



RIDGE

**GROUND CONDITION ASSESSMENT
LAND ADJACENT TO OAK TREE COTTAGE,
BOORLEY GREEN, HAMPSHIRE**

MCCARTHY STONE

June 2024



GROUND CONDITION ASSESSMENT LAND ADJACENT TO OAK TREE COTTAGE, BOORLEY GREEN, HANTS

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June 2024

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VERSION CONTROL

VERSION	DATE	DESCRIPTION	REPORT REFERENCE	CREATED	REVIEWED
01	06/06/24	GCA – First issue	5024854-RDG-XX-ST-DOC-C-00GCA01	TL	RJH

EXECUTIVE SUMMARY

INSTRUCTIONS	Prepare a Ground Condition Assessment Report for land adjacent to Oak Tree Cottage, Boorley Green, Hampshire, SO32 2UA.
PROPOSAL	Proposals are yet to be finalised but currently comprise the demolition of existing structures and the construction of a three storey 52-unit retirement living building with associated landscaping, roadways, pavements and parking.
SITE CONDITIONS	The location comprised a hardstanding entrance area featuring private garages, outbuildings, and sheds situated in the eastern section. The remaining portion of the site was adorned with grass and shrubbery. Trees lined the northern, southern, and western perimeters, while the eastern boundary was delineated by hedges and small fencing.
GEOLOGY	Topsoil was encountered to depths of 0.30mbgl across the site, with the exception of GWM02 adjacent to the site entrance where a limited extent of Made Ground was encountered. Underlying geology comprised of cohesive Wittering Formation soils to depths between 10.00mbgl and 14.00mbgl, where a predominantly granular Wittering Formation unit was encountered.
HYDROGEOLOGY	Bedrock Geology- Secondary (A) Aquifer. Shallow groundwater encountered between 0.80mbgl and 1.70mbgl in all locations.
CONTAMINANTS	No contamination source was identified during investigation and no exceedances of the GAC were recorded. Most chemical analysis results were at or below the limit of detection. Site soils are suitable for disposal as Inert waste.
FOUNDATION SOLUTION	A piled foundation solution is required, with piles targeting deeper, denser sands of the Wittering Formation. Foundation design should take into account the shrinkage potential of tested soils.
DRAINAGE	Based on the geology and the results of in situ testing traditional soakaways are unlikely to be possible due to cohesive shallow soils and the presence of shallow groundwater.
GEOTECHNICAL CONSIDERATIONS	A piled foundation solution will be required for the proposed development. Given the shrinkable cohesive strata at shallow depth, it is likely that a suspended floor slab will be required. CBR values of between 0% and 7% were recorded in natural soils underlying Topsoil to depths of 0.55mbgl.

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1. INTRODUCTION

1.1. Brief

Ridge and Partners LLP (Ridge) was commissioned by McCarthy Stone to undertake an intrusive Ground Investigation and compile a Ground Condition Assessment (GCA) Report for a site comprising Land Adjacent to Oak Tree Cottage, Boorley Green (hereafter referred to as 'the site'). A location plan is included as Figure 1.

The brief was to undertake a combined Contamination and Geotechnical Ground Investigation to a) refine the contamination conceptual site model and risk assessment, and b) provide additional assessment of the materials present beneath the site and present characteristic parameters that should be used in design of all geotechnical facets of the proposed development.

A Desk Top Study (Ref: 5024854-RDG-XX-ST-DOC-C-00DTS01) was issued by Ridge on 06 June 2024 and should be read in conjunction with this report for completeness. The Desk Top Study summarises previous investigations completed on site or in the vicinity.

This investigation was scoped to enable an overview of baseline conditions across the site and therefore it was not possible to refine all potential contamination sources identified in the Desk Top Study. Additional phases of investigation are anticipated. This is discussed further throughout the report and within Section 11 specifically.

