However, excavations were only open for a maximum of one hour. Silt was encountered at depth within 2 No. trial pits and caused excavation collapse. This is shown in Figure 13, below.



Figure 13: TP09 upon completion showing a collapse of the pit wall within the silt at the base of the pit.

3 No. water strikes were recorded during the site investigation works and these were predominantly related to land drains. However, the land drains that were encountered were found to contain a significant volume of water (DS02 and DS07). It is envisaged that the land drains on site may be damaged or purposefully removed as part of the enabling works on site. This will likely result in saturation of the surface site soils (Peat and Made Ground) and create extremely poor ground conditions. Consequently, it is deemed essential that a shallow groundwater and surface water management plan is implemented as soon as groundworks commence on site.

The site is predominantly at a lower elevation than its surroundings. As a result of this and the on-site mounds in the west and raised area in the south, a bowl effect is created in the central / southern site section, as shown in the cross section in Figure 8. The IGE Consulting *Phase 1 Geo-Environmental Investigation Report* (4070-01, February 2024) identified possible historical streams or drains on site, running north

to south. This indicates that the site is in a natural topographical low and therefore may naturally accumulate groundwater. Although no direct evidence was found for the historical streams on site during the investigation works, the location and direction of the existing surface water drainage in the south of site and the active land drains encountered suggest that groundwater management is still operational on site. This may be linked to the historical drainage or may be present due to the site's former use as recreation ground.

6 No. gas and groundwater monitoring wells were installed as part of the site investigation works. The response zones of the wells were configured differently to target the Made Ground, Peat and Glacial Till between different wells. 2 No. wells were installed with response zones within each target stratum. The monitoring programme is ongoing but after 3 No. visits, shallow groundwater (less than 1.00m bgl) has been recorded within 4 No. monitoring wells. The 2 No. wells screening the Made Ground were dry during all visits so far. Therefore, the shallow groundwater was encountered within the monitoring wells that screened the Peat and the Glacial Till. The shallow groundwater levels encountered within the natural deposits suggest that a shallow, permanent groundwater body is present within the Peat and Glacial Till deposits.

Consequently, based on the above, it is considered likely that groundwater control will be necessary for the duration of the construction works. Excavation support in accordance with guidance contained in CIRIA R97 should be utilised for any deep excavations on site, including those for drainage and foundation purposes.

5.4 Foundations and Ground Floor Slabs

5.4.1 Foundations

The shallow site soils (Made Ground and Peat) are not considered suitable founding strata for the low-rise development. The Glacial Till deposits are initially of low strength, increasing with depth. The undrained shear strength of the Glacial Till was generally measured above 50kPa (medium becoming high strength) from c. 2.00m bgl. Consequently, based on existing site levels plus an average uplift of c. 700mm (based on preliminary IGE Consulting estimated FFLs), a suitable founding strata may be present at c. 2.70m bgl.

2.70m bgl is deeper than the maximum depth of a readily achievable trench foundation. Additionally, given the shallow groundwater encountered during the monitoring period, it is envisaged that excavations greater than 1m deep would become unstable in the short term, making construction extremely problematic. Consequently, it is considered unlikely that the use of traditional foundations (strip / trench) will be suitable on site.

5.4.2 Ground Improvement

It is generally not permissible to use VSC in organic-rich deposits such as Peat, unless the material is removed and replaced with suitable materials prior to the works. Also, the high silt content of the Glacial Till is at or above the limit at which VSC are suitable. Given the proposal for full peat removal across the scheme, noted Section 5.5, liaison with a specialist contractor should be undertaken to ascertain the suitability of VSC at the site.

Other methods, such as controlled modulus columns (CMC) may be feasible as they are designed to work in highly compressible and organic soils. However, consultation with the insurance / warranty provider should be undertaken to determine their acceptability prior to any design.

5.4.3 Piled Foundations

Traditional (shallow) foundation solutions are unlikely to be suitable across the site. The use of ground improvement will be subject to liaison with a specialist contractor and acceptance by the warranty provider.

The use of deep (piled) foundations progressed into the underlying firm to stiff Glacial Till deposits at depth is likely to be required. Based on the trial pits and dynamic sample boreholes, the Glacial Till becomes high strength from c. 2.00m bgl. This should be confirmed with the use of cable percussive boreholes to obtain high quality samples at depth for geotechnical testing in order to inform pile design.

If a piled foundation solution is utilised, the proximity of proposed plots to be piled to existing services and adjacent properties and the possible impact on these should be considered. For example, the most north easterly proposed plot on the preliminary

engineering layout plan is less than 4m from an adjacent existing property off site. An assessment of the proximity and possible impacts should be used in the selection of a final foundation design.

A piled foundation solution will include the construction of a working platform. The working platform should be appropriately designed in line with BRE470 to address the highly compressible surface site soils (Peat and Made Ground). The design should also incorporate the access to each platform and not just the plots themselves. It is considered essential that no heavy machinery is taken onto site without prior preparation of access roads and work areas. This is based on experience during the site investigation works of issues involving much lighter machinery.

5.4.4 Ground Floor Slabs

Due to the probable piled foundation solution and the assumed c. 700mm uplift on site, a suspended floor slab will be required for the proposed plots in line with NHBC / Premier guidance.

5.4.5 Tree Influence

Given the presence of numerous established trees across the site and due to the presence of low to medium volume change potential soils on site, heave precaution will be required in-line with Premier / NHBC Guidance. A tree survey and finalised levels of proposed plots will be required for the production of a detailed foundation zoning plan.

5.5 **Peat Strategy**

Peat deposits were encountered in the majority of exploratory holes to depths of between 0.45m and 1.80m bgl. Figure 14 below shows the deepest Peat deposits in the central site section and generally absent in the southern site section due to deeper Made Ground in this area. An Organic Clay was present instead of the Peat in 4 No. exploratory holes, but for the purposes of addressing their geotechnical properties and a management strategy they are assumed to behave in the same way. Peat and organic clays are susceptible to settlement under surcharge. The below assessment and strategy is based upon a 700mm uplift, as per the preliminary

engineering layout. The below should be reappraised upon receipt of finalised a layout.

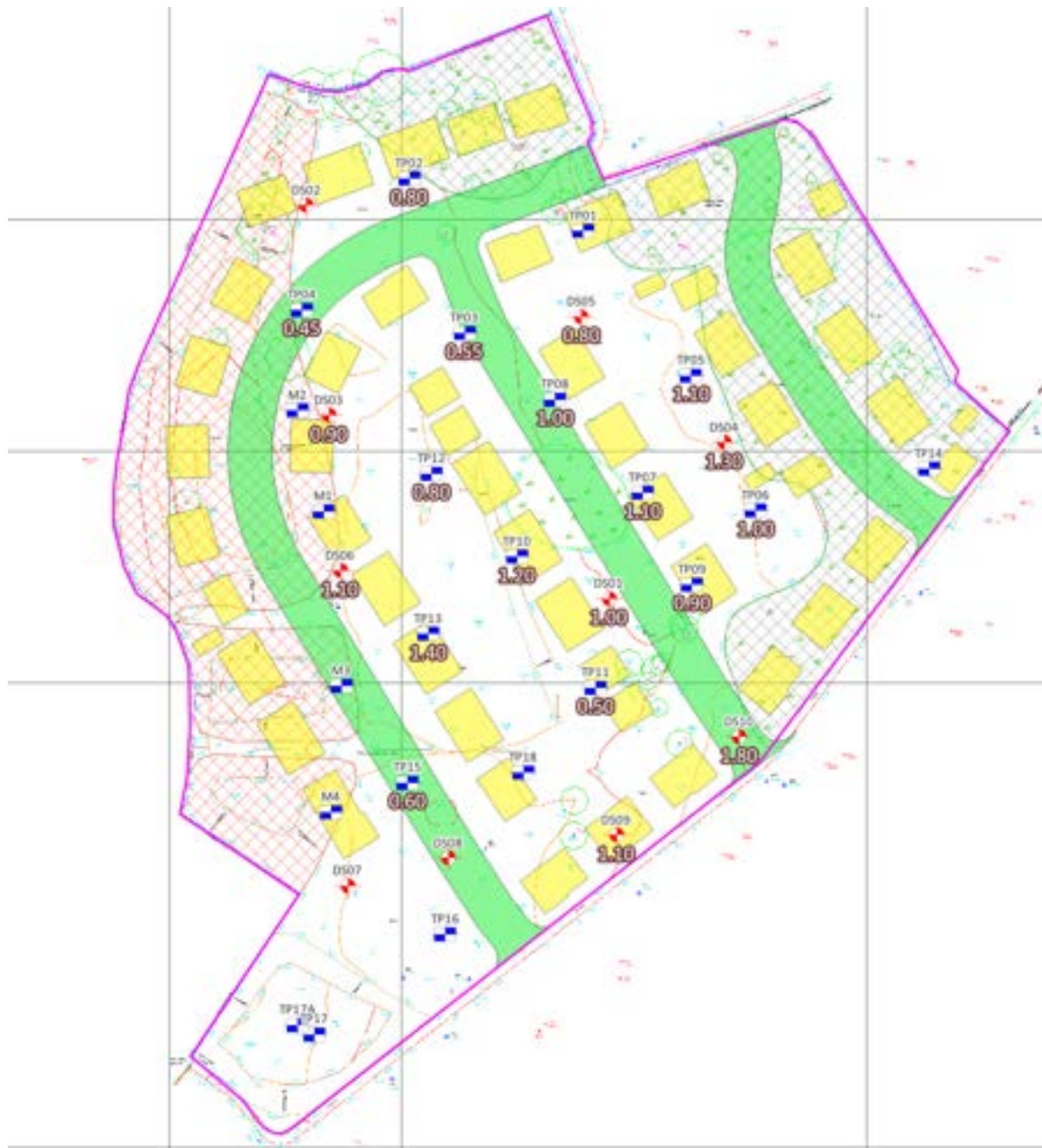


Figure 14: Extract of SI-09 Peat and Organic Clay Depth Plan (m bgl).

Construction sequencing is deemed essential to the success of development works on site. It is recommended that the planned removal of any peat deposits is undertaken prior to any other activities on site to facilitate suitable construction of haul roads across the site., this will permit the wider removal of peat deposits to be undertaken without impacting the wider ground conditions i.e. creating saturated spoil from construction traffic.

5.5.1 Assumed Design Levels

Due to the requirement for a suspended floor slab (beam and block or equivalent) and a working platform to facilitate foundation construction, the post-earthworks ground level (PEGL) on site is assumed to be c. 750mm below FFL. Figure 15 below illustrates an indication of where the proposed FFL (red line) and assumed PEGL (purple line) would be across the central site section. PEGL across this area would be around the interface between the base of the Topsoil and the top of the Peat.

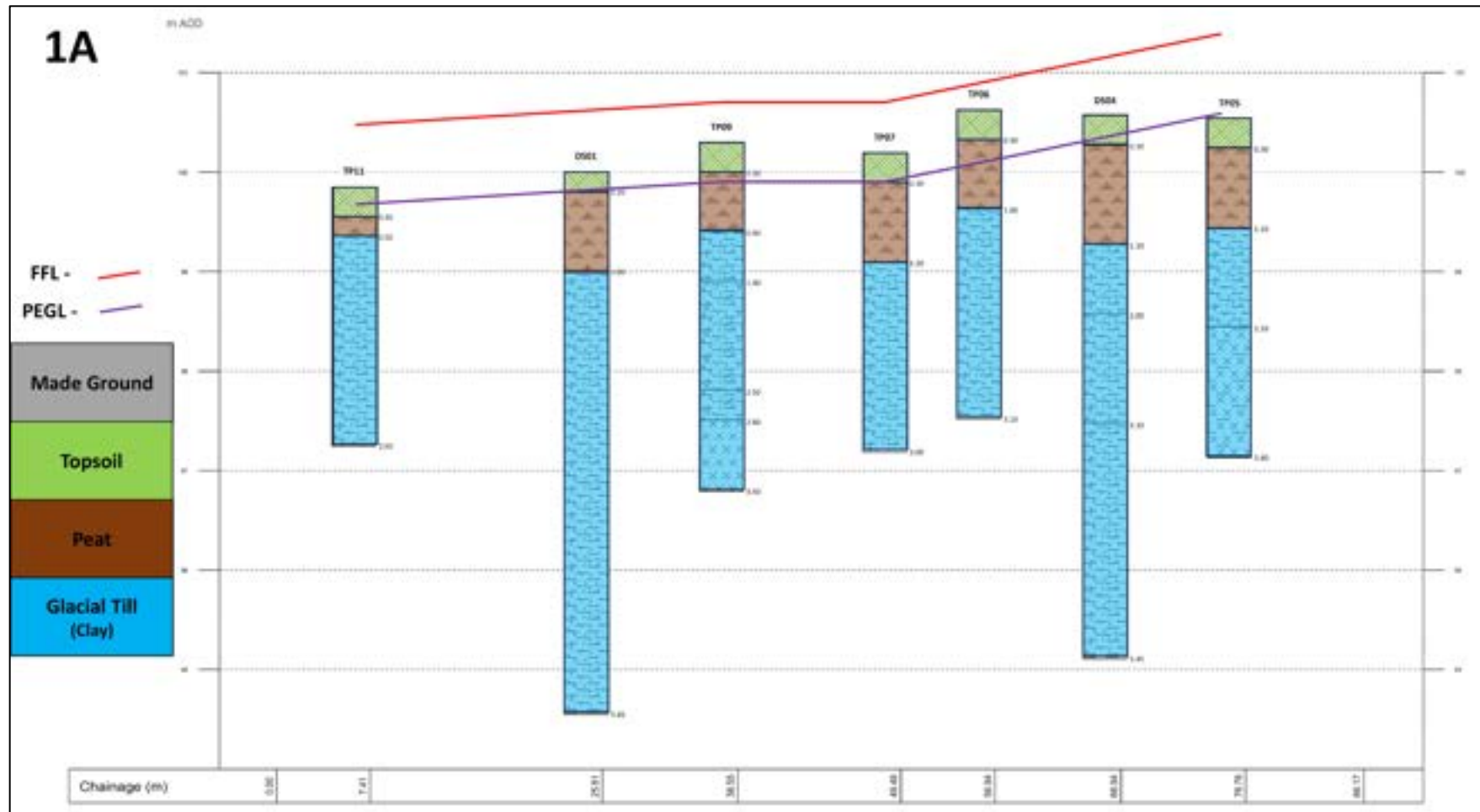


Figure 15: Cross section running south west to north east showing FFL (red line) and assumed PEGL (purple line).

5.5.2 Roads and Shared Drives

The preliminary engineering layout indicating the location of roads and shared drives is included as Figure 16 below. It is recommended that all Peat deposits are fully removed to the full extent of the roads and replaced with suitable materials in line with an earthworks strategy.

It is estimated that based upon the preliminary engineering layout plan and the proposed location of highways, at least 4,000m³ of Peat will need to be removed to facilitate road construction. This is based upon a 'clean side' or 90° removal and as such, battering to facilitate removal would create further spoil. The Peat has minimal engineering properties and therefore is not suitable for re-use on site (production of topsoil given site size and build time is not regarded as feasible. Consequently, following the removal of peat, suitable materials will need to be imported.

5.5.3 Plots

A piled foundation solution should include the construction of a working platform. Based on preliminary FFLs and an assumed PEGL of FFL minus 750mm, the base of the majority of working platforms constructed on site would be at or around the top of the Peat deposits, as shown in Figure 15. Therefore, it is considered necessary to remove any Peat below proposed plots and replace with suitable material to aid working platform construction and limit settlement of site machinery during foundation construction. Site testing should be undertaken to determine the suitability of the working platform for the works required. This should be completed once site levels have been finalised and used to design and implement an earthworks specification.

5.5.4 Services

Based on the preliminary engineering layout, the invert levels of the surface water manholes are all within the Glacial Till; no invert levels for surface water manholes are within the Peat deposits. In places, the invert levels are within the lower strength (soft to firm) Glacial Till deposits, however these deposits are considered suitable for the placement of surface water manholes. The invert levels for the foul water manholes are noted to be shallower than the surface water invert levels and consequently lie more frequently within the lower strength clays and occasionally within the Peat deposits. However, the foul water manholes will apply a much smaller

load compared to the surface water manholes and the Peat deposits will be removed as part of the highway construction.

If any soft spots are encountered within the Glacial Till deposits at the invert level, these should be removed and replaced with suitable material, as detailed within an earthworks strategy.

5.5.5 Gardens / Public Open Space

The preliminary engineering layout plan includes attenuation tanks present across numerous proposed garden areas on site. Consequently, it is recommended that any Peat deposits are also removed from garden areas, particularly where attenuation tanks are proposed. It is envisaged that installing the attenuation tanks with the Peat deposits left in-situ would result in extremely poor ground conditions both during and after construction.

5.5.6 Geotechnical Conclusions

Given the above discussion, it is recommended to remove **all** organic rich / Peat on site as part of enabling works and replace with suitable material in line with an earthworks strategy. It is estimated that c. 12,000m³ of Peat deposits are present on site. The peat deposits are generally overlain by Topsoil or Made Ground (including in the areas of the mounds / stockpiles). Whilst this overlying material does not require removal from site, it should be appropriately stockpiled for re-use in line with the earthworks strategy. The removal of the topsoil / made ground should be factored into any prospective earthworks calculations.



Figure 16: Persimmon Homes Layout (March 2024).

5.6 Coal Mining Risk Assessment

IGE Consulting have undertaken a Coal Mining Risk Assessment (4070-03) for the site including an intrusive site investigation. The findings are such that no remedial measures are required on site (i.e. drill and grout), there is no impact on foundations and no mine gas protection measures are required.

5.7 Third Party Boundaries and Off-Site Services

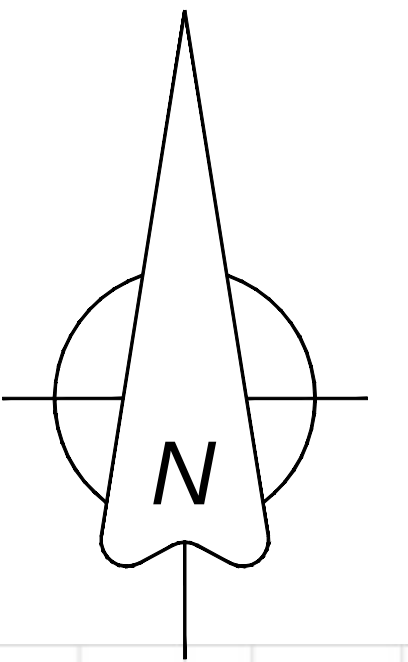
Based upon the above, it is envisaged that considerable earthworks are to be undertaken on site including the removal of peat / organic deposits, as well as construction close to site boundaries, existing adjacent properties and to the rear of the foot pathway. It is recommended that full services records are obtained for the site and appropriate pre-start inspections on boundaries are undertaken. This should form part of the civil engineering pack and the externals and drainage design should take this into account.

6.0 RECOMMENDATIONS

- Following any variation in a finalised proposed development detailed design including earthworks design, proposed levels and arboricultural survey (tree survey) it is recommended that the above conclusions are re-appraised to determine the suitability.
- The conclusions of this report should be agreed with relevant regulatory authorities prior to the commencement of works.
- No ground gas protection measures are deemed necessary due to the lack of high gas concentrations recorded during monitoring. This should be re appraised upon completion of the monitoring programme.
- No remedial measures are deemed necessary with respect to soil or groundwater at the site. The material within the mounds and raised area is not suitable for re-use within proposed garden areas but may be suitable for use as general fill subject to further testing.
- It is recommended that an arboricultural survey is undertaken for detailed design of foundations given the established trees and medium volume change potential clays on site.
- If any hereto unidentified visual or olfactory evidence of contamination is encountered during earthworks or construction work, then the Local Authority Environmental Health Officer and Environment Agency should be contacted immediately to determine appropriate mitigation measures.
- It is recommended that plate bearing tests should be undertaken to obtain CBR values following completion of any earthworks activity at the proposed formation level for highway design.
- It is recommended that the presence and associated constraints of all site services are established prior to significant intrusive works beginning.

APPENDIX 2

FIGURES AND DRAWINGS



R25 Charleston, MCr					
HOUSE TYPE MIX					
Housestyle	Description	SQFT	Number of Units	%	
PER SIMMON					
Greenwood	4B0P	1324	SOFT	2	1.960198
Charmwood	3B3P	1041	SOFT	1	0.960099
Barnwood	3B3P	1041	SOFT	1	0.960099
Darbury	2B3P	818	SOFT	9	8.180911
Saunton	3B4P	1033	SOFT	20	19.8019
Braunton	3B4P	1023	SOFT	10	9.600901
Wimmet	4B3P	1244	SOFT	12	11.811188
Silverdale	3B4P	942	SOFT	10	9.600901
Kinsley	3B2P	976	SOFT	4	3.960396
Galloway	3B4P	948	SOFT	12	
				81	
RENTED 					
Winterfield LK3	2B3P	1034		10	9.600901
				10	
INTERMEDIATE 					
Darbury	2B3P	818		10	9.600901
				10	
TOTAL		102130	SQFT	101	
Gross Site Area		5.709 Acres	2.7150652 Hectares		
Undevelopable		0.31 Acres	0.13 Hectares		
Balancing basin		0.42 Acres	0.17 Hectares		
Public open space		2.2 acres	0.89 Hectares		
Net Site Area		5.979 Acres	2.42 Hectares		
Gross Density:		15.05 Units/Acre	37.20 Units/Hectare		
Net Density:		16.89 Units/Acre	41.74 Units/Hectare		
Gross Footage:		15222.83 SQFT/Acre	3694.65 SQM/Hectare		
Net Footage:		17081.45 SQFT/Acre	3921.32 SQM/Hectare		



Persimmon Homes (North West)
1st Floor East, Chadwick House
Birchwood Park, Warrington, WA3 6AE
Tel: 0161 746 3737

Development

Hinchley Road, Charlestown

Drawing Title

Hinchley Road, Charlestown

Date

19.02.24

Scale

1/500@A1

Drawn / Checked by

SDA

Drawing Status	
1	1
2	2
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Viability Layout 2024

Drawing Ref	
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HRDCH/VIA/01

Rev

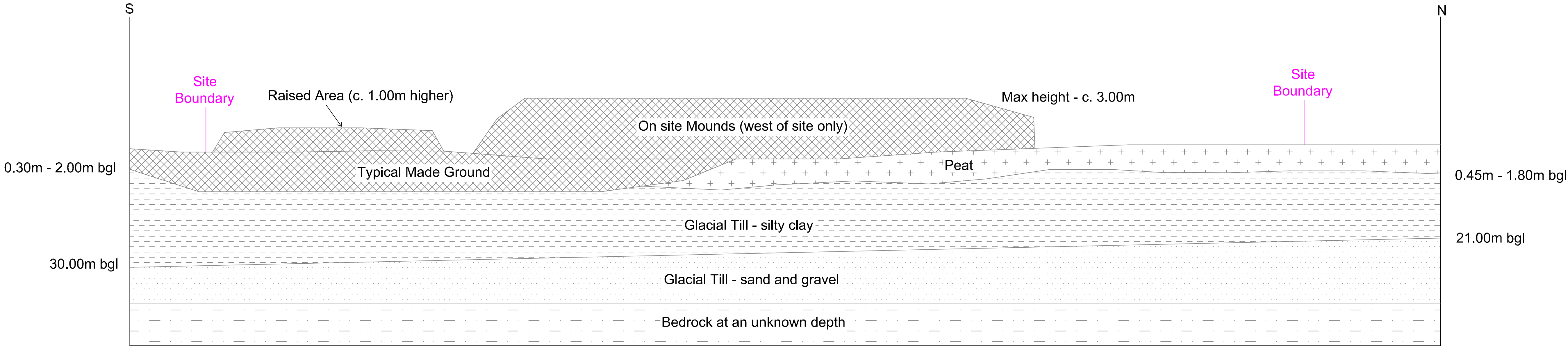
H 01.03.24 by SDA

Notes

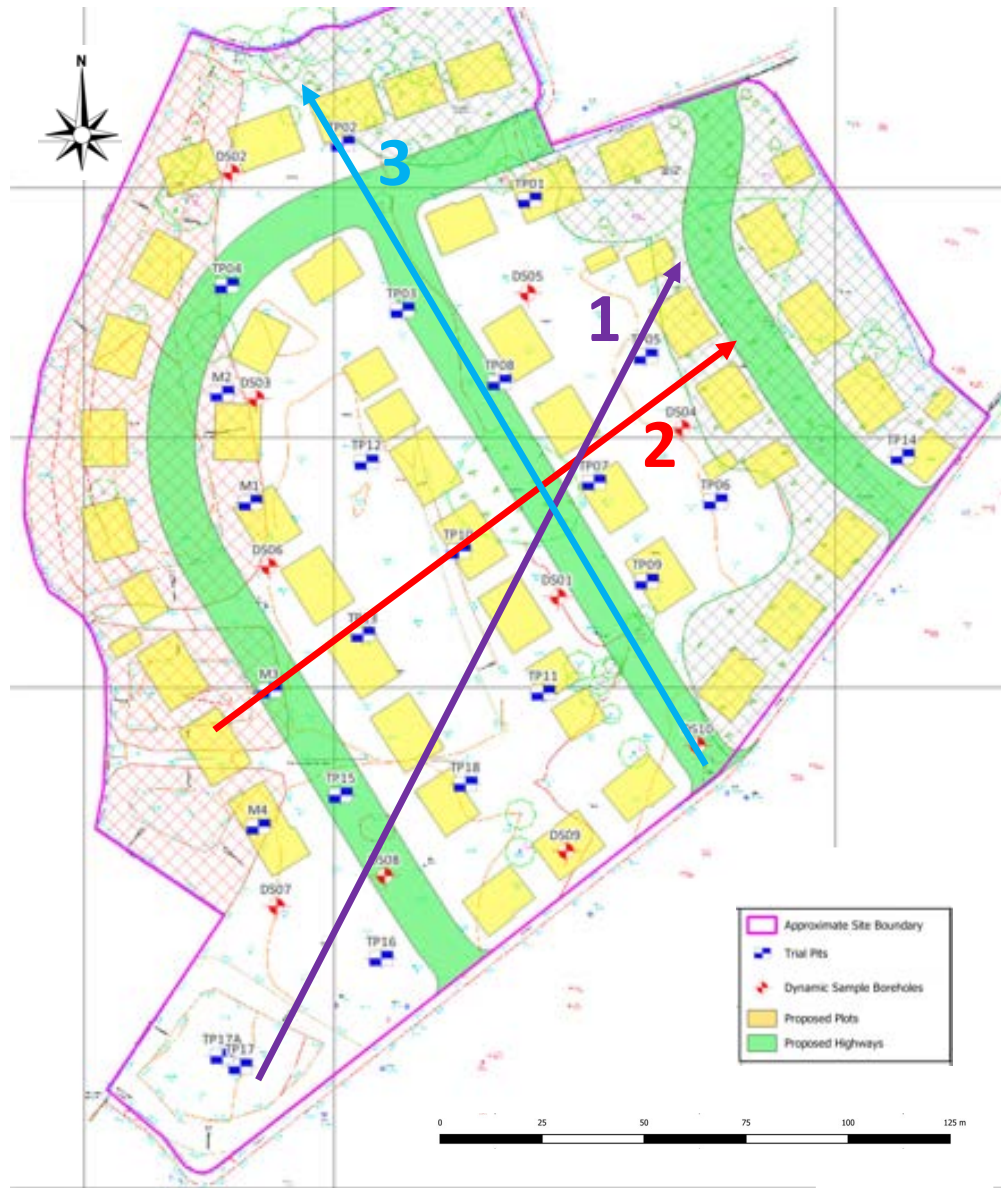
- 1 This drawings is indicative and not to vertical scale.
- 2 This drawing is to be read in conjunction with all relevant Architects and Service Engineers drawings.

Key

- Made Ground
- Peat
- Glacial Till – clay
- Glacial Till – sand and gravel
- Bedrock



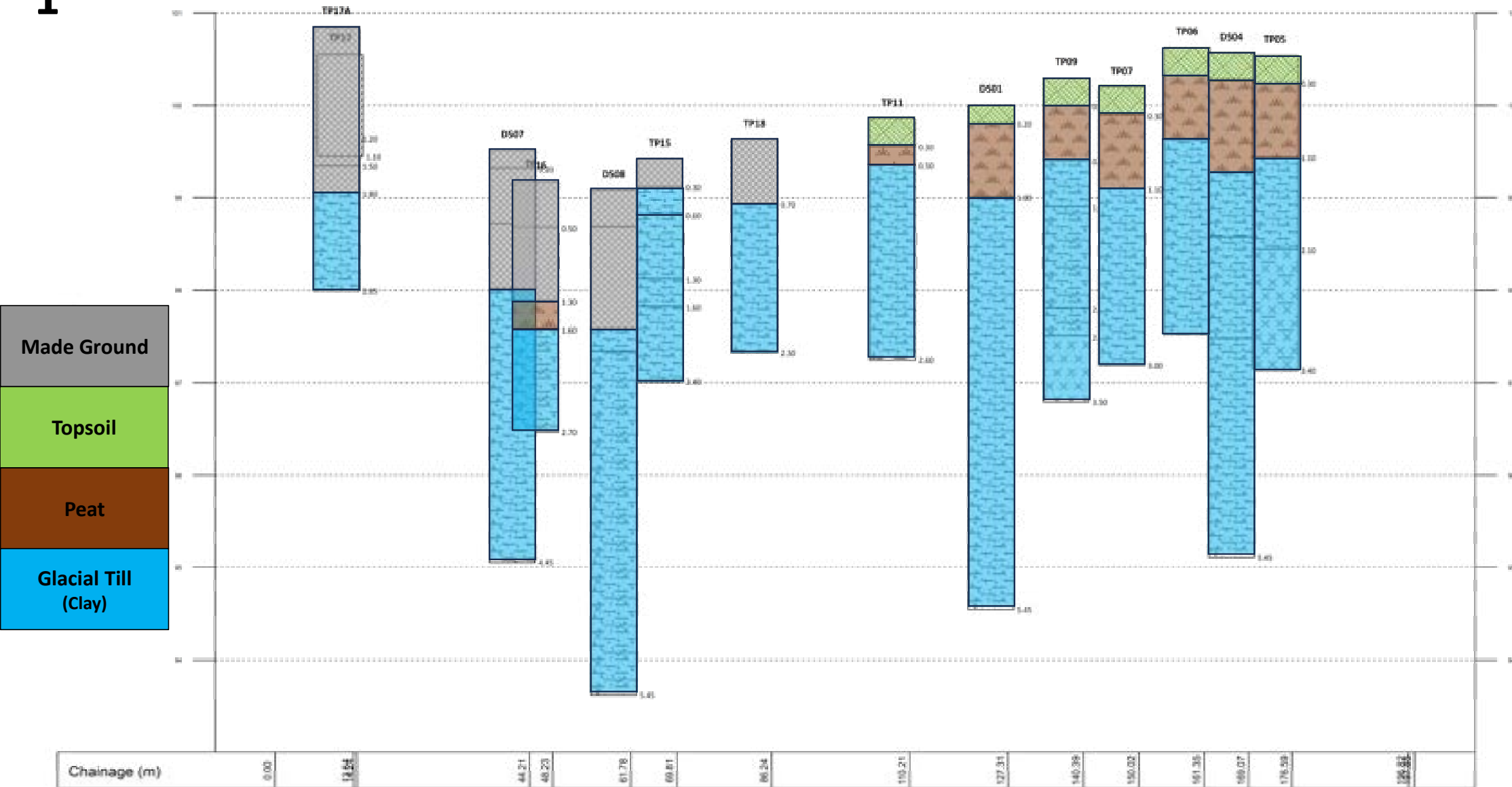
Rev	Drawn	Date	Description
Drawing Status INFORMATION			
Contract LAND OFF HINCHLEY ROAD, CHARLESTOWN FOR: PERSIMMON HOMES LTD			
Drawing Title CONCEPTUAL GROUND MODEL			
Office 16, Bartle House, Manchester, M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170			
Scale NTS		Date FEB 2024	
Drawn JH		Checked AE	
Contract No. 4070		Drawing No. SI-07 P1	

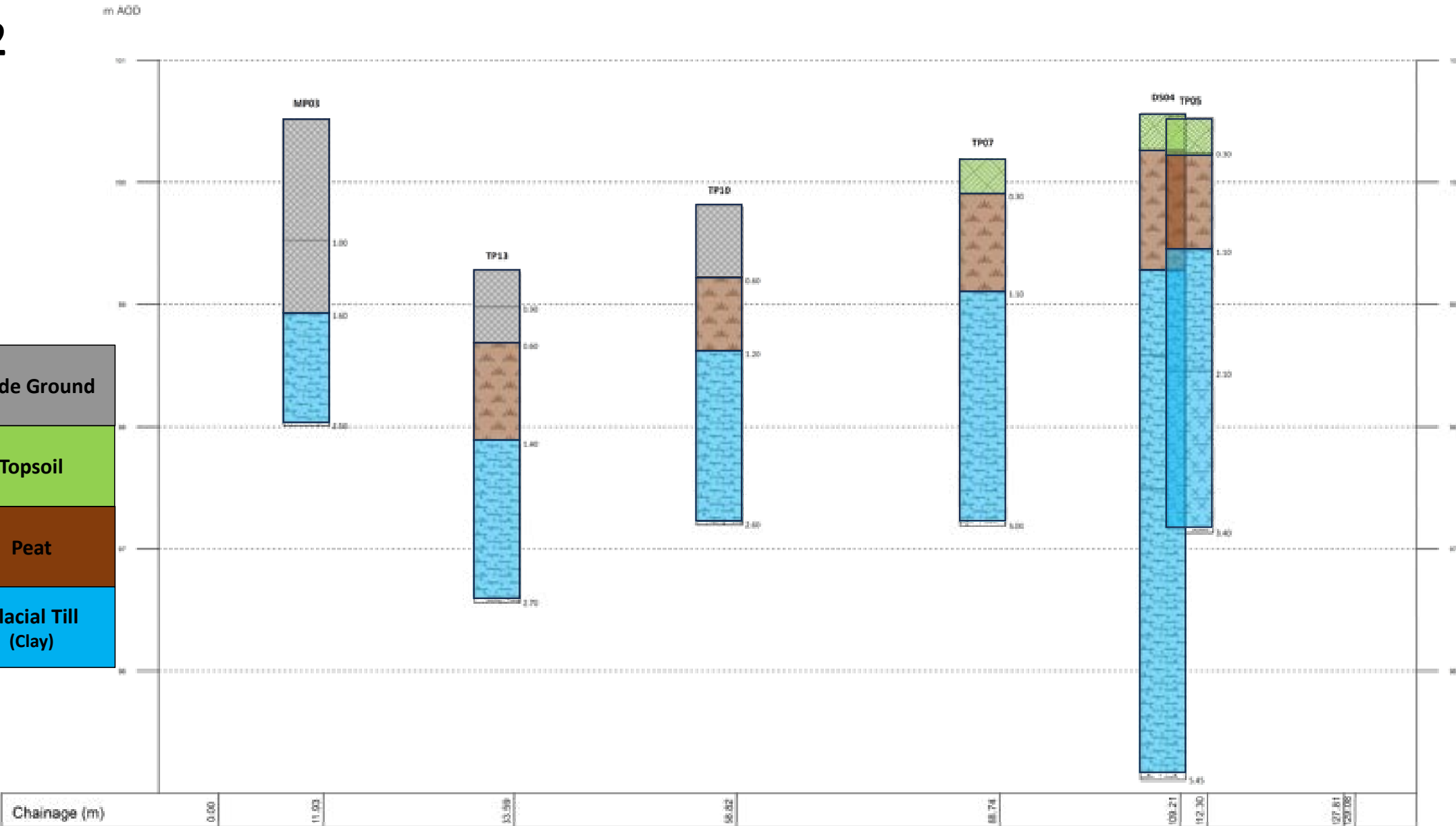


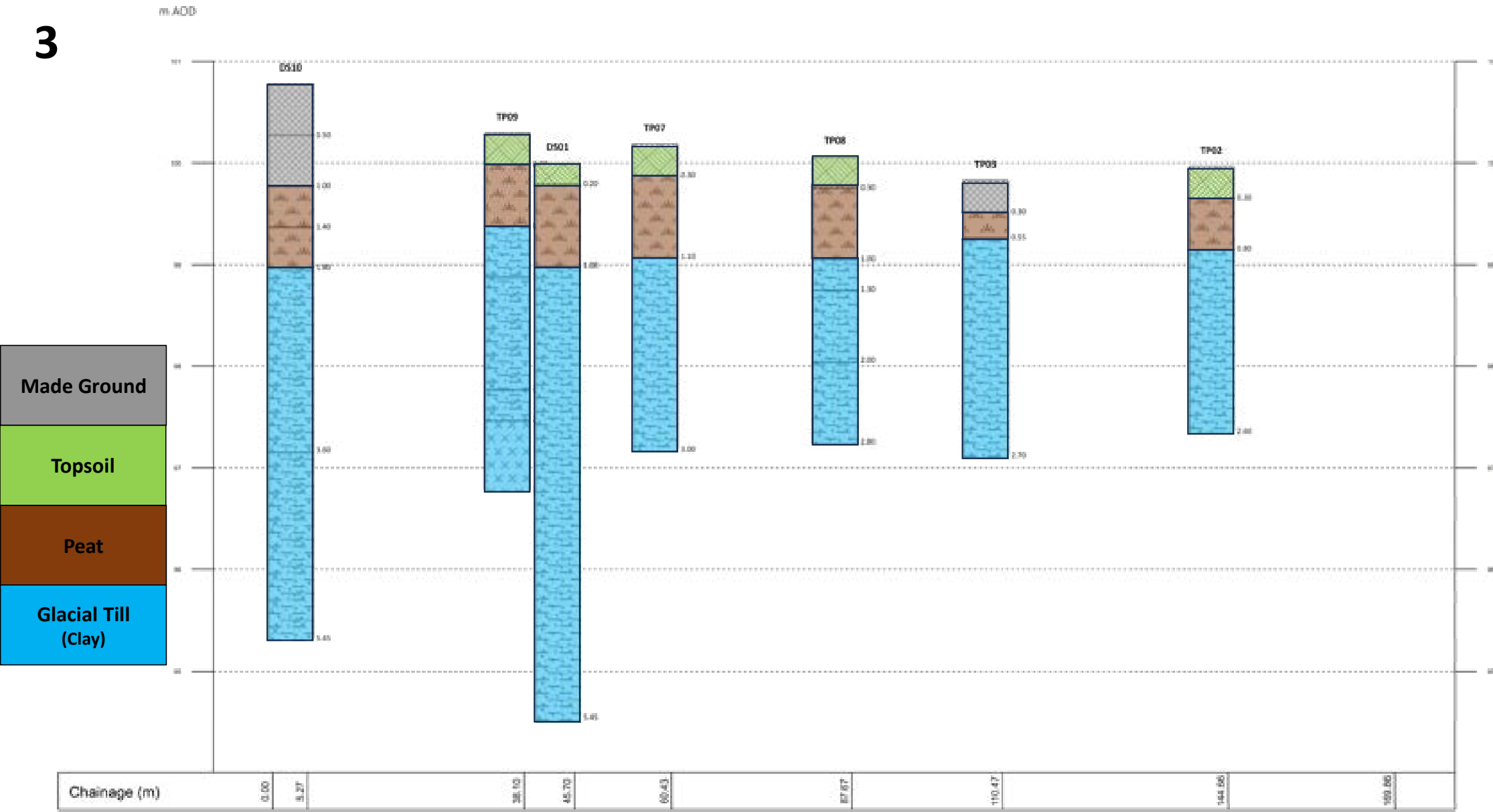
1

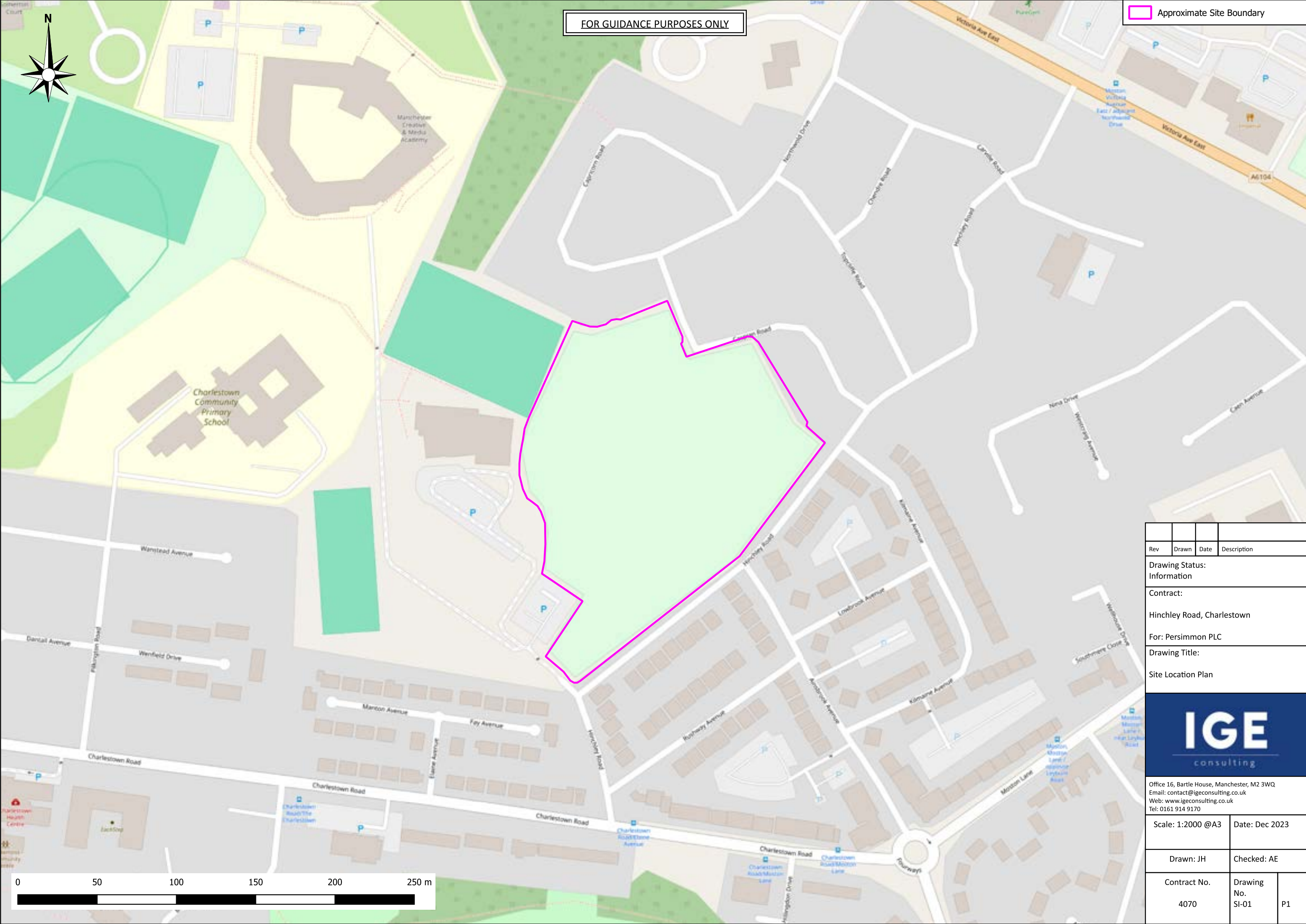
m AOD

Raised Area in South









FOR GUIDANCE PURPOSES ONLY

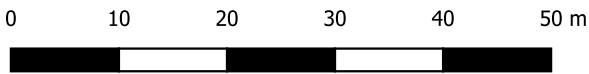
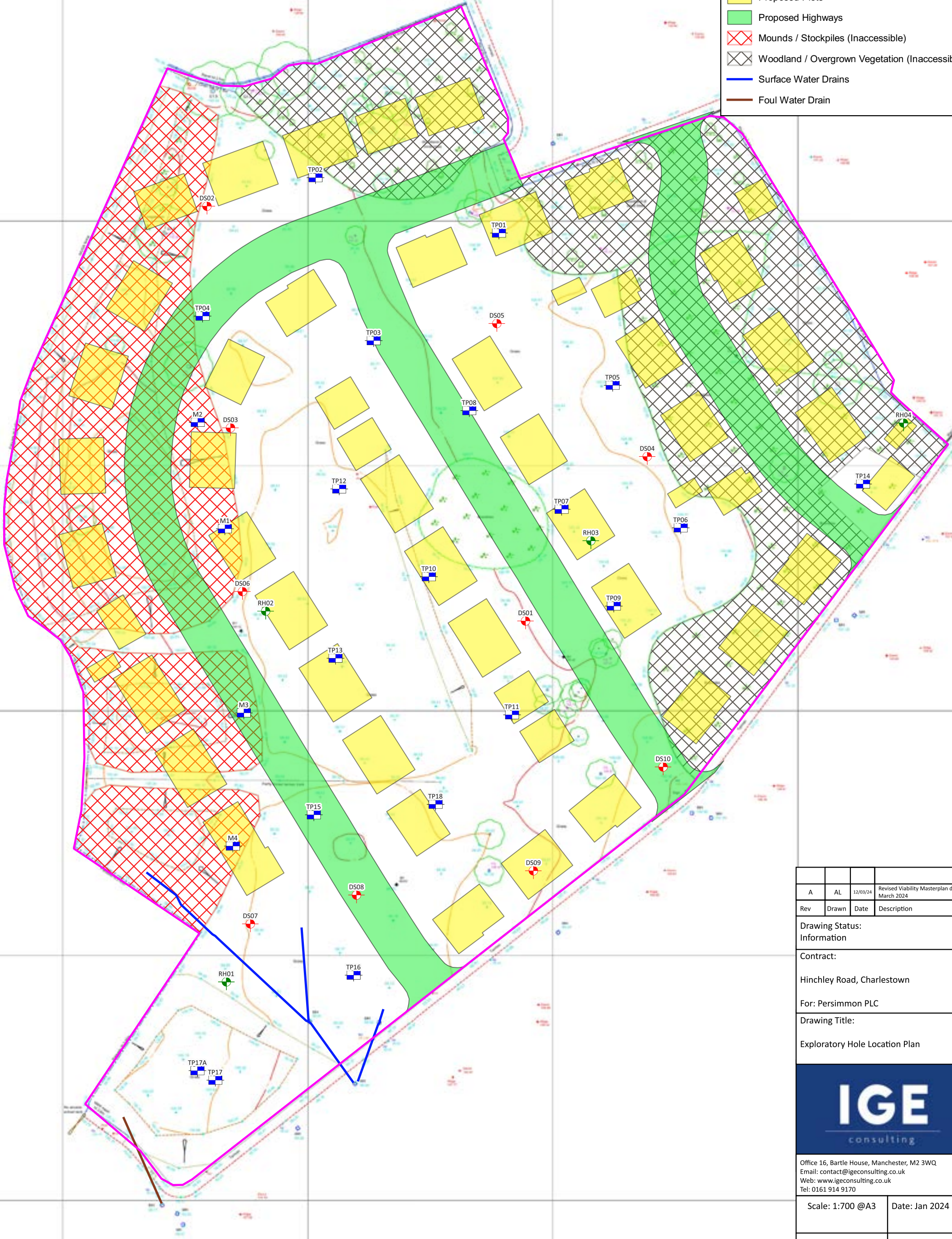
Approximate Site Boundary

Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Hinchley Road, Charlestown			
For: Persimmon PLC			
Drawing Title: Site Location Plan			
			
Office 16, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:2000 @A3		Date: Dec 2023	
Drawn: JH		Checked: AE	
Contract No. 4070		Drawing No. SI-01	P1



FOR GUIDANCE PURPOSES ONLY

- Approximate Site Boundary
- Trial Pits
- Dynamic Sample Boreholes
- Rotary Openhole Boreholes
- Proposed Plots
- Proposed Highways
- Mounds / Stockpiles (Inaccessible)
- Woodland / Overgrown Vegetation (Inaccessible)
- Surface Water Drains
- Foul Water Drain

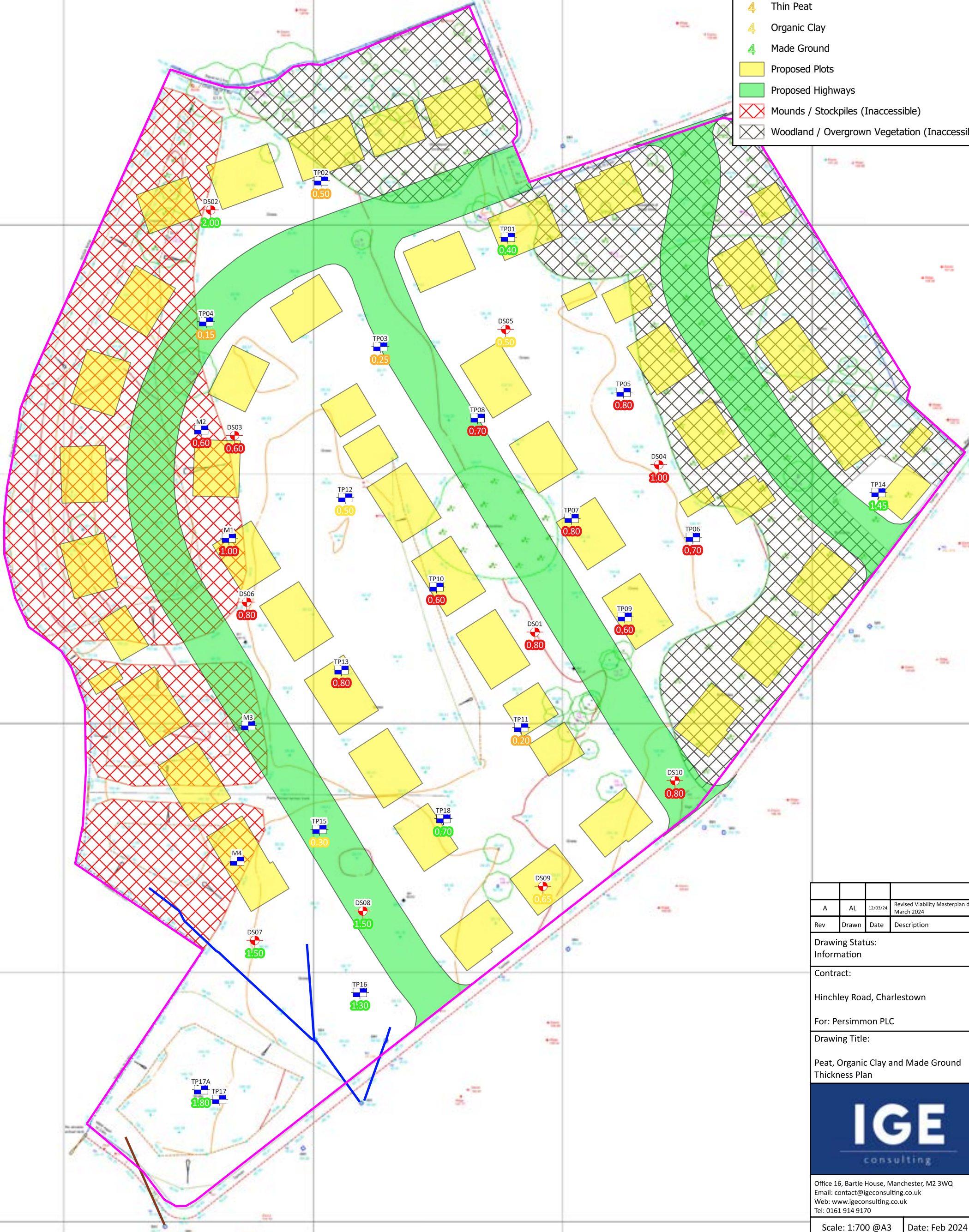


A	AL	12/03/24	Revised Viability Masterplan dated March 2024
Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Hinchley Road, Charlestown			
For: Persimmon PLC			
Drawing Title: Exploratory Hole Location Plan			
IGE consulting Office 16, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:700 @A3		Date: Jan 2024	
Drawn: JH		Checked: AE	
Contract No. 4070		Drawing No. SI - 02	P2



FOR GUIDANCE PURPOSES ONLY

- Approximate Site Boundary
- Trial Pits
- Dynamic Sample Boreholes
- Thick Peat
- Thin Peat
- Organic Clay
- Made Ground
- Proposed Plots
- Proposed Highways
- Mounds / Stockpiles (Inaccessible)
- Woodland / Overgrown Vegetation (Inaccessible)



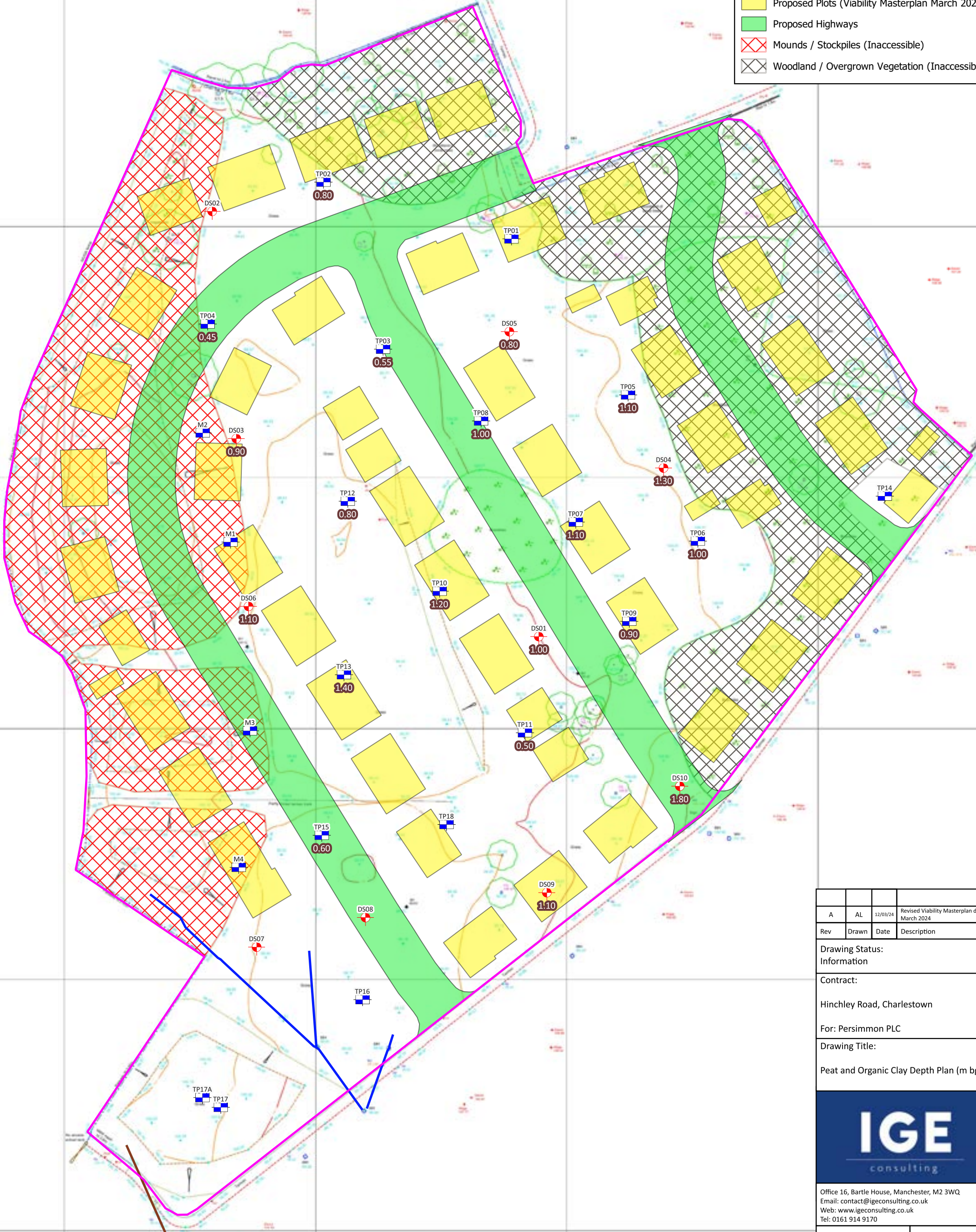
0 25 50 75 100 125 m

A	AL	12/03/24	Revised Viability Masterplan dated March 2024
Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Hinchley Road, Charlestown			
For: Persimmon PLC			
Drawing Title: Peat, Organic Clay and Made Ground Thickness Plan			
IGE consulting Office 16, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:700 @A3		Date: Feb 2024	
Drawn: JH		Checked: AE	
Contract No. 4070		Drawing No. SI - 03	P4



FOR GUIDANCE PURPOSES ONLY

- Approximate Site Boundary
- Trial Pits
- Dynamic Sample Boreholes
- Depth to base of peat or clay
- Proposed Plots (Viability Masterplan March 2024)
- Proposed Highways
- Mounds / Stockpiles (Inaccessible)
- Woodland / Overgrown Vegetation (Inaccessible)



0 25 50 75 100 125 m

A	AL	12/03/24	Revised Viability Masterplan dated March 2024
Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Hinchley Road, Charlestown			
For: Persimmon PLC			
Drawing Title: Peat and Organic Clay Depth Plan (m bgl)			
Office 16, Bartle House, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:700 @A3		Date: Feb 2024	
Drawn: JH		Checked: AE	
Contract No. 4070		Drawing No. SI - 10	P1

APPENDIX 3

TRIAL PIT LOGS AND PHOTOGRAPHS

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170						Trial Pit Log ver. 1.1				Trial Pit No. MP01 Sheet 1 of 1			
Project Name: Hinchley Road						Level (mAOD): 100.48		Date: 19/01/2024		Project No. 4070			
Location: Charlestown						Weather: Clear				Logged By JH			
Client: Persimmon Homes						Co-ords: 387783E - 403137N				Checked By LM			
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description						
	Depth (m)	Type	Results										
	0.40 0.40	B ES	HVP=47	0.80	99.68		Soft, dark greyish brown, slightly gravelly, sandy CLAY. Gravel is angular to subangular, fine to coarse of red brick, concrete, ceramic and mixed natural lithologies. MADE GROUND					1	
	2.00	HVP=58		1.80	98.68		Dark brown, plastic, pseudo-fibrous PEAT. PEAT						
				2.40		2.70	97.78		Soft to firm, light grey, slightly gravelly, slightly sandy, silty CLAY with occasional plant remains. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
	Trial Pit terminated at 2.70m.												3
													4
												5	
Water Strike													
Depth Strike (mbgl)		Remarks											
		No strike											
Stability: Stable													
Remarks: Mound pit terminated at 2.70m bgl at target depth.													

Trial Pit Photos

MP01

Hinchley Road



Image 1. MP01
MP01



Image 2. MP01 SPOIL
MP01 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170						Trial Pit Log				Trial Pit No. MP02 Sheet 1 of 1				
Project Name: Hinchley Road						Level (mAOD): 100.79		Date: 19/01/2024		Project No. 4070				
Location: Charlestown						Weather: Clear				Logged By JH				
Client: Persimmon Homes						Co-ords: 387778E - 403159N				Checked By LM				
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description							
	Depth (m)	Type	Results											
	0.40	ES	HVP=41	0.80	99.99		Dark brown, gravelly, clayey, fine to coarse SAND with rare rootlets and a low cobble content. Cobbles are angular to subangular of red brick. Gravel is angular to subangular, fine to coarse of plastic, glass, ceramic, red brick, concrete and timber. MADE GROUND					1		
	1.20	B		1.80	98.99		Soft to firm, dark brown, slightly gravelly, sandy CLAY. Gravel is angular to subangular, fine to coarse of red brick, concrete and ceramic. MADE GROUND							
	2.60			2.40	98.39		Dark brown, plastic, pseudo-fibrous PEAT. PEAT						2	
				2.75	98.04		Soft to firm, light grey, slightly gravelly, slightly sandy CLAY with rare plant remains. GLACIAL TILL							3
							Trial Pit terminated at 2.75m.							
												4		
												5		
Water Strike														
Depth Strike (mbgl)		Remarks												
		No strike												
Stability: Stable														
Remarks: Mound pit terminated at 2.75m bgl at target depth.														

Trial Pit Photos

MP02

Hinchley Road



Image 1. MP02
MP02



Image 2. MP02 SPOIL
MP02 SPOIL



Trial Pit No.
MP03
Sheet 1 of 1

ver. 1.1

Project No.
4070

Logged By
JH

Checked By
LM

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- 4
- 5

[illegible]

Trial Pit Photos

MP03

Hinchley Road



Image 1. MP03
MP03



Image 2. MP03 SPOIL
MP03 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Trial Pit Log ver. 1.1				Trial Pit No. MP04 Sheet 1 of 1			
Project Name: Hinchley Road					Level (mAOD): 100.17		Date: 19/01/2024		Project No. 4070		
Location: Charlestown					Weather: Clear				Logged By JH		
Client: Persimmon Homes					Co-ords: 387785E - 403072N				Checked By LM		
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description				
	Depth (m)	Type	Results								
	0.40 0.40	B ES					Dark greyish brown, gravelly, very clayey, fine to coarse SAND with a moderate cobble content. Cobbles are angular to subangular of red brick and concrete. Gravel is angular to subangular, fine to coarse of plastic, fabric, red brick, concrete and ceramic. MADE GROUND				
				0.90 1.00	99.27 99.17		Soft, dark greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is angular to subrounded, fine to coarse of red brick, concrete and mixed natural lithologies. MADE GROUND				
	1.30		HVP=101				Firm to stiff, light greyish brown, mottled orangish brown, slightly gravelly, slightly sandy CLAY. Gravel is rounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
	1.80		HVP=114				Becoming stiff from 1.60m bgl.				
				2.40	97.77		Trial Pit terminated at 2.40m.				
Water Strike Depth Strike (mbgl) Remarks No strike Stability: Stable Remarks: Mound pit terminated at 2.40m bgl at target depth.											

Trial Pit Photos

MP04

Hinchley Road



Image 1. MP04
MP04



Image 2. MP04 SPOIL
MP04 SPOIL



Trial Pit No.
TP01

Sheet 1 of 1

ver. 1.1

Project Name: Hinchley Road

Level (mAOD): 100.48

Date: 09/01/2024

Project No.
4070

Location: Charlestown

Weather: Clear

Logged By
JH

Client: Persimmon Homes

Co-ords: 387839E - 403197N

Checked By
LM

Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description
	Depth (m)	Type	Results				
	0.10	ES		0.30	100.18		Soft, dark brown, slightly gravelly, sandy CLAY with frequent rootlets. Gravel is angular to subangular, fine to coarse of red brick and mixed natural lithologies. MADE GROUND
	0.50 0.50	B ES		0.70	99.78		Soft, dark greyish brown, slightly gravelly, slightly sandy CLAY, with occasional gravel to cobble sized inclusions of dark brown, plastic, pseudo-fibrous PEAT and a low cobble content. Cobbles are angular to subangular of red brick and concrete. Gravel is angular to subrounded, fine to coarse of red brick, concrete and mixed natural lithologies. MADE GROUND
	1.10 1.10 1.10	B ES		HVP=68			Firm, light brownish grey, mottled light orangish brown, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to well rounded, fine to coarse of mixed lithologies GLACIAL TILL
	1.80		HVP=83				
	2.50		HVP=138	2.80	97.68		Trial Pit terminated at 2.80m.

Water Strike	
Depth Strike (mbgl)	Remarks
	No strike
Stability: Stable.	
Remarks: Trial pit terminated at 2.80m bgl at target depth.	

Trial Pit Photos

TP01

Hinchley Road



Image 1. TP01
TP01



Image 2. TP01 SPOIL
TP01 SPOIL



Trial Pit No.
TP02
Sheet 1 of 1

ver. 1.1

Project No.
4070

Logged By
JH

Checked By
LM

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- 3
- 4
- 5

[illegible]

Trial Pit Photos

TP02

Hinchley Road



Image 1. TP02
TP02



Image 2. TP02 SPOIL
TP02 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Trial Pit Log ver. 1.1				Trial Pit No. TP03 Sheet 1 of 1			
Project Name: Hinchley Road						Level (mAOD): 99.82		Date: 09/01/2024		Project No. 4070	
Location: Charlestown						Weather: Clear.				Logged By JH	
Client: Persimmon Homes						Co-ords: 387813E - 403175N				Checked By LM	
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description				
	Depth (m)	Type	Results								
	0.20	ES	HVP=44	0.30	99.52		Soft, dark brown, slightly gravelly, sandy CLAY with frequent rootlets. Gravel is angular to subrounded, fine to coarse of red brick, sandstone and mixed natural lithologies. MADE GROUND				
	0.40	ES		0.55	99.27		Dark brown, firm, pseudo-fibrous PEAT. PEAT				
	0.80						Soft to firm, light grey, slightly sandy, slightly gravelly CLAY. Gravel is rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
	2.00 2.00 2.00	B ES	HVP=163	2.70	97.12		Becoming light greyish brown and stiff from 1.80m bgl.				
								Trial Pit terminated at 2.70m.			
Water Strike											
Depth Strike (mbgl)		Remarks									
		No strike.									
Stability: Stable.											
Remarks: Trial pit terminated at 2.70m bgl at target depth.											

Trial Pit Photos

TP03

Hinchley Road



Image 1. TP03
TP03



Image 2. TP03 SPOIL
TP03 SPOIL



Trial Pit No.
TP04

Sheet 1 of 1

ver. 1.1

Project Name: Hinchley Road

Level
(mAOD):

99.65

Date:

09/01/2024

Project No.
4070

Location: Charlestown

Weather

Clear

Logged By
JH

Client: Persimmon Homes

Co-ords:

387778E - 403181N

Checked By
LM

Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)			Stratum Description			
	Depth (m)	Type	Results								
	0.10	ES	HVP=62	0.30	99.35			Soft, dark brown, slightly gravelly, sandy CLAY with frequent rootlets. Gravel is angular to subrounded, fine to coarse of red brick and mixed natural lithologies. MADE GROUND	1		
	0.40 0.40	B ES						Dark brown, firm, pseudo-fibrous PEAT. PEAT			
	0.80 0.80 1.00	B ES		Firm, light greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL	2						
	1.50	HVP=79									
	1.80	HVP=90									
	2.30	HVP=173									
	2.60	97.05				Becoming stiff from 2.00m bgl.	3				
	Trial Pit terminated at 2.60m.										
								4			
						5					

Water Strike	
Depth Strike (mbgl)	Remarks
	No strike.
Stability: Stable	
Remarks: Trial pit terminated at 2.60m bgl at target depth.	

Trial Pit Photos

TP04

Hinchley Road



Image 1. TP04
TP04



Image 2. TP04 SPOIL
TP04 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Trial Pit Log ver. 1.1				Trial Pit No. TP05 Sheet 1 of 1				
Project Name: Hinchley Road						Level (mAOD): 100.53		Date: 09/01/2024		Project No. 4070		
Location: Charlestown						Weather: Clear				Logged By JH		
Client: Persimmon Homes						Co-ords: 387862E - 403166N				Checked By LM		
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description					
	Depth (m)	Type	Results									
	0.10	ES	HVP=50 HVP=58	0.30	100.23		Soft, dark brown, slightly gravelly, sandy CLAY with frequent rootlets. Gravel is sub-rounded to rounded, fine to coarse of mixed natural lithologies. TOPSOIL					1 2 3 4 5
	0.50	B			Dark greyish brown, spongy, pseudo-fibrous PEAT. PEAT							
	0.50	ES			Becoming dark brown and plastic from 0.70m bgl.							
	0.90	B			1.10	99.43	Firm, light grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed natural lithologies. GLACIAL TILL					
	0.90	ES			Becoming soft, sandy and with rare plant remains from 1.70m bgl							
	1.30	B ES B			2.10	98.43	Soft, light grey, clayey SILT with rare plant remains. GLACIAL TILL					
	1.60						Becoming sandy from 3.00m bgl.					
	1.90						Trial Pit terminated at 3.40m.					
	1.90											
	2.20			3.40	97.13							
Water Strike												
Depth Strike (mbgl)		Remarks										
		No strike.										
Stability: Stable.												
Remarks: Trial Pit terminated at 3.40m bgl due to excavator sinking.												

Trial Pit Photos

TP05

Hinchley Road



Image 1. TP05
TP05



Image 2. TP05 SPOIL
TP05 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log				Trial Pit No. TP06 Sheet 1 of 1		
Project Name: Hinchley Road				Level (mAOD): 100.62		Date: 09/01/2024		Project No. 4070		
Location: Charlestown				Weather: Clear				Logged By JH		
Client: Persimmon Homes				Co-ords: 387876E - 403137N				Checked By LM		
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description			
	Depth (m)	Type	Results							
	0.10	ES	HVP=19	0.30	100.32		Soft dark brown, slightly gravelly, sandy CLAY with frequent rootlets. Gravel is subrounded to rounded, fine to coarse of mixed natural lithologies. TOPSOIL			
	0.50	B		1.00	99.62		Dark brown, plastic, pseudo-fibrous PEAT. PEAT			
	0.50	ES								
	1.40	B		HVP=178	3.10	97.52		Soft, light grey, slightly gravelly, sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL		
	1.40	ES								
	1.40									
	2.00			HVP=167				Becoming stiff and slightly sandy from 1.80m bgl.		
	2.30	B								
	2.40									
						Trial Pit terminated at 3.10m.				
Water Strike										
Depth Strike (mbgl)		Remarks								
		No strike.								
Stability:										
Stable										
Remarks:										
Trial pit terminated at 3.10m bgl at target depth.										

Trial Pit Photos

TP06

Hinchley Road



Image 1. TP06
TP06



Image 2. TP06 SPOIL
TP06 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log ver. 1.1				Trial Pit No. TP07 Sheet 1 of 1				
Project Name: Hinchley Road						Level (mAOD): 100.19		Date: 09/01/2024		Project No. 4070		
Location: Charlestown						Weather: Clear				Logged By JH		
Client: Persimmon Homes						Co-ords: 387852E - 403141N				Checked By LM		
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description					
	Depth (m)	Type	Results									
	0.10	ES	HVP=32	0.30	99.89		Soft, dark brown, slightly gravelly, sandy CLAY with frequent rootlets. Gravel is subrounded to rounded, fine to coarse of mixed natural geologies. TOPSOIL					1 2 3 4 5
	0.60 0.60	B ES			Dark brown, plastic, pseudo-fibrous PEAT. PEAT							
	1.50 1.50	B			Soft, light grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed natural lithologies. GLACIAL TILL							
	2.40 2.40 2.40	B ES			Becoming firm to stiff with gravel to cobble sized pockets of light grey fine to coarse SAND from 2.20m bgl.							
	2.80				Trial Pit terminated at 3.00m.							
					3.00	97.19						
Water Strike												
Depth Strike (mbgl)		Remarks										
		No strike.										
Stability:												
Stable.												
Remarks:												
Trial pit terminated at 3.00m bgl at target depth.												

Trial Pit Photos

TP07

Hinchley Road



Image 1. TP07
TP07



Image 2. TP07 SPOIL
TP07 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log				Trial Pit No. TP08 Sheet 1 of 1			
Project Name: Hinchley Road				Level (mAOD): 100.06		Date: 09/01/2024		Project No. 4070			
Location: Charlestown				Weather: Clear				Logged By JH			
Client: Persimmon Homes				Co-ords: 387833E - 403161N				Checked By LM			
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description				
	Depth (m)	Type	Results								
	0.10	ES		0.30	99.76		Soft, dark brown slightly gravelly, sandy CLAY with frequent rootlets. Gravel is subrounded to rounded, fine to coarse of mixed natural lithologies. TOPSOIL				
	0.60	B		HVP=57	1.00		99.06	Dark brown, plastic, pseudo-fibrous PEAT. PEAT			
	0.60	ES						Firm, light grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL			
	1.20	B ES	HVP=24	1.30	98.76		Soft, light grey, slightly gravelly, sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
	1.60			Becoming silty from 1.80m bgl.							
	1.60			Firm, light brownish grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL							
	2.20	B	HVP=155	2.00	98.06		Becoming stiff from 2.50m bgl.				
	2.40			Trial Pit terminated at 2.80m.							
	2.60										
	2.60			2.80	97.26						
Water Strike											
Depth Strike (mbgl)		Remarks									
		No strike.									
Stability: Stable.											
Remarks: Trial pit terminated at 2.80m bgl at target depth.											

Trial Pit Photos

TP08

Hinchley Road



Image 1. TP08
TP08



Image 2. TP08 SPOIL
TP08 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log				Trial Pit No. TP09 Sheet 1 of 1							
Project Name: Hinchley Road				Level (mAOD): 100.29		Date: 10/01/2024		Project No. 4070							
Location: Charlestown				Weather: Overcast				Logged By JH							
Client: Persimmon Homes				Co-ords: 387862E - 403121N				Checked By LM							
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description								
	Depth (m)	Type	Results												
	0.10	ES	HVP=40	0.30	99.99		Dark brown, slightly gravelly, slightly clayey, fine to coarse SAND. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies. TOPSOIL			1					
	0.60	B		HVP=22	0.90		99.39		Dark brown. plastic, pseudo-fibrous PEAT. PEAT						
	0.60	ES			1.40		98.89				Soft to firm, light grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
	1.20	B									HVP=58 HVP=69	2.50	97.79		Soft, light grey, slightly gravelly, slightly sandy, silty CLAY with rare plant remains. GLACIAL TILL
	1.60		B	HVP=28	2.80	97.49		Soft, light grey, sandy SILT. GLACIAL TILL							3
	1.60	2.60						2.70	2.80	97.49		Firm, light brownish grey, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL			
	1.60											2.60	2.70	2.80	
	2.10	2.60	2.70	2.80	97.49		Firm, light brownish grey, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL								
	2.60						2.60	2.70	2.80	97.49		Firm, light brownish grey, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL			
	2.70	2.60	2.70	2.80	97.49							Firm, light brownish grey, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL			
2.90	2.60						2.70	2.80	97.49		Firm, light brownish grey, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
3.50		Trial Pit terminated at 3.50m.			4										
5															
Water Strike															
Depth Strike (mbgl)		Remarks													
		No strike.													
Stability:															
Collapse of north western pit wall from 2.20m bgl.															
Remarks:															
Trial pit terminated at 3.50m bgl due to excavator sinking.															

Trial Pit Photos

TP09

Hinchley Road



Image 1. TP09
TP09



Image 2. TP09 SPOIL
TP09 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log				Trial Pit No. TP10 Sheet 1 of 1	
Project Name: Hinchley Road				Level (mAOD): 99.80		Date: 10/01/2024		Project No. 4070	
Location: Charlestown				Weather: Overcast				Logged By JH	
Client: Persimmon Homes				Co-ords: 387825E - 403127N				Checked By LM	
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description		
	Depth (m)	Type	Results						
	0.30	ES	HVP=33	0.60	99.20		Dark brown, soft, slightly gravelly, slightly sandy CLAY with occasional cobble sized inclusions of firm light brown CLAY. Gravel is subangular to subrounded, fine to coarse of mixed natural lithologies. MADE GROUND		
	0.90	B ES		1.20	98.60		Dark brown, plastic, pseudo-fibrous PEAT. PEAT		
	0.90						Soft to firm, light grey slightly gravelly, slightly sandy CLAY. GLACIAL TILL		
	1.60						Becoming firm from 2.00m bgl		
	2.10	B ES		HVP=97	2.60		97.20	Becoming silty from 2.20m bgl.	
2.20	Trial Pit terminated at 2.60m.								
2.20									
2.30		HVP=187							
Water Strike									
Depth Strike (mbgl)		Remarks							
		No strike.							
Stability:									
Stable.									
Remarks:									
Trial pit terminated at 2.60m bgl at target depth.									

Trial Pit Photos

TP10

Hinchley Road



Image 1. TP10
TP10



Image 2. TP10 SPOIL
TP10 SPOIL



Trial Pit No.
TP11
Sheet 1 of 1

ver. 1.1

Project No.
4070

Logged By
JH

Checked By
LM

Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description		
	Depth (m)	Type	Results						
	0.20	ES		0.30	99.55		Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded, fine to coarse of mixed lithologies. TOPSOIL		
	0.90	B ES		HVP=66	0.50	99.35			Dark brown, plastic, pseudo-fibrous PEAT. PEAT
					HVP=58		Firm, light greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL		
	1.20	HVP=101	HVP=173	2.60	97.25		Becoming firm to stiff from 2.00m bgl.	2	
	1.20						Becoming stiff from 2.30m bgl.		
	1.40								
	2.20	HVP=173	HVP=173	2.60	97.25		Trial Pit terminated at 2.60m.	3	
	2.40								
								4	
								5	

[illegible]

Trial Pit Photos

TP11

Hinchley Road



Image 1. TP11
TP11



Image 2. TP11 SPOIL
TP11 SPOIL



Trial Pit No.

Sheet 1 of 1

ver. 1.1

**Level
(mAOD):**

Date:

Project No.

4070

Weather:

Logged By

JH

Co-ords:

Checked By

LM

- 1
- 2
- 3
- 4
- 5

Depth Strike (mbgl)	
---------------------	--

No strike

No strike

Stable

Remarks:

Remarks:

Trial pit terminated at 2.60m bgl at target depth.

Trial Pit Photos

TP12

Hinchley Road



Image 1. TP12
TP12



Image 2. TP12 SPOIL
TP12 SPOIL

Trial Pit Photos

TP13

Hinchley Road



Image 1. TP13
TP13



Image 2. TP13 SPOIL
TP13 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log			Trial Pit No. TP14 Sheet 1 of 1		
Project Name: Hinchley Road				Level (mAOD): 101.46		Date: 10/01/2024		Project No. 4070	
Location: Charlestown				Weather: Overcast				Logged By JH	
Client: Persimmon Homes				Co-ords: 387913E - 403146N				Checked By LM	
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description		
	Depth (m)	Type	Results						
	0.10	ES	HVP=143	0.20	101.26	Soft, dark brown, slightly gravelly, slightly sandy, silty CLAY with frequent rootlets. MADE GROUND CONCRETE MADE GROUND Light grey and reddish brown mottled, fine to coarse SAND and angular to subangular, fine to coarse GRAVEL of limestone and sandstone. MADE GROUND Underlain by plastic sheeting. Concrete absent in north west of pit. Light brown and dark grey mottled, slightly gravelly, slightly sandy CLAY. Gravel is angular to rounded, fine to coarse of red brick, concrete, sandstone and mixed natural lithologies. MADE GROUND Soft to firm, dark brownish grey, slightly gravelly, slightly sandy, silty CLAY with occasional gravel to cobble sized pockets of dark greyish brown, pseudo-fibrous PEAT. MADE GROUND Soft to firm, light greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. MADE GROUND 0.10m diameter ceramic land drain (dry) running north to south in north west of pit at 1.40m bgl. Firm, light brownish grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL Becoming firm to stiff from 2.00m bgl.	1 2 3 4 5		
	0.50	ES		0.30	101.16				
	0.50			0.40	101.06				
	0.60	ES		0.60	100.86				
	0.80		100.66						
	1.10	ES	1.45	100.01					
	1.10								
	1.70	B ES	HVP=82	2.50	98.96				
	1.70								
	1.70								
	2.20	HVP=141	Trial Pit terminated at 2.50m.						

Water Strike	
Depth Strike (mbgl)	Remarks
	No strike
Stability: Stable	
Remarks: Trial pit terminated at 2.50m bgl at target depth.	

Trial Pit Photos

TP14

Hinchley Road



Image 1. TP14
TP14



Image 2. TP14 SPOIL
TP14 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Trial Pit Log ver. 1.1				Trial Pit No. TP15 Sheet 1 of 1				
Project Name: Hinchley Road					Level (mAOD): 99.41		Date: 10/01/2024		Project No. 4070			
Location: Charlestown					Weather: Overcast				Logged By JH			
Client: Persimmon Homes					Co-ords: 387801E - 403079N				Checked By LM			
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description					
	Depth (m)	Type	Results									
	0.20	ES	HVP=58	0.30	99.11		Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is angular to rounded, fine to coarse of red brick, concrete and mixed natural lithologies. MADE GROUND					1 2 3 4 5
	0.50	ES		0.60	98.81		Soft, dark brown, slightly gravelly, slightly sandy CLAY with occasional rootlets. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL					
	0.90	B		0.90			Firm, light grey, mottled orangish brown, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL					
	1.30						98.11	Soft, light grey, mottled orangish brown, slightly gravelly, sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
	1.70		HVP=68	1.60	97.81		Firm, light greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL					
				Becoming stiff from 2.00m bgl.								
	2.10	B ES	HVP=125	2.40	97.01		Trial Pit terminated at 2.40m.					
	2.10											
	2.10											

Water Strike	
Depth Strike (mbgl)	Remarks
	No strike
Stability: Stable	
Remarks: Trial pit terminated at 2.40m bgl at target depth.	

Trial Pit Photos

TP15

Hinchley Road



Image 1. TP15
TP15



Image 2. TP15 SPOIL
TP15 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Trial Pit Log ver. 1.1				Trial Pit No. TP16 Sheet 1 of 1					
Project Name: Hinchley Road						Level (mAOD): 99.17		Date: 10/01/2024		Project No. 4070			
Location: Charlestown						Weather: Overcast				Logged By JH			
Client: Persimmon Homes						Co-ords: 387809E - 403046N				Checked By LM			
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description						
	Depth (m)	Type	Results										
	0.20	ES	HVP=55	0.50	98.67		Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is angular to subrounded, fine to coarse of red brick, concrete and mixed natural lithologies. MADE GROUND						
	0.60 0.60	B ES		Soft, dark greyish brown, slightly gravelly, slightly sandy CLAY with occasional rootlets. Gravel is angular to subrounded, fine to coarse of red brick, concrete and mixed natural lithologies. MADE GROUND									
	1.50	B		1.30	97.87		Dark brown, pseudo-fibrous PEAT. PEAT						
				1.60	97.57		Firm, light grey, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL						
	2.00 2.00 2.00	B ES		HVP=61	2.70		96.47	Trial Pit terminated at 2.70m.					
	2.50												
Water Strike													
Depth Strike (mbgl)		Remarks											
		No strike											
Stability: Stable													
Remarks: Trial pit terminated at 2.70m bgl at target depth.													

Trial Pit Photos

TP16

Hinchley Road



Image 1. TP16
TP16



Image 2. TP16 SPOIL
TP16 SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Trial Pit Log ver. 1.1				Trial Pit No. TP17 Sheet 1 of 1				
Project Name: Hinchley Road					Level (mAOD): 100.54		Date: 10/01/2024		Project No. 4070			
Location: Charlestown					Weather: Overcas				Logged By JH			
Client: Persimmon Homes					Co-ords: 387781E - 403024N				Checked By LM			
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description					
	Depth (m)	Type	Results									
	0.60	ES					Soft to firm, dark greyish brown, mottled light brown, slightly gravelly, slightly sandy CLAY with a high boulder content and moderate cobble content. Boulders are angular of concrete. Cobbles are angular of concrete and red brick. Gravel is angular to subangular, fine to coarse of red brick and concrete. MADE GROUND					
				1.10	99.44		Trial Pit terminated at 1.10m.					1
												2
												3
												4
												5
Water Strike												
Depth Strike (mbgl)		Remarks										
		No strike										
Stability: Stable												
Remarks: Trial pit terminated at 1.10m bgl due to frequent concrete obstructions.												

Trial Pit Photos

TP17

Hinchley Road



Image 1. TP17
TP17



Image 2. TP17 SPOIL
TP17 SPOIL

IGE everything		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Trial Pit Log				Trial Pit No. TP17A Sheet 1 of 1	
Project Name: Hinchley Road				Level (mAOD): 100.84		Date: 19/01/2024		Project No. 4070	
Location: Charlestown				Weather: Clear				Logged By JH	
Client: Persimmon Homes				Co-ords: 387777E - 403026N				Checked By LM	
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description		
	Depth (m)	Type	Results						
							Soft to firm, dark greyish brown, mottled light brown, slightly gravelly, slightly sandy CLAY with a high boulder content and moderate cobble content. Boulders are angular of concrete. Cobbles are angular of concrete and red brick. Gravel is angular to subangular, fine to coarse of red brick and concrete. MADE GROUND	1	
	1.40	ES		1.20	99.64		Dark grey, fine to coarse SAND and angular to subangular, fine to coarse GRAVEL of clinker, glass and red brick. MADE GROUND		
	1.60		HVP=52	1.50	99.34		Soft to firm, dark brownish grey, slightly gravelly, slightly sandy, silty CLAY with rare rootlets. Gravel is angular to subangular, fine to coarse of red brick, concrete and mixed natural lithologies. MADE GROUND		
	2.10		HVP=99	1.80	99.04		Firm, orangish brown, mottled grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL		
	2.60	HVP=169	2.85	97.99		Becoming stiff from 2.40m bgl.	2 3 4 5		
Trial Pit terminated at 2.85m.									
Water Strike									
Depth Strike (mbgl)		Remarks							
		No strike							
Stability: Stable									
Remarks: Trial pit terminated at 2.85m bgl at target depth.									

Trial Pit Photos

TP17A

Hinchley Road



Image 1. TP17A
TP17A



Image 2. TP17A SPOIL
TP17A SPOIL

IGE Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170						Trial Pit Log ver. 1.1				Trial Pit No. TP18 Sheet 1 of 1		
Project Name: Hinchley Road						Level (mAOD): 99.62		Date: 19/01/2024		Project No. 4070		
Location: Charlestown						Weather: Clea				Logged By JH		
Client: Persimmon Homes						Co-ords: 387826E - 403081N				Checked By LM		
Water Strike	Samples & In Situ Testing			Depth (mbgl)	Level (mAOD)		Stratum Description					
	Depth (m)	Type	Results									
				0.70	98.92		Soft, dark brown, slightly gravelly, sandy CLAY with occasional rootlets. Gravel is angular to subrounded, fine to coarse of red brick, metal, concrete and mixed natural lithologies. MADE GROUND					
	1.30		HVP=95				Firm to stiff, orangish brown, mottled grey, slightly gravelly, slightly sandy CLAY. Gravel is rounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL					1
	1.70		HVP=160				Becoming stiff from 1.50m bgl.					2
				2.30	97.32		Trial Pit terminated at 2.30m.					3
												4
												5
Water Strike												
Depth Strike (mbgl)		Remarks										
		No strike										
Stability: Stable												
Remarks: Trial pit terminated at 2.30m bgl at target depth.												

Trial Pit Photos

TP18

Hinchley Road



Image 1. TP18
TP18



Image 2. TP18 SPOIL
TP18 SPOIL

APPENDIX 4

DYNAMIC SAMPLE BOREHOLE LOGS AND PHOTOGRAPHS

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Dynamic Sample Borehole Log ver. 1.5				Dynamic Sample No. DS01 Sheet 1 of 1	
Project Name: Hinchley Road				Co-ords: 387844E - 403118N		Project No. 4070			
Location: Charlestown				Level (m AOD): 100.00		Logged By JH			
Client: Persimmon Homes				Date: 11/01/2024		Checked By LM			
Weather: Overcast									
Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description	
		Depth(m)	Type	Results					
					0.20	99.80		Soft, dark brown, slightly gravelly, slightly sandy CLAY with occasional rootlets. Gravel is subangular to subrounded, fine to coarse of mixed lithologies. TOPSOIL	
								Dark brown, plastic, pseudo-fibrous PEAT. PEAT	
		0.70	B ES						
		0.70							
		1.20	SPT	N=3 (1,1/0,1,1,1)	1.00	99.00		Soft to firm, light greyish brown, slightly gravelly, slightly sandy CLAY with rare plant remains. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL	
		1.70		HVP=47					
		2.00	SPT	N=15 (1,2/3,3,4,5)	2.00				
		2.70	B ES						
		2.70							
2.70		HVP=175							
3.00	SPT	N=18 (2,2/4,4,5,5)	3.00						
4.00	SPT	N=12 (2,2/2,3,3,4)	4.00						
5.00	SPT	N=13 (2,2/2,3,4,4)	5.00						
			5.45	94.55	Dynamic Sample terminated at 5.45m.				
Remarks:		Water Strike		Casing Details		Sample Sleeve Runs			
Dynamic sample borehole terminated at 5.45m bgl at target depth.		Depth Strike	Remarks	Depth Base	Diameter	Depth Top (m)	Depth Base (m)	Diameter (mm)	
Water level was 4.50m bgl upon completion with the base at 4.80m bgl.			No strike			1.20	2.00	87 70%	
						2.00	3.00	77 90%	
						3.00	4.00	67 95%	
						4.00	5.00	57 70%	

Dynamic Sample Borehole Photos

DS01

Hinchley Road

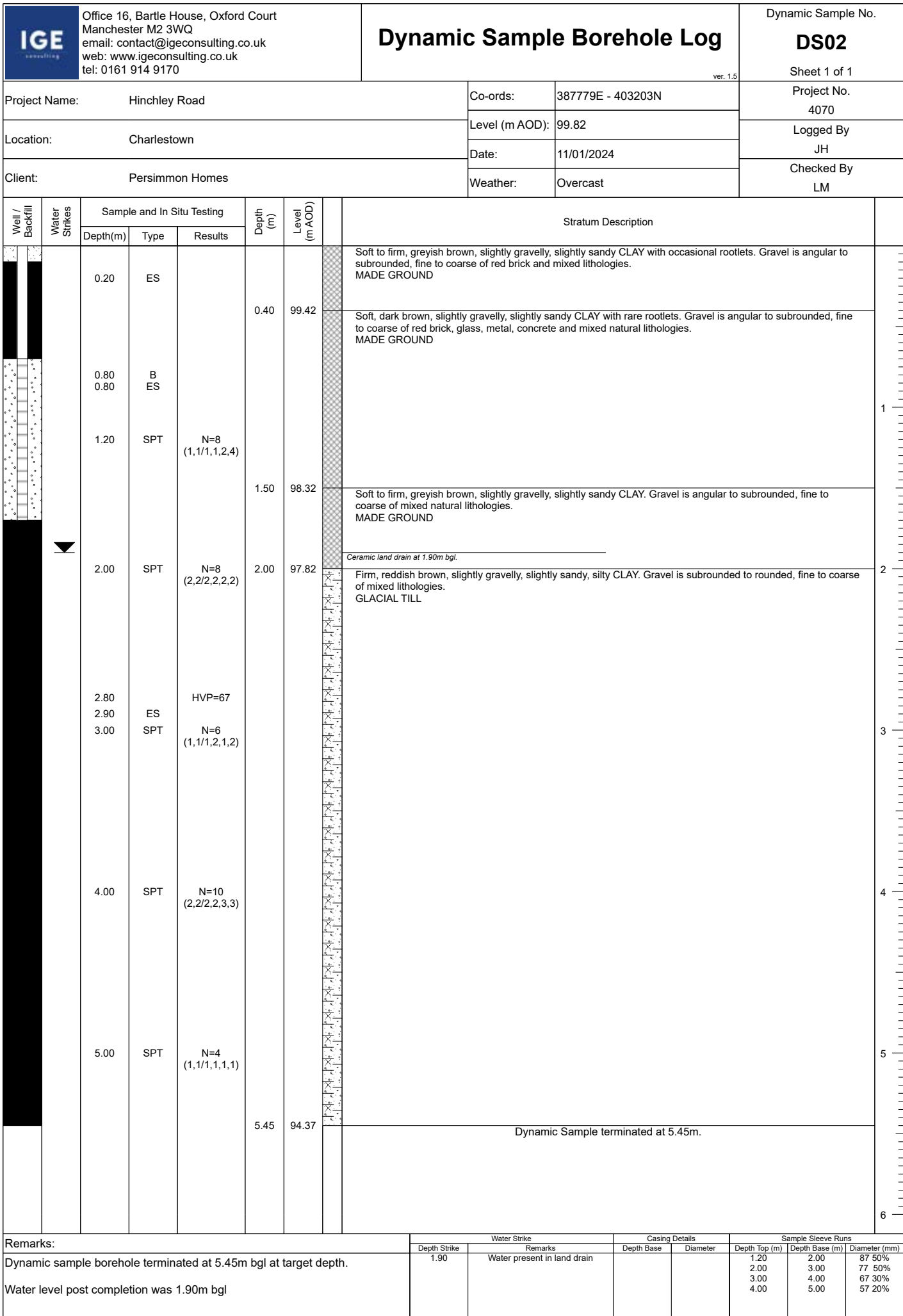


Image 1. DS01 HDP:
View left to right.



Image 2. DS01:
View right to left, top to bottom.

1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m



Dynamic Sample Borehole Photos

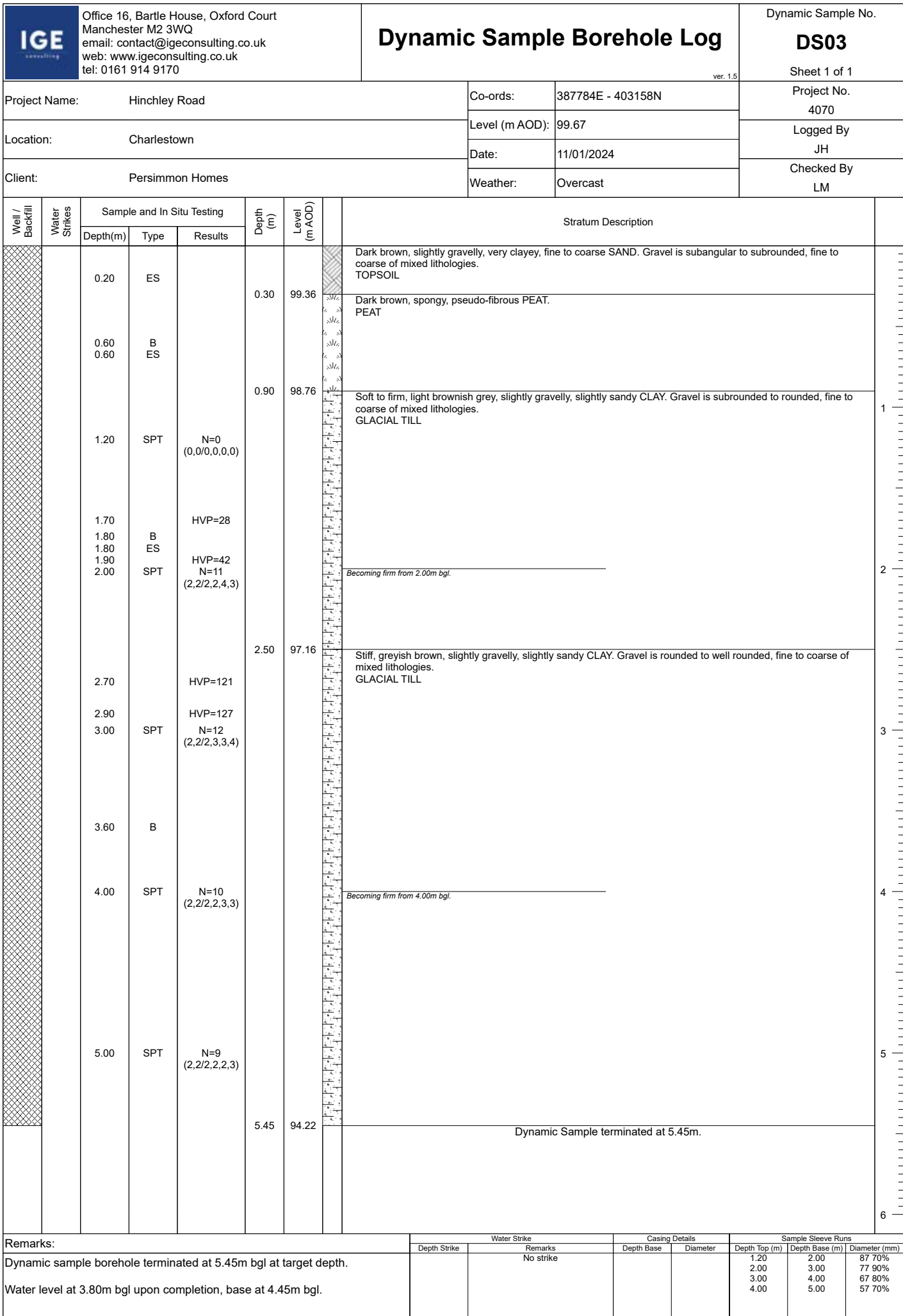
DS02

Hinchley Road



Image 1. DS02:
View left to right, top to bottom.

HDP - 0.00m - 1.20m
1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m



Dynamic Sample Borehole Photos

DS03

Hinchley Road



Image 1. DS03 HDP:
View left to right.



Image 2. DS03:
View right to left, top to bottom.

1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Dynamic Sample Borehole Log ver. 1.5				Dynamic Sample No. DS04 Sheet 1 of 1		
Project Name: Hinchley Road						Co-ords: 387869E - 403152N		Project No. 4070				
Location: Charlestown						Level (m AOD): 100.56		Logged By JH				
Client: Persimmon Homes						Date: 11/01/2024		Checked By LM				
Weather: Overcast												
Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description				
		Depth(m)	Type	Results								
		0.10	ES		0.30	100.26		Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded, fine to coarse of mixed lithologies. TOPSOIL	1			
		0.70	B					Dark brown, spongy, pseudo-fibrous PEAT. PEAT				
		0.70	ES									
		1.20	SPT	N=0 (0,0/0,0,0,0)	1.30	99.26		Firm, light greyish brown, slightly gravelly, slightly sandy CLAY with rare plant remains. GLACIAL TILL				
		1.60		HVP=54								
		1.70	ES	HVP=47								
		1.80										
		2.00	SPT	N=0 (0,0/0,0,0,0)	2.00	98.56		Soft, light brownish grey, slightly gravelly, sandy CLAY with occasional gravel sized pockets of light greyish brown, fine to coarse SAND. GLACIAL TILL				
		2.60	B									
		3.00	SPT	N=11 (1,2/1,3,3,4)	3.10	97.46		Firm to stiff, greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is rounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL				
4.00	SPT	N=10 (1,2/2,2,3,3)						4				
5.00	SPT	N=10 (2,1/2,3,2,3)						5				
					5.45	95.11	Dynamic Sample terminated at 5.45m.		6			
Remarks:												
Dynamic sample borehole terminated at 5.45m bgl at target depth. Water level was at 2.00m bgl upon completion with the base at 2.50m bgl.						Water Strike		Casing Details		Sample Sleeve Runs		
						Depth Strike	Remarks	Depth Base	Diameter	Depth Top (m)	Depth Base (m)	Diameter (mm)
							No strike			1.20	2.00	87 85%
										2.00	3.00	77 90%
										3.00	4.00	67 45%
				4.00	5.00	57 25%						

Dynamic Sample Borehole Photos

DS04

Hinchley Road



Image 1. DS04:
View left to right, top to bottom.

HDP - 0.00m - 1.20m
1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Dynamic Sample Borehole Log ver. 1.5				Dynamic Sample No. DS05 Sheet 1 of 1	
Project Name: Hinchley Road				Co-ords: 387839E - 403179N		Project No. 4070			
Location: Charlestown				Level (m AOD): 100.40		Logged By JH			
Client: Persimmon Homes				Date: 11/01/2024		Checked By LM			
Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description	
		Depth(m)	Type	Results					
		0.20	ES		0.30	100.10	Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. TOPSOIL		
		0.60	B		0.80	99.60	Very soft to soft, dark brown, slightly gravelly, slightly sandy CLAY with occasional plant remains and gravel to cobble sized inclusions of dark brown, pseudo-fibrous PEAT. Gravel is subangular to subrounded, fine to coarse of mixed lithologies. GLACIAL TILL		
		0.60	ES				Soft, light grey, slightly gravelly, slightly sandy CLAY. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL		
		1.20	SPT	N=4 (0,1/1,1,1,1)		Becoming firm from 1.30m bgl			
		1.70	B						
		1.70	ES	HVP=64 HVP=68					
		1.90							
		2.00	SPT	N=10 (1,2/2,2,3,3)		Becoming stiff from 2.00m bgl.			
		3.00	SPT	N=13 (1,2/2,3,4,4)					
		3.70	B						
4.00	SPT	N=14 (2,2/3,3,4,4)							
5.00	SPT	N=11 (2,2/2,3,3,3)							
5.45						Dynamic Sample terminated at 5.45m.			
Remarks:		Water Strike		Casing Details		Sample Sleeve Runs			
Dynamic sample borehole terminated at 5.45m bgl at target depth.		Depth Strike	Remarks	Depth Base	Diameter	Depth Top (m)	Depth Base (m)	Diameter (mm)	
Borehole was dry upon completion with the base at 4.00m bgl.		3.00				1.20	2.00	87 100%	
						2.00	3.00	77 90%	
						3.00	4.00	67 100%	
						4.00	5.00	57 70%	

Dynamic Sample Borehole Photos

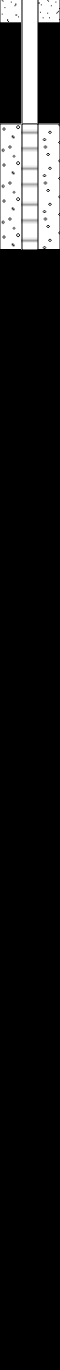
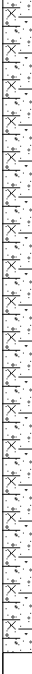
DS05

Hinchley Road



Image 1. DS05:
View left to right, top to bottom.

HDP - 0.00m - 1.20m
1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Dynamic Sample Borehole Log ver. 1.5			Dynamic Sample No. DS06 Sheet 1 of 1			
Project Name: Hinchley Road				Co-ords: 387787E - 403124N		Project No. 4070				
Location: Charlestown				Level (m AOD): 99.62		Logged By JH				
Client: Persimmon Homes				Date: 11/01/2024		Checked By LM				
Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description		
		Depth(m)	Type	Results						
		0.20	ES	N=4 (0,1/1,1,1,1)	0.30	99.32		Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded, fine to coarse of mixed lithologies. TOPSOIL	1	
		0.70	B		Dark brown, plastic, pseudo-fibrous PEAT. PEAT					
		0.70	ES							
		1.20	SPT	N=10 (1,1/2,2,3,3)	1.10	98.52		Firm, light brownish grey, slightly gravelly, slightly sandy CLAY with rare plant remains. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL <i>Becoming soft from 1.40m bgl.</i>	2	
		1.90	ES		Soft to firm, greyish brown, slightly gravelly, slightly sandy, very silty CLAY with rare plant remains. Gravel is rounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL					
		2.00	SPT							
		2.50	B	N=15 (2,2/3,3,4,5)	1.60	98.02		<i>Becoming firm from 2.70m bgl.</i>	3	
		3.00	SPT		<i>Becoming soft from 3.00m bgl.</i>					
		4.00	SPT	N=15 (3,3/3,4,4,4)				<i>Becoming stiff from 3.70m bgl.</i>	4	
4.80	B									
5.00	SPT	N=17 (3,4/4,4,5,4)								5
					5.45	94.17		Dynamic Sample terminated at 5.45m.	6	
Remarks:										
Dynamic sample borehole terminated at 5.45m bgl at target depth. Well was dry upon completion with the base at 2.00m bgl.				Water Strike		Casing Details		Sample Sleeve Runs		
				Depth Strike	Remarks	Depth Base	Diameter	Depth Top (m)	Depth Base (m)	Diameter (mm)
					No strike			1.20	2.00	87 80%
								2.00	3.00	77 70%
								3.00	4.00	67 70%
								4.00	5.00	57 90%

Dynamic Sample Borehole Photos

DS06

Hinchley Road



Image 1. DS06 HDP:
View left to right.



Image 2. DS06:
View right to left, top to bottom.

1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Dynamic Sample Borehole Log ver. 1.5				Dynamic Sample No. DS07		Sheet 1 of 1		
Project Name: Hinchley Road						Co-ords: 387788E - 403056N		Project No. 4070						
Location: Charlestown						Level (m AOD): 99.51		Logged By JH						
Client: Persimmon Homes						Date: 12/01/2024		Checked By LM						
Weather: Overcast														
Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description						
		Depth(m)	Type	Results										
		0.20	ES		0.20	99.31		Soft, dark brown, slightly gravelly, slightly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded, fine to coarse of mixed lithologies, MADE GROUND						
		0.50	ES		0.80	98.71		Dark greyish brown, very gravelly, slightly clayey, fine to coarse SAND. Gravel is angular to subangular, fine to coarse of red brick, clinker, concrete, slate and sandstone. MADE GROUND						
		1.20	SPT	N=8 (3,1/2,2,1,3)	1.50	98.01		Soft to firm, dark brownish grey, slightly gravelly, slightly sandy CLAY. Gravel is angular to rounded, fine to coarse of red brick and mixed natural lithologies. MADE GROUND	1					
		1.70	B	HVP=135				Ceramic land drain at 1.40m bgl.						
		1.70								2				
		1.90	B	HVP=133										
		2.00	SPT	N=15 (3,4/4,4,3,4)				Stiff, greyish brown, slightly gravelly, slightly sandy CLAY. Gravel is rounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL	3					
								Becoming silty from 2.00m bgl.						
		2.70	ES							4				
		3.00	SPT	N=21 (3,3/4,4,6,7)										
4.00	SPT	N=11 (2,2/2,3,3,3)						5						
					4.45	95.06		Dynamic Sample terminated at 4.45m.	6					
Remarks:														
Dynamic sample borehole terminated at 4.45m bgl due to collapse Water level at 2.65m bgl upon completion, base at 3.90m bgl.								Water Strike		Casing Details		Sample Sleeve Runs		
								Depth Strike	Remarks	Depth Base	Diameter	Depth Top (m)	Depth Base (m)	Diameter (mm)
								1.40	Water present in land drain			1.20	2.00	87 60%
												2.00	3.00	77 45%
								3.00	4.00	67 30%				

Dynamic Sample Borehole Photos

DS07

Hinchley Road



Image 1. DS07:
View right to left, top to bottom.

HDP - 0.00m - 1.20m
1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m



Dynamic Sample Borehole Photos

DS08

Hinchley Road

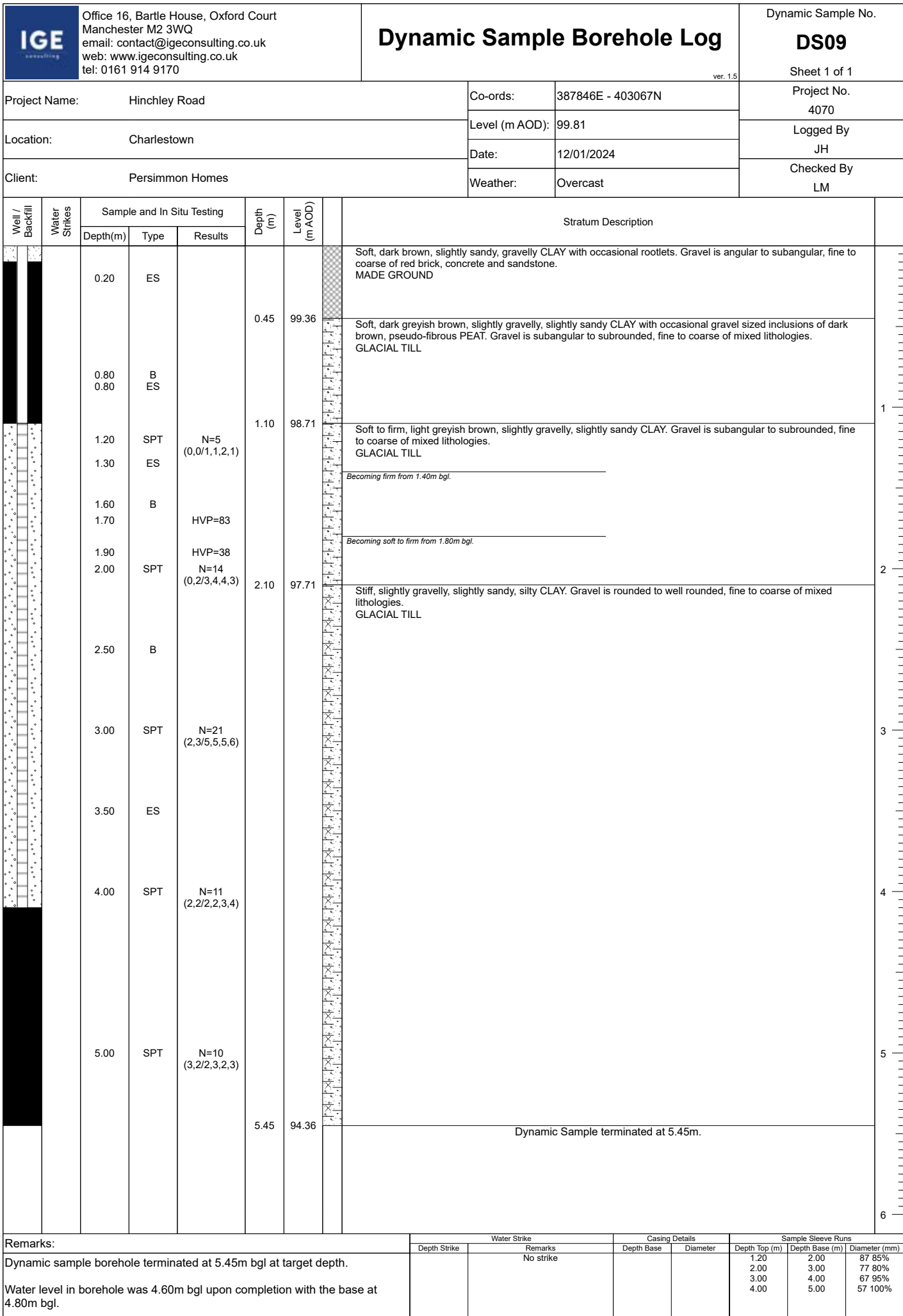


Image 1. DS08 SPOIL:
View left to right.



Image 2. DS08:
View right to left, top to bottom.

1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m



Dynamic Sample Borehole Photos

DS09

Hinchley Road



Image 1. DS09:

View left to right, top to bottom.

HDP - 0.00m - 1.20m

1.20m - 2.00m

2.00m - 3.00m

3.00m - 4.00m

4.00m - 5.00m



ver. 1.5

DS10

Sheet 1 of 1

Project Name: Hinchley Road

Co-ords:	387873E - 403088N
----------	-------------------

Project No.
4070

Location: Charlestown

Level (m AOD): 100.78

Logged By
JH

Client: Persimmon Homes

Date: 12/01/2024

Checked By
LM

Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description	
		Depth(m)	Type	Results					
		0.20	ES	N=1 (0,0/0,0,0,1)	0.50	100.28		Greyish brown, very gravelly, clayey, fine to coarse SAND. Gravel is angular to subangular, fine to coarse of red brick, concrete and sandstone. MADE GROUND	1
		0.80 0.80	B ES		1.00	99.78		Dark brownish grey, firm, fibrous PEAT. PEAT	
		1.20 1.20	ES SPT		1.40	99.38	Brown, plastic, pseudo-fibrous PEAT. PEAT		
		1.60	ES		1.80	98.98	Soft, light grey, slightly gravelly, slightly sandy, silty CLAY with occasional plant remains. Gravel is subrounded to rounded, fine to coarse of mixed lithologies. GLACIAL TILL	2	
		1.90 2.00	ES SPT		N=0 (0,0/0,0,0,0)	3.00	SPT		N=6 (1,0/1,1,2,2)
		3.60	97.18					Firm, light greyish brown, slightly gravelly, slightly sandy, silty CLAY. Gravel is rounded to well rounded, fine to coarse of mixed lithologies. GLACIAL TILL	
				4.00				SPT	
		5.00	SPT	N=15 (1,1/2,4,5,4)					
		5.45	95.33	Dynamic Sample terminated at 5.45m.					

Remarks:	Water Strike		Casing Details		Sample Sleeve Runs		
	Depth Strike	Remarks	Depth Base	Diameter	Depth Top (m)	Depth Base (m)	Diameter (mm)
Dynamic sample borehole terminated at 5.45m bgl at target depth.		No strike			1.20	2.00	87 80%
					2.00	3.00	77 40%
					3.00	4.00	67 100%
Water level in borehole was 1.20m bgl upon completion with the base at 1.60m bgl.					4.00	5.00	57 20%

Dynamic Sample Borehole Photos

DS10

Hinchley Road



Image 1. DS10:
View right to left, top to bottom.

HDP - 0.00m - 1.20m
1.20m - 2.00m
2.00m - 3.00m
3.00m - 4.00m
4.00m - 5.00m

APPENDIX 5

ROTARY BOREHOLE LOGS

Rotary Open Hole Log

Rotary Hole No.

RH01

Sheet 1 of 4

ver. 1.4

Project Name:	Hinchley Road	Co-ords:	387783E - 403045N	Project No.:	4070
Location:	Charlestown	Date:	12/02/2024	Level (mAOD):	99.63
		Weather:	Clear and cold	Logged By:	DG
Client:	Persimmon Homes	Flush Type:	Water	Checked By:	AL

Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details	
		Depth (mbgl)	Type						
				0.30	99.33		TOPSOIL. TOPSOIL		
							PEAT. PEAT		
				0.70	98.93		CLAY. GLACIAL TILL		
Continued on Next Sheet									
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 33.00m as could not advance drilling due to sand and gravel.									

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH01 Sheet 2 of 4	
Project Name: Hinchley Road						Co-ords: 387783E - 403045N				Project No.: 4070	
Location: Charlestown						Date: 12/02/2024				Level (mAOD): 99.63	
Client: Persimmon Homes						Weather: Clear and cold				Logged By: DG	
						Flush Type: Water				Checked By: AL	
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details			
		Depth (mbgl)	Type								
							CLAY. GLACIAL TILL				
										11	
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	
Continued on Next Sheet											
Water Strike					Casing Details			Chiselling Details			
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)	
				No recorded strikes	GL	5.00	100				
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 33.00m as could not advance drilling due to sand and gravel.											

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170			Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH01 Sheet 3 of 4	
Project Name: Hinchley Road					Co-ords: 387783E - 403045N				Project No.: 4070	
Location: Charlestown					Date: 12/02/2024				Level (mAOD): 99.63	
Client: Persimmon Homes					Weather: Clear and cold				Logged By: DG	
					Flush Type: Water				Checked By: AL	
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details		
		Depth (mbgl)	Type							
							CLAY. GLACIAL TILL			
									21	
									22	
									23	
									24	
									25	
									26	
									27	
									28	
									29	
				30.00	69.63				30	
Continued on Next Sheet										
Water Strike		Casing Details		Chiselling Details						
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)
				No recorded strikes	GL	5.00	100			
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 33.00m as could not advance drilling due to sand and gravel.										

Rotary Open Hole Log

ver. 1.4

Rotary Hole No.

RH01

Sheet 4 of 4

Project Name: Hinchley Road

Co-ords: 387783E - 403045N

Project No.: 4070

Location: Charlestown

Date: 12/02/2024

Level (mAOD):	99.63
---------------	-------

Weather: Clear and cold

Logged By: DG

Client: Persimmon Homes

Flush Type: Water

Checked By: AL

Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mACD)	Legend	Stratum Description	Details
		Depth (mbgl)	Type					
				33.00	66.63		SAND and GRAVEL. GLACIAL TILL.	
								End of Rotary Core Hole at 33.00m
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 33.00m as could not advance drilling due to sand and gravel.								

Rotary Open Hole Log

Rotary Hole No.

RH02

Sheet 1 of 3

ver. 1.4

Project Name: Hinchley Road

Co-ords: 387791E - 403120N

Project No.: 4070

Location: Charlestown

Date: 13/02/2024

Level (mAOD):	99.37
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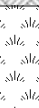
Weather: Clear and cold

Logged By: DG

Client: Persimmon Homes

Flush Type: Water

Checked By: AL

Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details		
		Depth (mbgl)	Type							
				0.30	99.07		TOPSOIL. TOPSOIL			
				1.00	98.37		PEAT. PEAT			
Continued on Next Sheet										
Water Strike				Casing Details			Chiselling Details			
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)
				No recorded strikes	GL	5.00	100			
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 30.00m as could not advance drilling due to sand and gravel.										

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH02 Sheet 3 of 3	
Project Name: Hinchley Road						Co-ords: 387791E - 403120N				Project No.: 4070	
Location: Charlestown						Date: 13/02/2024				Level (mAOD): 99.37	
Client: Persimmon Homes						Weather: Clear and cold				Logged By: DG	
						Flush Type: Water				Checked By: AL	
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details			
		Depth (mbgl)	Type								
							CLAY. GLACIAL TILL				
										21	
										22	
										23	
										24	
										25	
										26	
				27.00	72.37		SAND and GRAVEL. GLACIAL TILL			27	
										28	
										29	
				30.00	69.37		End of Rotary Core Hole at 30.00m			30	
Water Strike		Casing Details				Chiselling Details					
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)	
				No recorded strikes	GL	5.00	100				
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 30.00m as could not advance drilling due to sand and gravel.											

Rotary Open Hole Log

Rotary Hole No.

RH03

Sheet 1 of 4

ver. 1.4

Project Name: Hinchley Road

Co-ords: 387858E - 403135N

Project No.: 4070

Location: Charlestown

Date: 14/02/2024

Level (mAOD):	100.18
---------------	--------

Weather: Clear and cold

Logged By: DG

Client: Persimmon Homes

Flush Type: Water

Checked By: AL

[illegible]

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH03 Sheet 2 of 4	
Project Name: Hinchley Road						Co-ords: 387858E - 403135N				Project No.: 4070	
Location: Charlestown						Date: 14/02/2024				Level (mAOD): 100.18	
						Weather: Clear and cold				Logged By: DG	
Client: Persimmon Homes						Flush Type: Water				Checked By: AL	
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details			
		Depth (mbgl)	Type								
							CLAY. GLACIAL TILL				
										11	
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	
Continued on Next Sheet											
Water Strike		Casing Details				Chiselling Details					
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)	
				No recorded strikes	GL	35.00	140				
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 35.00m as could not advance drilling due to sand and gravel.											

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH03 Sheet 3 of 4		
Project Name: Hinchley Road				Co-ords: 387858E - 403135N				Project No.: 4070		
Location: Charlestown				Date: 14/02/2024				Level (mAOD): 100.18		
Client: Persimmon Homes				Weather: Clear and cold				Logged By: DG		
				Flush Type: Water				Checked By: AL		
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details		
		Depth (mbgl)	Type							
							CLAY. GLACIAL TILL			
				24.00	76.18		SAND and GRAVEL GLACIAL TILL			
							Continued on Next Sheet			
Water Strike		Casing Details		Chiselling Details						
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)
				No recorded strikes	GL	35.00	140			
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 35.00m as could not advance drilling due to sand and gravel.										

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH04 Sheet 1 of 5	
Project Name: Hinchley Road						Co-ords: 387922E - 403159N				Project No.: 4070	
Location: Charlestown						Date: 19/02/2024				Level (mAOD): 101.65	
Client: Persimmon Homes						Weather: Clear and cold				Logged By: DG	
						Flush Type: Water				Checked By: AL	
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details			
		Depth (mbgl)	Type								
				0.70	100.95	PEAT. PEAT CLAY. GLACIAL TILL					
Continued on Next Sheet											
Water Strike		Casing Details				Chiselling Details					
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)	
				No recorded strikes	GL	30.00	140				
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 40.50m as could not advance drilling due to sand and gravel.											

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH04 Sheet 2 of 5		
Project Name: Hinchley Road				Co-ords: 387922E - 403159N				Project No.: 4070		
Location: Charlestown				Date: 19/02/2024				Level (mAOD): 101.65		
Client: Persimmon Homes				Weather: Clear and cold				Logged By: DG		
				Flush Type: Water				Checked By: AL		
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details		
		Depth (mbgl)	Type							
				15.00	86.65		CLAY. GLACIAL TILL			
							SAND and GRAVEL. GLACIAL TILL			
Continued on Next Sheet										
Water Strike		Casing Details		Chiselling Details						
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)
				No recorded strikes	GL	30.00	140			
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 40.50m as could not advance drilling due to sand and gravel.										

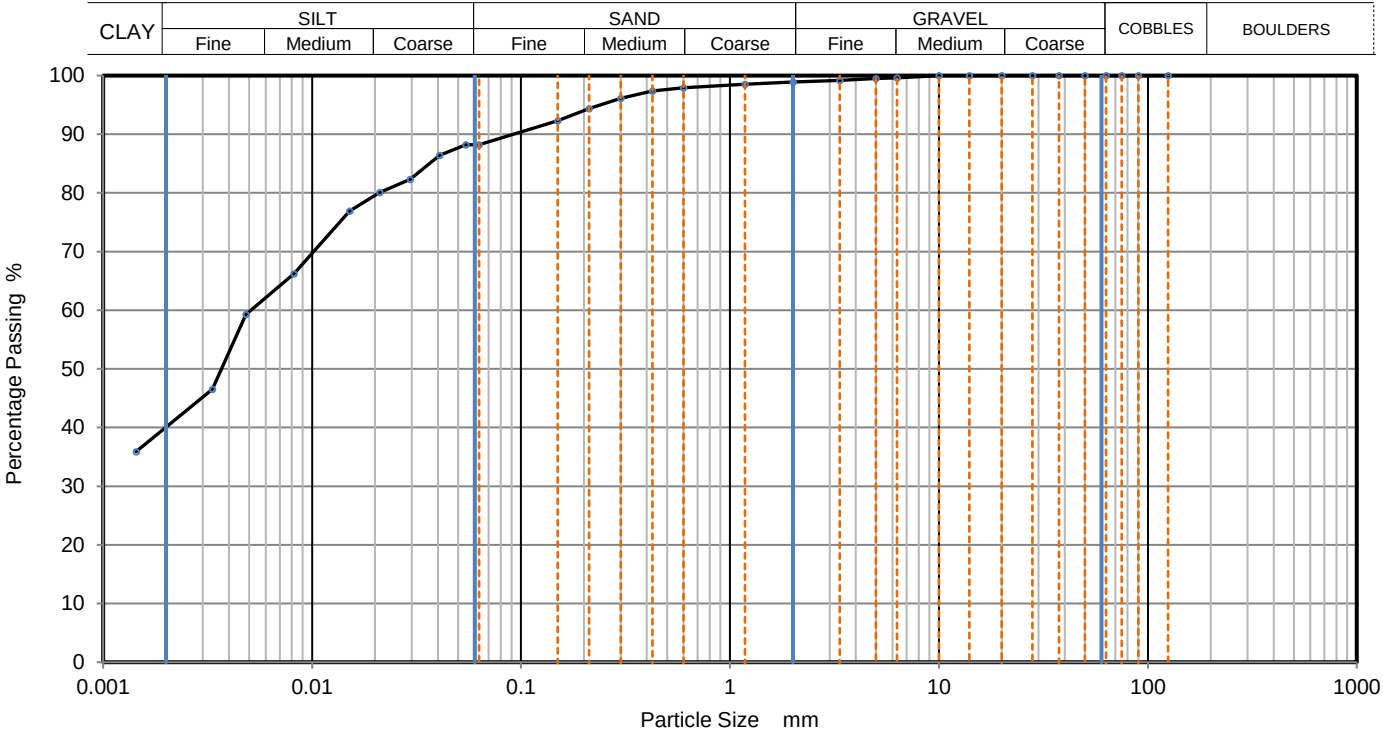
IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170		Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH04 Sheet 4 of 5		
Project Name: Hinchley Road				Co-ords: 387922E - 403159N				Project No.: 4070		
Location: Charlestown				Date: 19/02/2024				Level (mAOD): 101.65		
Client: Persimmon Homes				Weather: Clear and cold				Logged By: DG		
				Flush Type: Water				Checked By: AL		
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details		
		Depth (mbgl)	Type							
							SAND and GRAVEL. GLACIAL TILL			
									31	
									32	
									33	
									34	
									35	
									36	
									37	
									38	
									39	
									40	
Continued on Next Sheet										
Water Strike		Casing Details		Chiselling Details						
Depth Struck (m)	Elapsed Time (min)	Water Level (m)	Depth Sealed (m)	Remarks	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Duration (hrs)
				No recorded strikes	GL	30.00	140			
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 40.50m as could not advance drilling due to sand and gravel.										

IGE consulting		Office 16, Bartle House, Oxford Court Manchester M2 3WQ email: contact@igeconsulting.co.uk web: www.igeconsulting.co.uk tel: 0161 914 9170				Rotary Open Hole Log ver. 1.4				Rotary Hole No. RH04 Sheet 5 of 5	
Project Name: Hinchley Road						Co-ords: 387922E - 403159N				Project No.: 4070	
Location: Charlestown						Date: 19/02/2024				Level (mAOD): 101.65	
						Weather: Clear and cold				Logged By: DG	
Client: Persimmon Homes						Flush Type: Water				Checked By: AL	
Well / Backfill	Water Strikes	Samples & Testing		Depth (mbgl)	Level (mAOD)	Legend	Stratum Description	Details			
		Depth (mbgl)	Type								
				40.50	61.15	SAND and GRAVEL. GLACIAL TILL	End of Rotary Core Hole at 40.50m				
									41		
									42		
									43		
									44		
									45		
									46		
									47		
									48		
									49		
									50		
Water Strike											
Depth Struck (m)		Elapsed Time (min)		Water Level (m)		Depth Sealed (m)		Remarks		No recorded strikes	
Casing Details											
Depth Top (m)		Depth Base (m)		Diameter (mm)							
GL		30.00		140							
Chiselling Details											
Depth Top (m)		Depth Base (m)		Duration (hrs)							
Remarks: All descriptions are driller's descriptions. Rotary openhole borehole terminated at 40.50m as could not advance drilling due to sand and gravel.											

APPENDIX 6

GEOTECHNICAL LABORATORY TESTING RESULTS

GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J260471
				Borehole/Pit No.	DS09
Project Name	Hinchley Road			Sample No.	
Soil Description	Brown slightly sandy CLAY			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP20240124152



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0545	88
90	100	0.0408	86
75	100	0.0294	82
63	100	0.0211	80
50	100	0.0151	77
37.5	100	0.0082	66
28	100	0.0048	59
20	100	0.0033	47
14	100	0.0014	36
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99		
0.6	98	Particle density (assumed) 2.65 Mg/m3	
0.425	97		
0.3	96		
0.212	94		
0.15	92		
0.063	88		

Dry Mass of sample, g	1184
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Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	11
Silt	48
Clay	40

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Date Printed	08/02/2024
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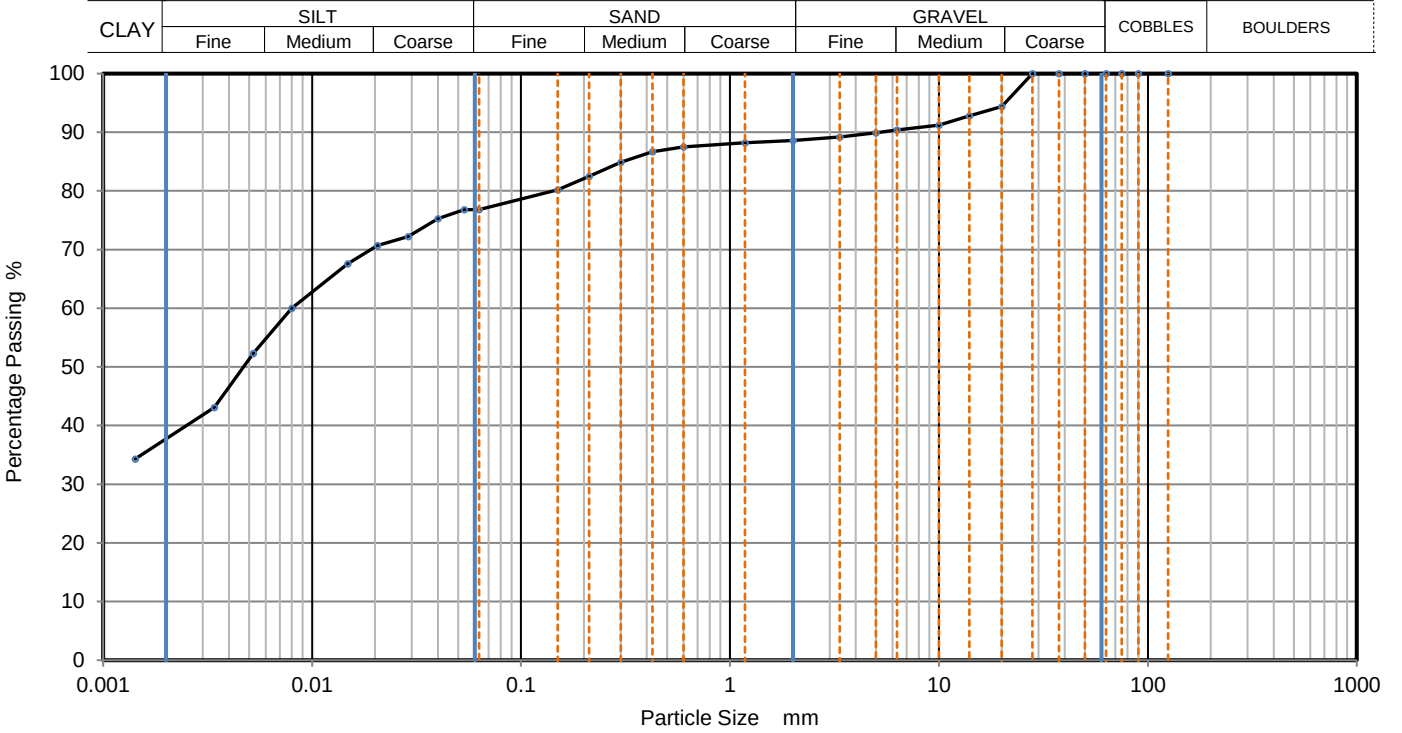


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PSD

GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J260471
				Borehole/Pit No.	TP04
Project Name	Hinchley Road			Sample No.	
Soil Description	Brown slightly sandy slightly gravelly CLAY			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP20240124147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0534	77
90	100	0.0400	75
75	100	0.0288	72
63	100	0.0206	71
50	100	0.0148	68
37.5	100	0.0080	60
28	100	0.0052	52
20	94	0.0034	43
14	93	0.0014	34
10	91		
6.3	90		
5	90		
3.35	89		
2	89		
1.18	88		
0.6	88	Particle density (assumed) 2.65 Mg/m3	
0.425	87		
0.3	85		
0.212	83		
0.15	80		
0.063	77		

Dry Mass of sample, g 1587

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	12
Silt	39
Clay	38

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Date Printed 08/02/2024

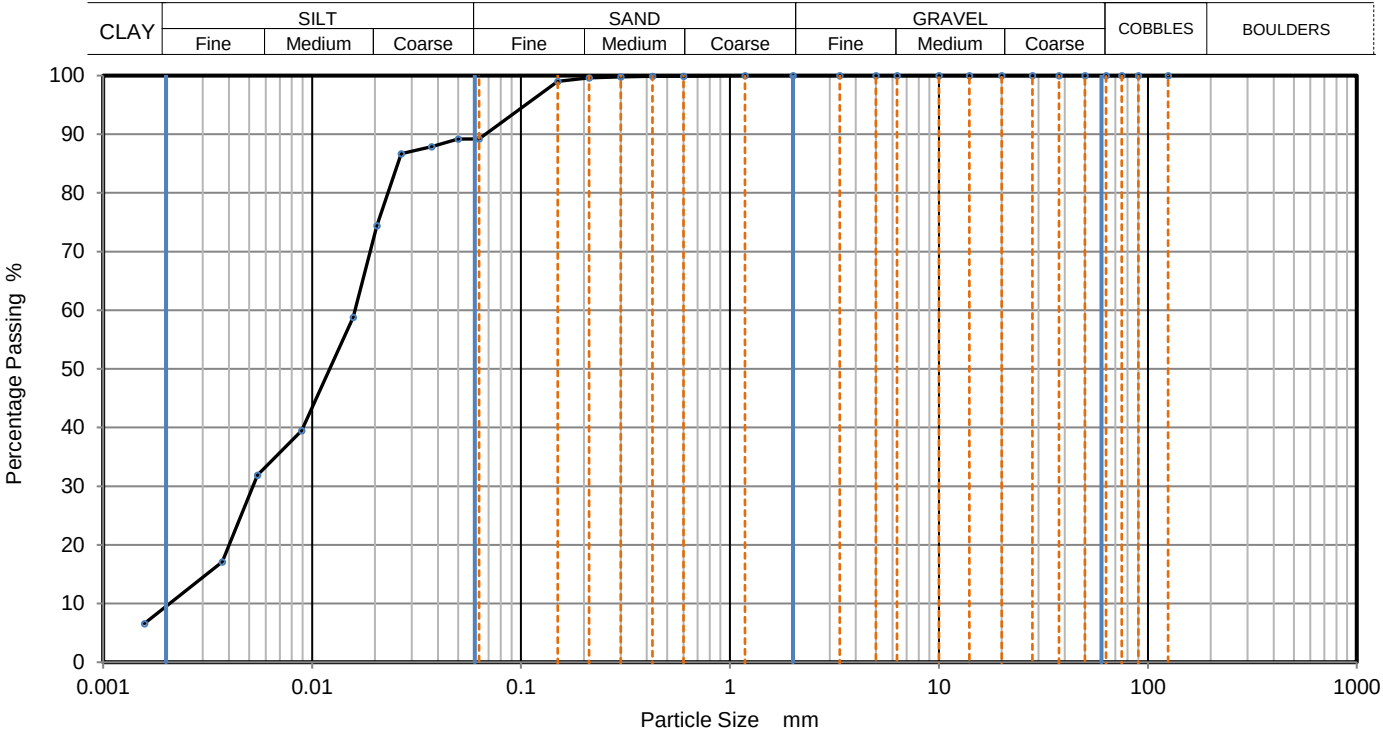


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PSD

GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J260471
				Borehole/Pit No.	TP05
Project Name	Hinchley Road			Sample No.	
Soil Description	Brown slightly sandy silty CLAY			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP2024012963



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0499	89
90	100	0.0374	88
75	100	0.0267	87
63	100	0.0204	74
50	100	0.0157	59
37.5	100	0.0089	40
28	100	0.0055	32
20	100	0.0037	17
14	100	0.0016	7
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed) 2.65 Mg/m3	
0.425	100		
0.3	100		
0.212	100		
0.15	99		
0.063	89		

Dry Mass of sample, g	1431
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Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	11
Silt	80
Clay	10

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	7.7
Curvature Coefficient	0.81

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Date Printed	08/02/2024
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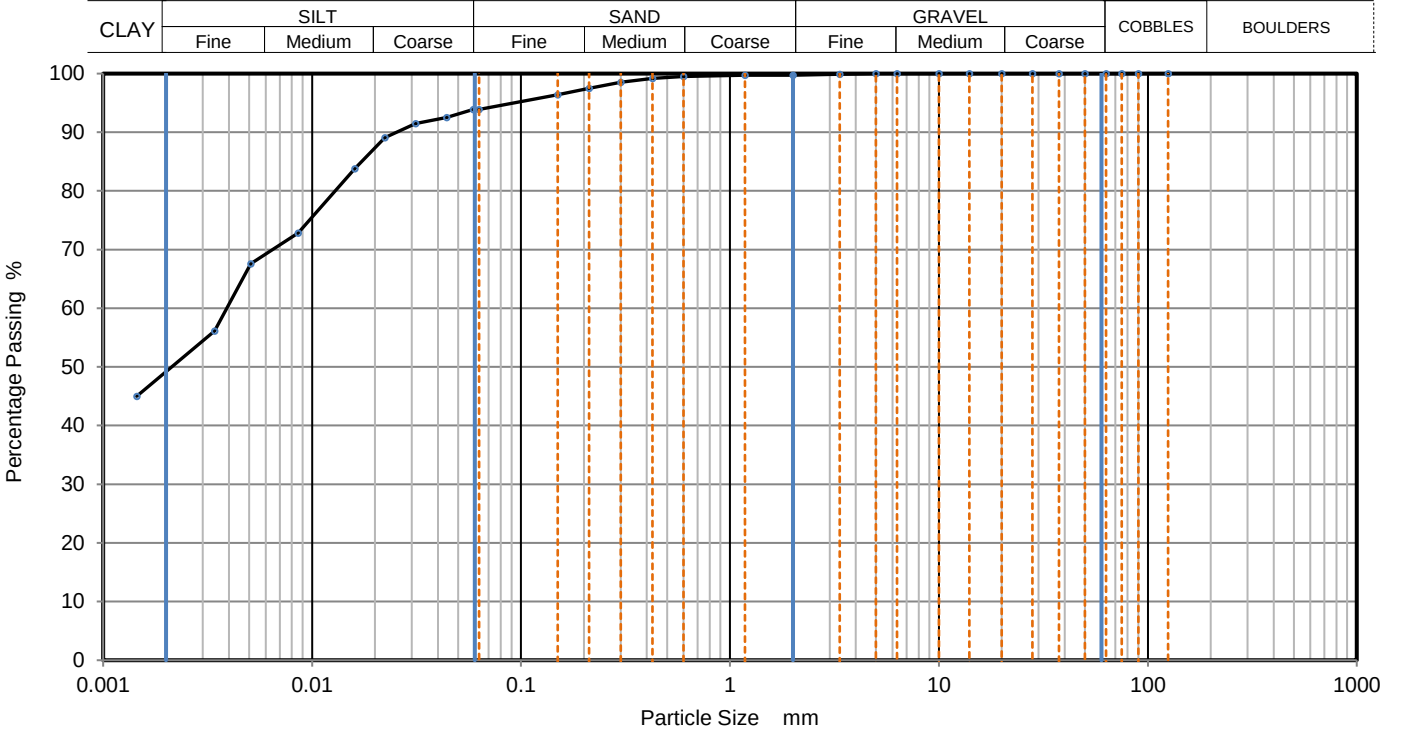


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PSD

GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J260471
				Borehole/Pit No.	TP11
Project Name	Hinchley Road			Sample No.	
Soil Description	Brown slightly sandy CLAY			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP20240124153



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0591	94
90	100	0.0440	93
75	100	0.0312	92
63	100	0.0223	89
50	100	0.0160	84
37.5	100	0.0086	73
28	100	0.0051	68
20	100	0.0034	56
14	100	0.0014	45
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed) 2.65 Mg/m3	
0.425	99		
0.3	99		
0.212	98		
0.15	96		
0.063	94		

Dry Mass of sample, g

1250

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	6
Silt	45
Clay	49

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed

08/02/2024

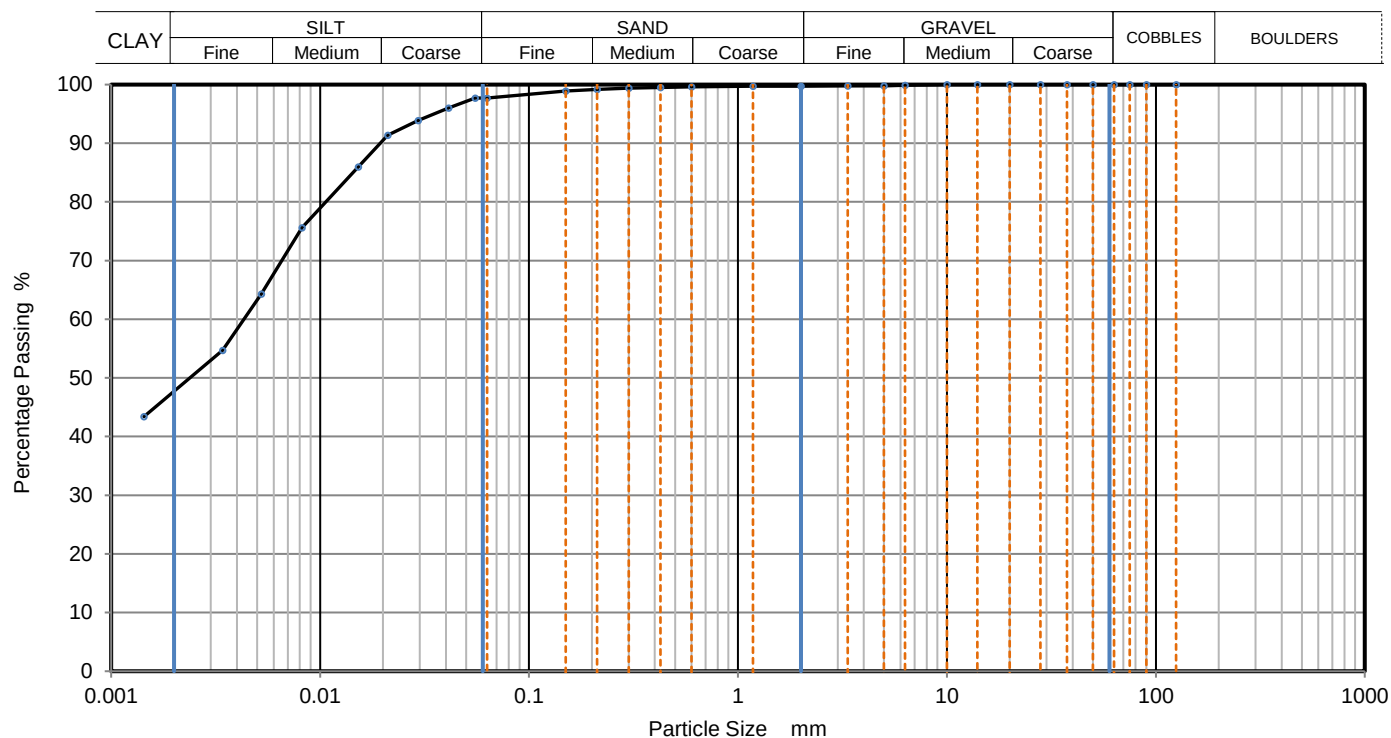


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PSD

GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J260471
				Borehole/Pit No.	TP16
Project Name	Hinchley Road			Sample No.	
Soil Description	Brown silty CLAY			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP20240124157



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0553	98
90	100	0.0413	96
75	100	0.0294	94
63	100	0.0211	91
50	100	0.0152	86
37.5	100	0.0082	76
28	100	0.0052	64
20	100	0.0034	55
14	100	0.0014	43
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed)	
0.425	100	2.65	Mg/m3
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Dry Mass of sample, g

1007

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	2
Silt	50
Clay	48

Grading Analysis		
D100	mm	
D60	mm	0.00432
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed

08/02/2024



7758



PSD

Project Name	Hinchley Road
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All tests performed in accordance with BS1377:1990 unless specified otherwise		Date Printed	06/02/2024
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APPENDIX 7

CHEMICAL LABORATORY TESTING RESULTS

IGE Consulting
Office 11
Bartle House
Oxford Court
Manchester
M2 3WQ

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

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

e: tompudifoot@igeconsulting.co.uk

Analytical Report Number : 24-000415

Replaces Analytical Report Number: 24-000415, issue no. 1
Additional analysis undertaken.
Extra metals analysis carried out

Project / Site name:	Hinchley Road	Samples received on:	15/01/2024
Your job number:	4070	Samples instructed on/ Analysis started on:	18/01/2024
Your order number:		Analysis completed by:	29/01/2024
Report Issue Number:	2	Report issued on:	12/02/2024
Samples Analysed:	30 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103469	103470	103471	103472	103473
Sample Reference				TP01	TP01	TP02	TP02	TP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.10	0.20	0.60	0.20
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	49	16	38	74	34
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	-	SPU	-	SPU

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	5.7	5.6	4.3	4.5	4.9
Total Cyanide	mg/kg	1	MCERTS	2.1	< 1.0	2.7	2.2	2.1
Free Cyanide	mg/kg	1	MCERTS	1.6	< 1.0	1.3	1.3	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	43	27	35	23	30
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	21.3	13.6	17.3	11.6	15.2
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-	-
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	-	-	-	-	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	-	-	-
Organic Matter	%	0.1	MCERTS	31	-	28	32	20
Organic Matter (automated)	%	0.1	MCERTS	-	1.4	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	0.8	-	-	-
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	18	-	16	19	12
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	-	-	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	38	< 2.0	69	62	26
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	19	< 5.0	35	31	13

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.37	0.52	0.5	0.97	0.3
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07	< 0.05	0.09
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.05	< 0.05	0.07
Phenanthrene	mg/kg	0.05	MCERTS	0.12	< 0.05	0.44	< 0.05	0.72
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05	0.13
Fluoranthene	mg/kg	0.05	MCERTS	0.26	< 0.05	1.1	< 0.05	1.2
Pyrene	mg/kg	0.05	MCERTS	0.22	< 0.05	1	< 0.05	1.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.6	< 0.05	0.71
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.59	< 0.05	0.7
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.82	< 0.05	0.91
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.33	< 0.05	0.31
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.62	< 0.05	0.65
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.31	< 0.05	0.37
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.38	< 0.05	0.36

Total PAH

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103469	103470	103471	103472	103473
Sample Reference				TP01	TP01	TP02	TP02	TP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.10	0.20	0.60	0.20
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	0.97	< 0.80	6.91	0.97	7.61

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.3	5.3	29	2.8	27
Barium (aqua regia extractable)	mg/kg	1	MCERTS	87	170	120	56	140
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.4	0.8	< 0.2	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	32	19	7.1	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	23	54	27	55
Lead (aqua regia extractable)	mg/kg	1	MCERTS	49	14	160	6.1	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.5	< 0.3	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.5	40	26	6.5	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	34	33	8.4	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	45	55	100	7.7	90
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	-	-
Magnesium (water soluble)	mg/kg	5	NONE	-	-	-	-	-

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	42	< 10	46	130	39
Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	42	< 10	46	130	39

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

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103474	103475	103476	103477	103478
Sample Reference				TP03	TP04	TP05	TP05	TP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	0.80	0.10	0.90	0.10
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	16	45	81	44
Total mass of sample received	kg	0.1	NONE	0.9	0.9	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	-	SPU	-	SPU

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.7	7.1	5.3	4.7	5.3
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	1.9	1.4	2.2
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	1.2
Total Sulphate as SO ₄	%	0.005	MCERTS	0.02	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	17	31	42	200	48
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.59	15.7	21.2	98.4	24.1
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	100	-	-	-	-
Total Sulphur	%	0.005	MCERTS	0.01	-	-	-	-
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	26	-	-	-	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	1.69	-	-	-	-
Organic Matter	%	0.1	MCERTS	-	-	30	-	25
Organic Matter (automated)	%	0.1	MCERTS	-	1.4	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	0.8	-	-	-
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-	17	16	14
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	-	-	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	8	49	< 2.0	35
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	< 5.0	25	< 5.0	18

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	0.31	0.37	0.4	0.84
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.06	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	0.07	0.51	< 0.05	0.52
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.09	< 0.05	0.09
Fluoranthene	mg/kg	0.05	MCERTS	-	0.06	1	< 0.05	1.2
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	1	< 0.05	1.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.54	< 0.05	0.64
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	0.57	< 0.05	0.78
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	< 0.05	0.88	< 0.05	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	< 0.05	0.18	< 0.05	0.33
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.58	< 0.05	0.77
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.33	< 0.05	0.38
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	0.39	< 0.05	0.5

Total PAH

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103474	103475	103476	103477	103478
Sample Reference				TP03	TP04	TP05	TP05	TP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	0.80	0.10	0.90	0.10
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	< 0.80	6.57	< 0.80	8.4

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	6.1	16	4.2	26
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	140	150	90	130
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.3	0.8	1.1	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	-	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	33	10	12	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	23	36	22	55
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	12	130	5.9	130
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	0.3	< 0.3	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	34	14	7.7	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	1.5	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	34	18	12	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	59	71	6.3	90
Magnesium (leachate equivalent)	mg/l	2.5	NONE	8.3	-	-	-	-
Magnesium (water soluble)	mg/kg	5	NONE	17	-	-	-	-

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	-	< 10	51	100	42
Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	-	< 10	51	100	42

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

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103479	103480	103481	103482	103483
Sample Reference				TP06	TP06	TP08	TP09	TP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.40	0.60	0.60	1.60
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	83	15	83	74	21
Total mass of sample received	kg	0.1	NONE	1.2	0.8	0.3	0.8	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-	-	-	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	U/S**	5.1	U/S**	U/S**	7.1
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	1.8	-
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Total Sulphate as SO ₄	%	0.005	MCERTS	0.059	-	0.088	-	0.012
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	50	9.9	65	200	12
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	25.1	4.95	32.4	99.4	5.75
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	12	-	17	-	4.8
Total Sulphur	mg/kg	50	MCERTS	1600	-	2100	-	140
Total Sulphur	%	0.005	MCERTS	0.158	-	0.21	-	0.014
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	14	-	26	-	27
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	0.18	-	0.34	-	1.68
Organic Matter	%	0.1	MCERTS	-	-	-	32	-
Organic Matter (automated)	%	0.1	MCERTS	-	1.1	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	0.7	-	-	-
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-	-	19	-
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	-	< 2.0	-	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-	< 2.0	-	< 2.0
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	< 2.0	-	14	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	< 5.0	-	6.8	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	0.47	-	1.3	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.08	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.09	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.06	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	< 0.05	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	< 0.05	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-

Total PAH

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Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103479	103480	103481	103482	103483
Sample Reference				TP06	TP06	TP08	TP09	TP09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.40	0.60	0.60	1.60
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Speciated Total EPA-16 PAHs				mg/kg	0.8	ISO 17025	-	< 0.80

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	3.4	-	5.2	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	81	-	100	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.3	-	0.5	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	-	< 1.2	-	< 1.2	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	22	-	7.8	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	21	-	19	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	11	-	8.6	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	17	-	7.2	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	27	-	13	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	37	-	13	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	-	3.2	-	3.8
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	-	6.4	-	7.6

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	-	< 10	-	120	-
Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	-	< 1.0	-	< 1.0	-
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	-	< 10	-	120	-

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

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103484	103485	103486	103487	103488
Sample Reference				TP10	TP11	TP11	TP12	TP13
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	1.20	0.20	1.00
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	43	39	20	32	78
Total mass of sample received	kg	0.1	NONE	0.7	0.8	0.7	0.8	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	-	SPU	-	SPU	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	4.7	6.6	7.2	5	5.6
Total Cyanide	mg/kg	1	MCERTS	-	1.3	< 1.0	1.5	1.4
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.103	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	30	37	11	34	100
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.7	18.2	5.43	16.8	50.4
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.9	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	420	-	-	-	-
Total Sulphur	%	0.005	MCERTS	0.042	-	-	-	-
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	< 0.5	-	-	-	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	-	-	-	-
Organic Matter	%	0.1	MCERTS	29	20	-	13	29
Organic Matter (automated)	%	0.1	MCERTS	-	-	1.9	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	1.1	-	-
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	17	12	-	7.3	17
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	4.3	-	-	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	3.1	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	24	< 2.0	32	22
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	12	< 5.0	16	11

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	0.31	0.56	0.46	1.4
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	0.12	< 0.05	0.37	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	0.08	< 0.05	0.18	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	0.94	< 0.05	2.8	0.06
Anthracene	mg/kg	0.05	MCERTS	-	0.19	< 0.05	0.6	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	1.8	< 0.05	4.6	0.07
Pyrene	mg/kg	0.05	MCERTS	-	1.8	< 0.05	4	0.07
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.95	< 0.05	1.8	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	0.91	< 0.05	1.9	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	1.2	< 0.05	2.2	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	0.5	< 0.05	0.98	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1.1	< 0.05	1.7	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.47	< 0.05	0.95	< 0.05
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.12	< 0.05	0.26	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.56	< 0.05	1.1	< 0.05

Total PAH

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Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103484	103485	103486	103487	103488
Sample Reference				TP10	TP11	TP11	TP12	TP13
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	1.20	0.20	1.00
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	11	< 0.80	23.9	1.55

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	15	7.5	27	5.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	76	160	120	83
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.3	< 0.2	0.2	1.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	-	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	11	34	19	6.3
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	31	27	47	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	75	14	120	7.1
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.4	< 0.3	0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	11	40	18	6.1
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	17	35	31	8.6
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	42	69	72	13
Magnesium (leachate equivalent)	mg/l	2.5	NONE	2.6	-	-	-	-
Magnesium (water soluble)	mg/kg	5	NONE	5.3	-	-	-	-

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	-	70	< 10	42	79
Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	-	70	< 10	42	79

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

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103489	103490	103491	103492	103493
Sample Reference				TP15	TP15	TP16	TP17	DS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	2.10	0.60	0.60	0.20
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	41	16	43	22	46
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.7	0.8	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	-	SPU	SPU	DBU

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	5.8	8.1	6.2	6.8	4.8
Total Cyanide	mg/kg	1	MCERTS	1.7	-	1.3	< 1.0	3.6
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	1.1
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.012	0.078	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	31	27	70	19	47
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	15.5	13.6	35.1	9.45	23.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	1	5.5	-	-
Total Sulphur	mg/kg	50	MCERTS	-	82	740	-	-
Total Sulphur	%	0.005	MCERTS	-	0.008	0.074	-	-
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	-	9.9	< 0.5	-	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	0.64	< 0.05	-	-
Organic Matter	%	0.1	MCERTS	18	-	20	-	20
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	5.6	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	3.2	-
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	10	-	11	-	12
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	< 2.0	3.8	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	< 2.0	2.7	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	46	-	24	< 2.0	39
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	23	-	12	< 5.0	19

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.5	-	0.4	0.3	0.44
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	-	< 0.05	0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.23	-	0.09	0.3	0.07
Fluorene	mg/kg	0.05	MCERTS	0.14	-	0.06	0.27	0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.6	-	0.66	3.5	0.48
Anthracene	mg/kg	0.05	MCERTS	0.36	-	0.13	1.3	0.12
Fluoranthene	mg/kg	0.05	MCERTS	2.8	-	1.5	7.9	1.1
Pyrene	mg/kg	0.05	MCERTS	2.6	-	1.4	6.9	1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.1	-	0.6	3.7	0.53
Chrysene	mg/kg	0.05	MCERTS	1.3	-	0.8	3.2	0.55
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.6	-	1.1	4	0.81
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.52	-	0.38	1.6	0.32
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.2	-	0.61	3.4	0.59
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.62	-	0.43	1.5	0.39
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.2	-	0.11	0.38	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.77	-	0.5	1.8	0.46

Total PAH

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103489	103490	103491	103492	103493
Sample Reference				TP15	TP15	TP16	TP17	DS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	2.10	0.60	0.60	0.20
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	15.7	-	8.73	40	6.88

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	-	-	9	16
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	-	-	140	130
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	-	-	< 0.2	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	1.1
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	-	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	-	-	25	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	31	-	27	34	53
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	-	53	30	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	0.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	-	11	25	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	17	-	17	30	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	-	44	71	110

Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	9	5	-	-
Magnesium (water soluble)	mg/kg	5	NONE	-	18	10	-	-

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	27	-	73	79	60
Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	-	< 1.0	< 1.0	< 1.0
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	27	-	73	79	60

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

Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103494	103495	103496	103497	103498
Sample Reference				DS06	DS06	DS08	DS08	DS10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.70	0.80	1.90	0.20
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	34	72	36	19	18
Total mass of sample received	kg	0.1	NONE	0.8	0.7	0.8	0.7	0.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DBU	-	DBU	-	DBU

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	5.3	U/S**	6.1	7.9	8.6
Total Cyanide	mg/kg	1	MCERTS	1.6	-	1.8	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	-	0.092	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	37	22	120	27	320
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18.3	11.1	58.5	13.5	160
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	13	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	1200	-	-	-
Total Sulphur	%	0.005	MCERTS	-	0.124	-	-	-
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	-	< 0.5	-	-	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	< 0.05	-	-	-
Organic Matter	%	0.1	MCERTS	15	30	16	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	1.9	3.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	1.1	1.9
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	8.7	17	9.2	-	-
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	-	3.6	-	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	3.1	-	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	27	-	29	< 2.0	43
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	14	-	14	< 5.0	21

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.41	-	0.33	0.26	0.29
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	0.06
Acenaphthene	mg/kg	0.05	MCERTS	0.29	-	0.14	< 0.05	0.76
Fluorene	mg/kg	0.05	MCERTS	0.15	-	0.09	< 0.05	0.53
Phenanthrene	mg/kg	0.05	MCERTS	1.9	-	1	0.13	6.1
Anthracene	mg/kg	0.05	MCERTS	0.42	-	0.21	< 0.05	1.5
Fluoranthene	mg/kg	0.05	MCERTS	2.9	-	1.9	0.06	8.5
Pyrene	mg/kg	0.05	MCERTS	2.7	-	1.8	0.09	7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3	-	0.77	< 0.05	3.2
Chrysene	mg/kg	0.05	MCERTS	1.5	-	0.96	< 0.05	2.9
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.6	-	1.2	< 0.05	3.4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.8	-	0.42	< 0.05	1.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.4	-	0.91	< 0.05	3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.65	-	0.54	< 0.05	1.6
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.19	-	0.14	< 0.05	0.35
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.76	-	0.6	< 0.05	1.9

Total PAH

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Analytical Report Number: 24-000415
Project / Site name: Hinchley Road

Lab Sample Number				103494	103495	103496	103497	103498
Sample Reference				DS06	DS06	DS08	DS08	DS10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.70	0.80	1.90	0.20
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	16.9	-	11	< 0.80	42.7

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	25	-	22	4.6	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	140	-	160	130	200
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	-	0.5	0.3	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	< 0.2	0.4
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	-	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	21	34	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	57	-	39	30	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	-	100	14	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	-	21	37	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38	-	31	34	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	-	59	65	100

Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	3.4	-	-	-
Magnesium (water soluble)	mg/kg	5	NONE	-	6.9	-	-	-

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	39	-	26	< 10	86
Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	-	< 1.0	< 1.0	< 1.0
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	39	-	26	< 10	86

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

Analytical Report Number : 24-000415
Project / Site name: Hinchley Road

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
103469	TP01	None Supplied	0.5	Brown loam and clay with gravel and vegetation
103470	TP01	None Supplied	1.1	Brown clay and sand with gravel
103471	TP02	None Supplied	0.2	Brown loam and clay with gravel and vegetation
103472	TP02	None Supplied	0.6	Brown loam and clay with gravel and vegetation
103473	TP03	None Supplied	0.2	Brown loam and sand with gravel and vegetation
103474	TP03	None Supplied	2	Brown clay
103475	TP04	None Supplied	0.8	Brown clay and sand with gravel
103476	TP05	None Supplied	0.1	Brown loam and sand with gravel and vegetation
103477	TP05	None Supplied	0.9	Brown loam and clay with gravel and vegetation
103478	TP06	None Supplied	0.1	Brown loam and clay with gravel and vegetation
103479	TP06	None Supplied	0.5	Brown loam and clay with gravel and vegetation
103480	TP06	None Supplied	1.4	Brown clay and sand with gravel
103481	TP08	None Supplied	0.6	Brown loam and clay with gravel and vegetation
103482	TP09	None Supplied	0.6	Brown loam and clay with gravel and vegetation
103483	TP09	None Supplied	1.6	Brown clay and sand with gravel
103484	TP10	None Supplied	0.9	Brown loam and clay with gravel and vegetation
103485	TP11	None Supplied	0.2	Brown loam and clay with gravel and vegetation
103486	TP11	None Supplied	1.2	Brown clay
103487	TP12	None Supplied	0.2	Brown loam and clay with gravel and vegetation
103488	TP13	None Supplied	1	Brown clay and loam with gravel and vegetation
103489	TP15	None Supplied	0.2	Brown clay and loam with gravel and vegetation
103490	TP15	None Supplied	2.1	Brown clay and sand with gravel
103491	TP16	None Supplied	0.6	Brown clay and sand with gravel
103492	TP17	None Supplied	0.6	Brown clay and loam with gravel and vegetation
103493	DS03	None Supplied	0.2	Brown loam and sand with gravel and vegetation
103494	DS06	None Supplied	0.2	Brown loam and clay with gravel and vegetation
103495	DS06	None Supplied	0.7	Brown loam and clay with gravel and vegetation
103496	DS08	None Supplied	0.8	Brown clay and sand with gravel and vegetation
103497	DS08	None Supplied	1.9	Brown clay
103498	DS10	None Supplied	0.2	Brown loam and sand with gravel and vegetation

Analytical Report Number : 24-000415

Project / Site name: Hinchley Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	D	NONE

Analytical Report Number : 24-000415

Project / Site name: Hinchley Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078	D	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078	D	NONE
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

****U/S - Unsuitable for analysis, sample absorbed all water used for extraction**

Sample Deviation Report



Analytical Report Number : 24-000415

Project / Site name: Hinchley Road

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

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
DS03	N/A	S	103493	c	Free cyanide in soil	L080	c
DS03	N/A	S	103493	c	Total cyanide in soil	L080	c
DS06	N/A	S	103494	c	Free cyanide in soil	L080	c
DS06	N/A	S	103494	c	Total cyanide in soil	L080	c
DS08	N/A	S	103496	c	Free cyanide in soil	L080	c
DS08	N/A	S	103496	c	Total cyanide in soil	L080	c
DS08	N/A	S	103497	c	Free cyanide in soil	L080	c
DS08	N/A	S	103497	c	Total cyanide in soil	L080	c
DS10	N/A	S	103498	c	Free cyanide in soil	L080	c
DS10	N/A	S	103498	c	Total cyanide in soil	L080	c
TP01	N/A	S	103469	c	Free cyanide in soil	L080	c
TP01	N/A	S	103469	c	Total cyanide in soil	L080	c
TP01	N/A	S	103470	c	Free cyanide in soil	L080	c
TP01	N/A	S	103470	c	Total cyanide in soil	L080	c
TP02	N/A	S	103471	c	Free cyanide in soil	L080	c
TP02	N/A	S	103471	c	Total cyanide in soil	L080	c
TP02	N/A	S	103472	c	Free cyanide in soil	L080	c
TP02	N/A	S	103472	c	Total cyanide in soil	L080	c
TP03	N/A	S	103473	c	Free cyanide in soil	L080	c
TP03	N/A	S	103473	c	Total cyanide in soil	L080	c
TP04	N/A	S	103475	c	Free cyanide in soil	L080	c
TP04	N/A	S	103475	c	Total cyanide in soil	L080	c
TP05	N/A	S	103476	c	Free cyanide in soil	L080	c
TP05	N/A	S	103476	c	Total cyanide in soil	L080	c
TP05	N/A	S	103477	c	Free cyanide in soil	L080	c
TP05	N/A	S	103477	c	Total cyanide in soil	L080	c
TP06	N/A	S	103478	c	Free cyanide in soil	L080	c
TP06	N/A	S	103478	c	Total cyanide in soil	L080	c
TP06	N/A	S	103480	c	Free cyanide in soil	L080	c
TP06	N/A	S	103480	c	Total cyanide in soil	L080	c
TP09	N/A	S	103482	c	Free cyanide in soil	L080	c
TP09	N/A	S	103482	c	Total cyanide in soil	L080	c
TP11	N/A	S	103485	c	Free cyanide in soil	L080	c
TP11	N/A	S	103485	c	Total cyanide in soil	L080	c
TP11	N/A	S	103486	c	Free cyanide in soil	L080	c
TP11	N/A	S	103486	c	Total cyanide in soil	L080	c
TP12	N/A	S	103487	c	Free cyanide in soil	L080	c
TP12	N/A	S	103487	c	Total cyanide in soil	L080	c
TP13	N/A	S	103488	c	Free cyanide in soil	L080	c
TP13	N/A	S	103488	c	Total cyanide in soil	L080	c
TP15	N/A	S	103489	c	Free cyanide in soil	L080	c
TP15	N/A	S	103489	c	Total cyanide in soil	L080	c
TP16	N/A	S	103491	c	Free cyanide in soil	L080	c
TP16	N/A	S	103491	c	Total cyanide in soil	L080	c
TP17	N/A	S	103492	c	Free cyanide in soil	L080	c
TP17	N/A	S	103492	c	Total cyanide in soil	L080	c

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Analytical Report Number : 24-000695

Replaces Analytical Report Number: 24-000695, issue no. 1
Additional analysis undertaken.
Extra metals analysis carried out

Project / Site name:	Hinchley Road	Samples received on:	22/01/2024
Your job number:	4070	Samples instructed on/ Analysis started on:	24/01/2024
Your order number:		Analysis completed by:	06/02/2024
Report Issue Number:	2	Report issued on:	12/02/2024
Samples Analysed:	2 soil samples		

Signed

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-000695
Project / Site name: Hinchley Road

Lab Sample Number	105206	105207
Sample Reference	M2	M3
Sample Number	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied
Date Sampled	19/01/2024	19/01/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	26
Total mass of sample received	kg	0.1	NONE	1.3	1.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8	7.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	51	110
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	25.2	53.2
Organic Matter (automated)	%	0.1	MCERTS	5.5	11
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.2	6.1
Water Soluble Nitrate (2:1) as NO3	mg/kg	2	NONE	27	10
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)	mg/l	5	NONE	13	5.1

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.35	0.27
Acenaphthylene	mg/kg	0.05	MCERTS	0.38	0.18
Acenaphthene	mg/kg	0.05	MCERTS	0.5	0.37
Fluorene	mg/kg	0.05	MCERTS	0.47	0.39
Phenanthrene	mg/kg	0.05	MCERTS	5.6	3.6
Anthracene	mg/kg	0.05	MCERTS	1.4	0.9
Fluoranthene	mg/kg	0.05	MCERTS	10	5.7
Pyrene	mg/kg	0.05	MCERTS	9.5	5.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.8	2.4
Chrysene	mg/kg	0.05	MCERTS	4.8	2.8
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	5.5	3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2	1.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.2	2.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.4	1.4
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.72	0.41
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.8	1.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	55.9	31.8
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	18
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230	160
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	92	49
Lead (aqua regia extractable)	mg/kg	1	MCERTS	300	140

Analytical Report Number: 24-000695
Project / Site name: Hinchley Road

Lab Sample Number				105206	105207
Sample Reference				M2	M3
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				19/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180	77

Petroleum Hydrocarbons

TPH Total >C6 - C40 EH_CU+HS_ID_TOTAL_#1_#2	mg/kg	10	NONE	170	140
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Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0
TPH (C10 - C40) EH_CU_ID_TOTAL_#1_#2	mg/kg	10	MCERTS	170	140

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



Analytical Report Number : 24-000695

Project / Site name: Hinchley Road

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
105206	M2	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
105207	M3	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation

Analytical Report Number : 24-000695

Project / Site name: Hinchley Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078	D	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078	D	NONE
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS



Analytical Report Number : 24-000695
Project / Site name: Hinchley Road

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

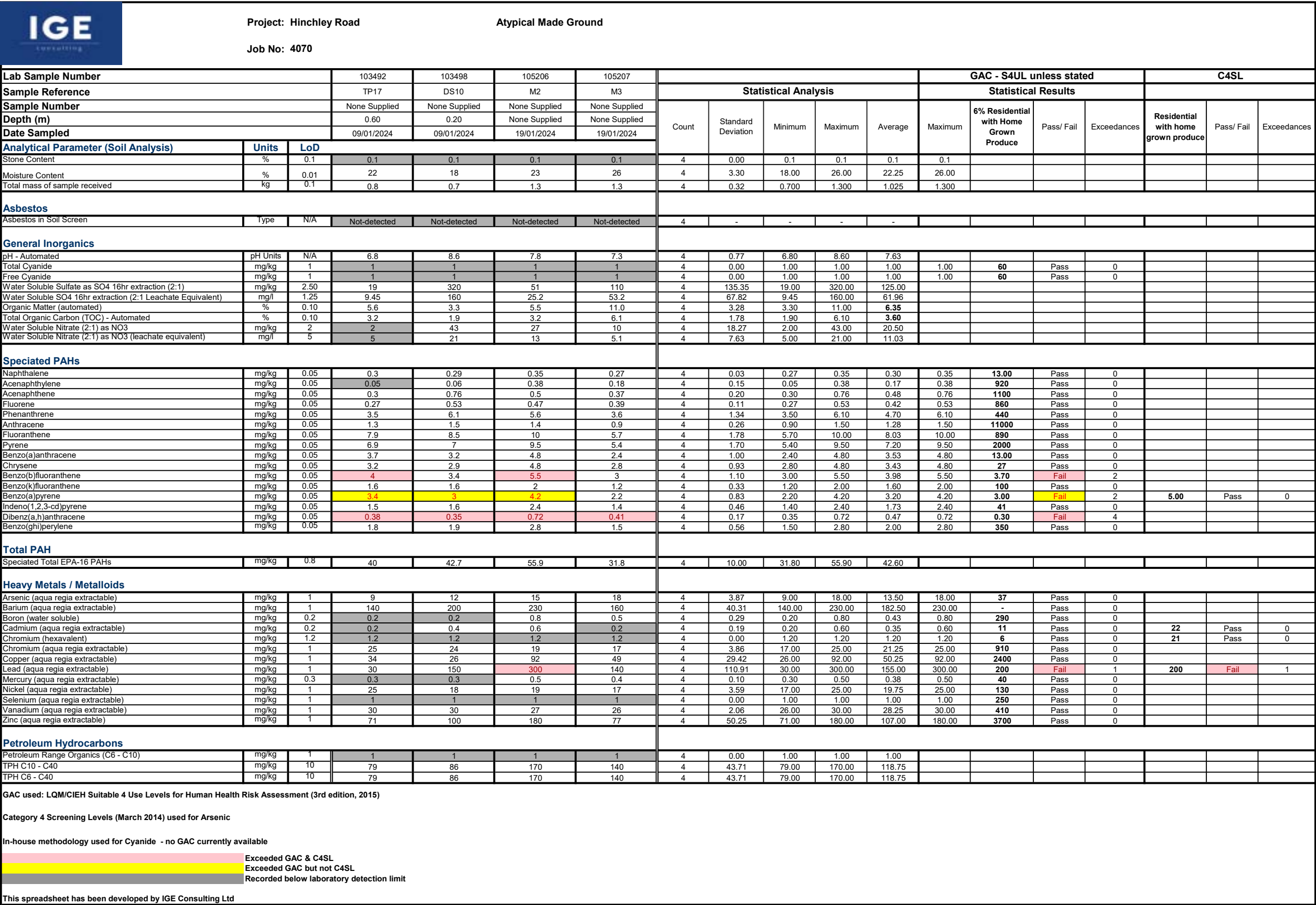
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

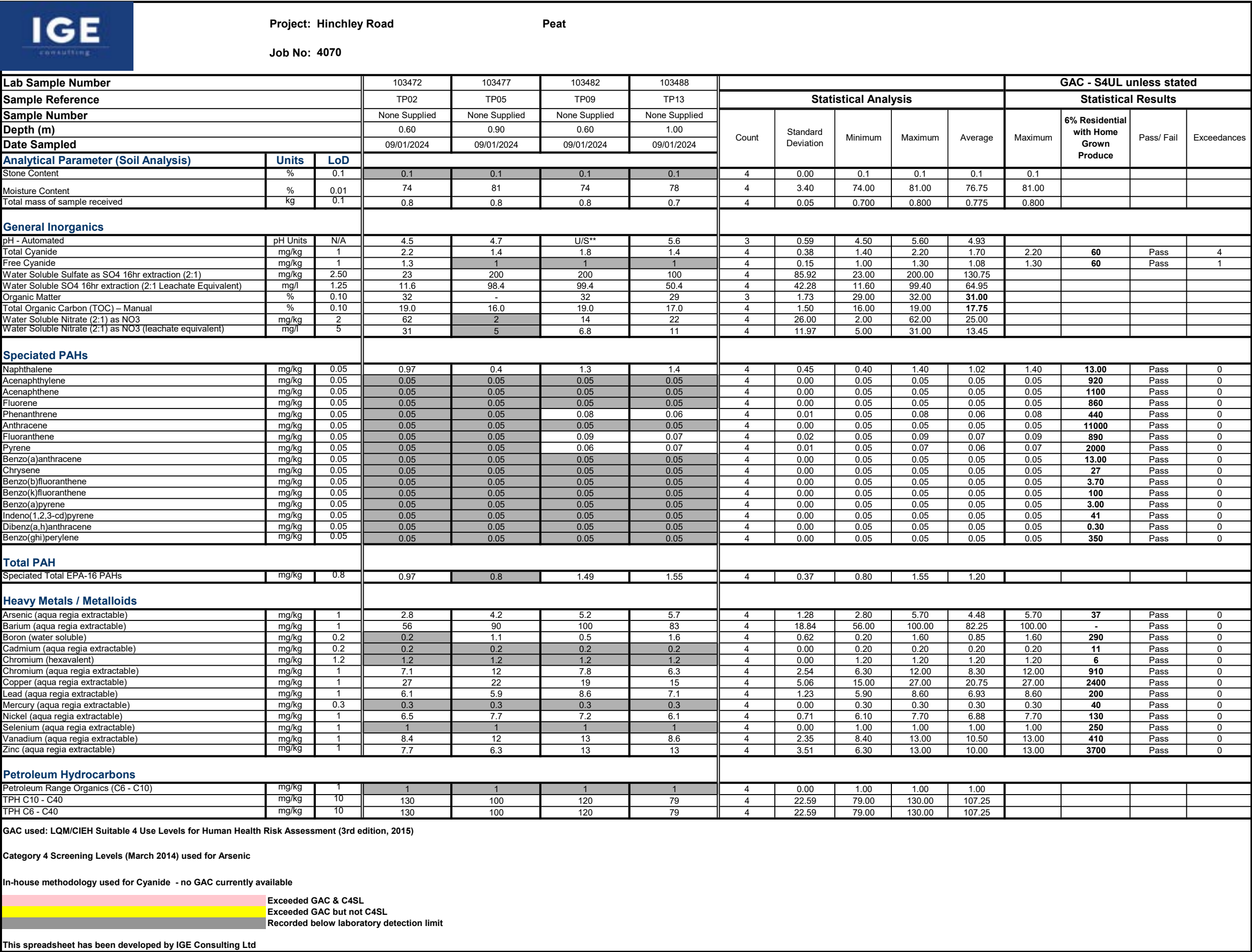
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

APPENDIX 8

CHEMICAL LABORATORY SCREENING TABLES



			Project: Hinchley Road			Glacial Till																
			Job No: 4070																			
Lab Sample Number				103470	103475	103480	103486	103497						GAC - S4UL unless stated								
Sample Reference				TP01	TP04	TP06	TP11	DS08						Statistical Results								
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied						Count	Standard Deviation	Minimum	Maximum	Average	Maximum	2.5% Residential with Home Grown Produce	Pass/ Fail	Exceedances
Depth (m)				1.10	0.80	1.40	1.20	1.90														
Date Sampled				09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024														
Analytical Parameter (Soil Analysis)			Units	LoD																		
Stone Content			%	0.1	0.1	0.1	0.1	0.1	5	0.00	0.1	0.1	0.1	0.1	0.1							
Moisture Content			%	0.01	16	16	15	20	19	5	2.17	15.00	20.00	17.20	20.00							
Total mass of sample received			kg	0.1	0.8	0.9	0.8	0.7	0.7	5	0.08	0.700	0.900	0.780	0.900							
General Inorganics																						
pH - Automated			pH Units	N/A	5.6	7.1	5.1	7.2	7.9	5	1.18	5.10	7.90	6.58								
Total Cyanide			mg/kg	1	1	1	1	1	1	5	0.00	1.00	1.00	1.00	1.00	60	Pass	0				
Free Cyanide			mg/kg	1	1	1	1	1	1	5	0.00	1.00	1.00	1.00	1.00	60	Pass	0				
Water Soluble Sulfate as SO4 16hr extraction (2:1)			mg/kg	2.50	27	31	9.9	11	27	5	9.94	9.90	31.00	21.18								
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)			mg/l	1.25	13.6	15.7	4.95	5.43	13.5	5	5.05	4.95	15.70	10.64								
Organic Matter (automated)			%	0.10	1.4	1.4	1.1	1.9	1.9	5	0.35	1.10	1.90	1.54								
Total Organic Carbon (TOC) - Automated			%	0.10	0.8	0.8	0.7	1.1	1.1	5	0.19	0.70	1.10	0.90								
Water Soluble Nitrate (2:1) as NO3			mg/kg	2	2	8	2	2	2	5	2.68	2.00	8.00	3.20								
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)			mg/l	5	5	5	5	5	5	5	0.00	5.00	5.00	5.00								
Speciated PAHs																						
Naphthalene			mg/kg	0.05	0.52	0.31	0.47	0.56	0.26	5	0.13	0.26	0.56	0.42	0.56	5.60	Pass	0				
Acenaphthylene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	420	Pass	0				
Acenaphthene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	510	Pass	0				
Fluorene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	400	Pass	0				
Phenanthrene			mg/kg	0.05	0.05	0.07	0.05	0.05	0.13	5	0.03	0.05	0.13	0.07	0.13	220	Pass	0				
Anthracene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	5400	Pass	0				
Fluoranthene			mg/kg	0.05	0.05	0.06	0.05	0.05	0.06	5	0.01	0.05	0.06	0.05	0.06	560	Pass	0				
Pyrene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.09	5	0.02	0.05	0.09	0.06	0.09	1200	Pass	0				
Benzo(a)anthracene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	11.00	Pass	0				
Chrysene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	22	Pass	0				
Benzo(b)fluoranthene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	3.30	Pass	0				
Benzo(k)fluoranthene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	93	Pass	0				
Benzo(a)pyrene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	2.70	Pass	0				
Indeno(1,2,3-cd)pyrene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	36	Pass	0				
Dibenz(a,h)anthracene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	0.28	Pass	0				
Benzo(ghi)perylene			mg/kg	0.05	0.05	0.05	0.05	0.05	0.05	5	0.00	0.05	0.05	0.05	0.05	340	Pass	0				
Total PAH																						
Speciated Total EPA-16 PAHs			mg/kg	0.8	0.8	0.8	0.8	0.8	5	0.00	0.80	0.80	0.80									
Heavy Metals / Metalloids																						
Arsenic (aqua regia extractable)			mg/kg	1	5.3	6.1	3.4	7.5	4.6	5	1.54	3.40	7.50	5.38	7.50	37	Pass	0				
Barium (aqua regia extractable)			mg/kg	1	170	140	81	160	130	5	34.67	81.00	170.00	136.20	170.00	-	Pass	0				
Boron (water soluble)			mg/kg	0.2	0.4	0.3	0.3	0.2	0.3	5	0.07	0.20	0.40	0.30	0.40	290	Pass	0				
Cadmium (aqua regia extractable)			mg/kg	0.2	0.2	0.2	0.2	0.2	0.2	5	0.00	0.20	0.20	0.20	0.20	11	Pass	0				
Chromium (hexavalent)			mg/kg	1.2	1.2	1.2	1.2	1.2	1.2	5	0.00	1.20	1.20	1.20	1.20	6	Pass	0				
Chromium (aqua regia extractable)			mg/kg	1	32	33	22	34	34	5	5.10	22.00	34.00	31.00	34.00	910	Pass	0				
Copper (aqua regia extractable)			mg/kg	1	23	23	21	27	30	5	3.63	21.00	30.00	24.80	30.00	2400	Pass	0				
Lead (aqua regia extractable)			mg/kg	1	14	12	11	14	14	5	1.41	11.00	14.00	13.00	14.00	200	Pass	0				
Mercury (aqua regia extractable)			mg/kg	0.3	0.3	0.3	0.3	0.3	0.3	5	0.00	0.30	0.30	0.30	0.30	40	Pass	0				
Nickel (aqua regia extractable)			mg/kg	1	40	34	17	40	37	5	9.61	17.00	40.00	33.60	40.00	130	Pass	0				
Selenium (aqua regia extractable)			mg/kg	1	1	1	1	1	1	5	0.00	1.00	1.00	1.00	1.00	250	Pass	0				
Vanadium (aqua regia extractable)			mg/kg	1	34	34	27	35	34	5	3.27	27.00	35.00	32.80	35.00	410	Pass	0				
Zinc (aqua regia extractable)			mg/kg	1	55	59	37	69	65	5	12.41	37.00	69.00	57.00	69.00	3700	Pass	0				
Petroleum Hydrocarbons																						
Petroleum Range Organics (C6 - C10)			mg/kg	1	1	1	1	1	5	0.00	1.00	1.00	1.00	1.00								
TPH C10 - C40			mg/kg	10	10	10	10	10	10	5	0.00	10.00	10.00	10.00								
TPH C6 - C40			mg/kg	10	10	10	10	10	10	5	0.00	10.00	10.00	10.00								
GAC used: LQM/CIEH Suitable 4 Use Levels for Human Health Risk Assessment (3rd edition, 2015)																						
Category 4 Screening Levels (March 2014) used for Arsenic																						
In-house methodology used for Cyanide - no GAC currently available																						
			Exceeded GAC & C4SL																			
			Exceeded GAC but not C4SL																			
			Recorded below laboratory detection limit																			
This spreadsheet has been developed by IGE Consulting Ltd																						



			Project: Hinchley Road												Topsoil and Typical Made Ground																										
Job No: 4070																																									
Lab Sample Number			103469		103471		103473		103476		103478		103485		103487		103489		103491		103493		103494		103496							GAC - S4UL unless stated									
Sample Reference			TP01		TP02		TP03		TP05		TP06		TP11		TP12		TP15		TP16		DS03		DS06		DS08							Statistical Analysis					Statistical Results				
Sample Number			None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied		None Supplied																
Depth (m)			0.50		0.20		0.20		0.10		0.10		0.20		0.20		0.20		0.60		0.20		0.20		0.80																
Date Sampled			09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024		09/01/2024																
Analytical Parameter (Soil Analysis)			Units		LoD																																				
Stone Content			%		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1		0.1																
Moisture Content			%		0.01		49		38		34		45		44		39		32		41		43		46		34		36												
Total mass of sample received			kg		0.1		0.8		0.8		0.8		0.8		0.8		0.8		0.8		0.7		0.7		0.8		0.8														
Asbestos																																									
Asbestos in Soil Screen			Type		N/A		Not-detected		Not-detected		Not-detected		Not-detected		Not-detected		Not-detected		Not-detected		Not-detected		Not-detected		Not-detected																
General Inorganics																																									
pH - Automated			pH Units		N/A		5.7		4.3		4.9		5.3		5.3		6.6		5		5.8		6.2		4.8		5.3		6.1												
Total Cyanide			mg/kg		1		2.1		2.7		2.1		1.9		2.2		1.3		1.5		1.7		1.3		3.6		1.6		1.8												
Free Cyanide			mg/kg		1		1.6		1.3		1		1		1.2		1		1		1		1		1.1		1		1												
Water Soluble Sulfate as SO4 16hr extraction (2:1)			mg/kg		2.50		43		35		30		42		48		37		34		31		70		47		37		120												
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)			mg/l		1.25		21.3		17.3		15.2		21.2		24.1		18.2		15.5		35.1		23.3		18.3		58.5														
Organic Matter			%		0.10		31		28		20		30		25		20		13		18		20		20		15		16												
Total Organic Carbon (TOC) – Manual			%		0.10		18.0		16.0		12.0		17.0		14.0		12.0		7.3		10.0		11.0		12.0		8.7		9.2												
Water Soluble Nitrate (2:1) as NO3			mg/kg		2		38		69		26		49		35		24		32		46		24		39		27		29												
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)			mg/l		5		19		35		13		25		18		12		16		23		12		19		14		14												
Speciated PAHs																																									
Naphthalene			mg/kg		0.05		0.37		0.5		0.3		0.37		0.84		0.31		0.46		0.5		0.4		0.44		0.41		0.33												
Acenaphthylene			mg/kg		0.05		0.05		0.05		0.05		0.05		0.05		0.05		0.05		0.05		0.05		0.05		0.05														
Acenaphthene			mg/kg		0.05		0.05		0.07		0.09		0.05		0.05		0.12		0.37		0.23		0.09		0.07		0.29		0.14												
Fluorene			mg/kg		0.05		0.05		0.05		0.07		0.06		0.05		0.08		0.18		0.14		0.06		0.05		0.15		0.09												
Phenanthrene			mg/kg		0.05		0.12		0.44		0.72		0.51		0.52		0.94		2.8		0.66		0.48		1.9		2.8		1												
Anthracene			mg/kg		0.05		0.05		0.08		0.13		0.09		0.09		0.19		0.6		0.36		0.13		0.12		0.42		0.21												
Fluoranthene			mg/kg		0.05		0.26		1.1		1.2		1		1.2		1.8		4.6		2.8		1.5		2.9		1.9		0												
Pyrene			mg/kg		0.05		0.22		1		1.1		1		1.3		1.8		4		2.6		1.4		1		2.7		1.8												
Benzo(a)anthracene			mg/kg		0.05		0.05		0.6		0.71		0.54		0.64		0.95		1.8		1.1		0.6		0.53		1.3		0.77												
Chrysene			mg/kg		0.05		0.05		0.59		0.7		0.57		0.78		0.91		1.9		1.3		0.8		0.55		1.5		0.96												
Benzo(b)fluoranthene			mg/kg		0.05		0.05		0.82		0.91		0.88		1.1		1.2		2.2		1.6		1.1		0.81		1.6		1.2												
Benzo(k)fluoranthene			mg/kg		0.05		0.05		0.33		0.31		0.18		0.33		0.5		0.98		0.52		0.38		0.32		0.8		0.42												
Benzo(a)pyrene			mg/kg		0.05		0.05		0.62		0.65		0.58		0.77		1.1		1.7		1.2		0.61		0.59		1.4		0.91												
Indeno(1,2,3-cd)pyrene			mg/kg		0.05		0.05		0.31		0.37		0.33		0.38		0.47		0.95		0.62		0.43		0.39		0.65		0.54												
Dibenzo(a,h)anthracene			mg/kg		0.05		0.05		0.05		0.05		0.05		0.05		0.12		0.26		0.2		0.11		0.05		0.19		0.14												
Benzo(ghi)perylene			mg/kg		0.05		0.05		0.38		0.36		0.39		0.5		0.56		1.1		0.77		0.5		0.46		0.76		0.6												
Total PAH																																									
Speciated Total EPA-16 PAHs			mg/kg		0.8		0.97		6.91		7.61		6.57		8.4		11		23.9		15.7		8.73		6.88		16.9		11												
Heavy Metals / Metalloids																																									
Arsenic (aqua regia extractable)			mg/kg		1		6.3		29		27		16		26		15		27		15		-		16		25		22												
Barium (aqua regia extractable)			mg/kg		1		87		120		140		150		130		76		120		110		-		130		140		160												
Boron (water soluble)			mg/kg		0.2		0.7		0.8		0.8		0.8		0.5		1.3		0.2		0.7		-		0.5		0.8		0.5												
Cadmium (aqua regia extractable)			mg/kg		0.2		0.4		0.2		0.2		0.2		0.2		0.2		0.2		0.2		-		1.1		0.2		0.2												
Chromium (hexavalent)			mg/kg		1.2		1.2		1.2		1.2		1.2		1.2		1.2		1.2		1.2		1.2		1.2		1.2		1.2												
Chromium (aqua regia extractable)			mg/kg		1		16		19		19		19		11		19		11		11		-		31		24		21												
Copper (aqua regia extractable)			mg/kg		1		22		54		55		36		55		31		47		31		27		53		57		39												
Lead (aqua regia extractable)			mg/kg		1		49		160		120		130		130		75		120		65		53		160		160.00		100												
Mercury (aqua regia extractable)			mg/kg		0.3		0.3		0.5		0.4		0.3		0.3		0.4		0.3		0.3		0.3		0.7		0.4		0.3												
Nickel (aqua regia extractable)			mg/kg		1		8.5		26		28		14		22		11		18		12		11		17		25		21												
Selenium (aqua regia extractable)			mg/kg		1		1		1		1		1.5		1		1		1		1		1		1		1		1												
Vanadium (aqua regia extractable)			mg/kg		1		12		33		31		18		32		17		31		17		17		23		38		31												
Zinc (aqua regia extractable)			mg/kg		1		45		100		90		71		90		42		72		60		44		110		96		59												
Petroleum Hydrocarbons																																									
Petroleum Range Organics (C6 - C10)			mg/kg		1		1		1		1		1		1		1		1		1		1		1		1														
TPH C10 - C40			mg/kg		10		42		46		39		51		42		70		42		27		73		60		39		26												
TPH C6 - C40			mg/kg		10		42		46		39		51		42		70		42		27		73		60		39		26												
GAC used: LQM/CIEH Suitable 4 Use Levels for Human Health Risk Assessment (3rd edition, 2015)																																									
Category 4 Screening Levels (March 2014) used for Arsenic																																									
In-house methodology used for Cyanide - no GAC currently available																																									
Exceeded GAC & C4SL Exceeded GAC but not C4SL Recorded below laboratory detection limit																																									
This spreadsheet has been developed by IGE Consulting Ltd																																									

APPENDIX 9

GAS AND GROUNDWATER MONITORING RESULTS

Gas & Groundwater Monitoring

Site: Hinchley Road

Job No.: 4070



Exploratory Hole	Date	Time	Engineer	Response zone range	Water level	Base level	Atm. pressure	Pressure Trend	Flow		CH ₄		LEL		Hex		CO ₂		O ₂			H ₂ S	CO	Remarks
				(m bgl)	(m bgl)	(m bgl)	(mbar)		(l/hr)		(%)		(%)		(%)		(%)		(%)			(ppm)	(ppm)	
									peak	steady	peak	steady	peak	steady	peak	steady	peak	steady	high	steady	low	peak	peak	
DS08	01/02/2024	09:20	LL	0.50 - 1.50	DRY	1.23	1019	Rising	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.016	0.016	4.2	4.2	21.3	15.5	15.5	< 1	10	N/A
	08/02/2024	11:03	LL		DRY	1.23	980	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.013	0.013	4.6	4.6	20.1	13.8	13.8	< 1	10	N/A
	15/02/2024	08:45	LL		DRY	1.30	993	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.022	0.022	3.2	3.2	21.0	16.9	16.9	< 1	< 1	N/A
DS06	01/02/2024	09:40	LL	0.50 - 1.00	0.80	1.20	1017	Rising	-30.5	< 0.1	0.9	< 0.1	4.5	< 0.1	0.024	0.019	2.2	2.2	21.0	19.6	19.3	< 1	10	Bailed to 1.16m bgl at 09:51; Redipped at 10:52 to 0.83m bgl.
	08/02/2024	11:15	LL		DRY	1.24	978	Falling	-5.0	< 0.1	0.2	< 0.1	5.2	< 0.1	0.020	0.012	2.3	2.3	20.2	19.0	19.0	< 1	< 1	N/A
	15/02/2024	09:18	LL		0.75	1.28	992	Falling	29.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.001	1.6	1.3	20.8	20.4	19.9	< 1	< 1	Bailed to 1.17m bgl at 09:28; Redipped at 10:19 to 1.18m bgl.
DS02	01/02/2024	09:55	LL	0.70 - 1.70	DRY	1.73	1017	Rising	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.018	0.018	0.9	0.9	21.7	20.3	19.5	< 1	10	N/A
	08/02/2024	11:25	LL		DRY	1.74	979	Falling	-0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.014	0.014	0.5	0.5	21.1	20.2	19.5	< 1	10	N/A
	15/02/2024	09:34	LL		DRY	1.77	991	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.001	0.1	< 0.1	21.8	21.1	21.1	< 1	< 1	N/A
DS05	01/02/2024	10:03	LL	1.00 - 4.00	0.47	3.98	1017	Rising	-9.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.017	0.017	1.2	1.2	21.6	20.2	20.2	< 1	< 1	Bailed to 3.93m bgl at 10:18; Redipped at 10:58 to 2.89m bgl.
	08/02/2024	11:32	LL		0.50	3.97	978	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.011	0.011	2.1	2.1	20.5	19.5	19.5	< 1	10	Bailed to 1.82m bgl at 11:44; Redipped at 12:05 to 1.62m bgl.
	15/02/2024	09:42	LL		0.48	4.01	991	Falling	2.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.001	0.9	0.9	21.8	20.9	20.9	< 1	< 1	Bailed to 3.17m bgl at 09:50; Redipped at 10:22 to 2.68m bgl.
DS01	01/02/2024	10:20	LL	0.50 - 1.00	0.68	1.39	1018	Rising	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.014	0.014	0.6	0.6	21.8	21.2	20.3	< 1	10	Bailed to 1.35m bgl at 10:33; Redipped at 11:01 to 1.32m bgl.
	08/02/2024	11:44	LL		0.69	1.38	978	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.017	0.017	1.8	1.8	20.8	18.4	18.4	< 1	< 1	Bailed to 1.20m bgl at 11:51; Redipped at 12:09 to 1.00m bgl.
	15/02/2024	09:54	LL		0.70	1.39	990	Falling	4.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.001	0.7	0.7	21.5	20.5	20.5	< 1	< 1	Bailed to 1.28m bgl at 10:01; Redipped at 10:26 to 0.87m bgl.
DS09	01/02/2024	10:35	LL	1.10 - 4.10	0.36	4.02	1018	Rising	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.014	0.014	0.2	0.1	21.7	21.3	21.3	< 1	< 1	Bailed to 3.86m bgl at 10:46; Redipped at 10:05 to 2.77m bgl.
	08/02/2024	11:52	LL		0.42	4.02	977	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.013	0.013	2.4	2.4	20.5	19.6	19.6	< 1	< 1	Bailed to 2.18m bgl at 12:02; Redipped at 12:19 to 1.78m bgl.
	15/02/2024	10:04	LL		0.28	4.04	991	Falling	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.002	0.001	3.8	2.7	21.6	20	19.8	< 1	< 1	Bailed to 2.47m bgl at 10:13; Redipped at 10:28 to 1.13m bgl

Response zone flooded. Results considered unreliable in accordance with BS8485:2015 + A1 2019

Values recorded below instrument detection limit

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