The Ridge Ground Investigation comprised the following:

- Three 25m cable percussive boreholes, one of which was installed with a 50mm diameter standpipe to allow groundwater gauging and gas monitoring.
- Three days machine trial pitting and soakage testing (5no.). Trial pits were advanced using a tracked 5t machine, with water supply for the soakage tests from a truck mounted bowser.
- Two days windowless sample borehole drilling (8no.) with a tracked dynamic sampling rig. Three boreholes were installed with a 50mm diameter standpipe to allow groundwater gauging and gas monitoring.
- One day Plate Load (4no.) and Clegg Hammer testing across the site for coverage to allow conversion to CBR (%).
- Geotechnical and contamination laboratory analysis.
- Subsequent monitoring of groundwater levels and gas monitoring in installed wells.

1.2. Proposals

Proposals for the site include the demolition of the existing outbuilding structures onsite and the construction of a three-storey 52-unit retirement living building with associated landscaping, roadways, pavements and parking. Proposed site plans are included within Figure 2.

1.3. Report Scope and Limitation

This report is based upon a review of readily available information and the recent Ground Investigation data detailed herein. The report presents an interpretation of the trial pit, borehole and laboratory data provided by the Ridge Ground Investigations undertaken between 25 March and 24 April 2024. In addition, this report outlines the basic ground conditions encountered in the exploratory holes and the results of monitoring of installed wells.

This information has been collated, processed and used to provide an interpretation of the ground conditions, with recommendations on any contamination issues and geotechnical-related design.

The recommendations and opinions expressed in this report are based on the strata observed in the exploratory holes, the results of the site and laboratory tests, and information obtained as part of the desk study or provided by others. Ridge takes no responsibility for conditions that have not been revealed by the exploratory holes, or which occur between them or for features which may be more widespread to those found.

Whilst efforts have been made to interpret the conditions between investigation locations, such information is only indicative, and liability cannot be accepted for its accuracy. Information provided from other sources is taken in good faith and Ridge cannot guarantee its accuracy.

The information contained in this report is intended for the use of **McCarthy Stone** and Ridge can take no responsibility for the use of this information by any other party or for uses other than that described in this report.

2. SITE SETTING

2.1. Site Description

The site is centred on easting 450475 and northing 114819, situated at approximately 26mAOD (above ordnance datum) within the village of Boorley Green. It currently comprises private land associated with Oak Tree Cottage and is predominantly an open grass field.

There are several small outbuildings across the site, used for storage of various materials. These include wooden sheds, a garage, and a metal shipping container. Stockpiles of waste materials were present, comprising wood and metal from an adjacent building undergoing redevelopment. A recent burn pile was present onsite at the time of the investigation.

The site is accessible from Winchester Road (B3354) which runs along the eastern boundary of the site, with a gravel track linking the site entrance to the garage building. The site boundaries are formed by a mixture of vegetation, including trees and hedges, and a wire mesh fence.

Further site details are presented in the Ridge Desk Top Study.

2.2. Site History

A full site history is featured within the Ridge Desk Top Study, but in summary the earliest available mapping (1860s) shows the site to be associated with an agricultural property, with an orchard present at the centre and a building, Oak Cottage, to the east of the site. The site remains in use as an orchard until the 1990s, with no further significant changes to the site itself. The surrounding area is developed from rural agricultural land use to new-build residential use between 2010 and the present day.

3. PHYSICAL SETTING

3.1. Geology and Hydrogeology

The following observations are taken from the British Geological Survey (BGS) Geology of Britain Viewer (2024). The Geology of Britain Viewer indicates that the site is likely underlain by Bedrock Geology of the Wittering Formation. No superficial deposits are recorded. The table below identifies the expected composition of the published strata and associated aquifer classification.

BEDROCK GEOLOGY	
Unit Name	Wittering Formation
Geology Description	Greyish brown laminated clay; wavy- to lenticular-bedded sand interbedded with clay in equal proportions; and fine- to medium-grained sparsely glauconitic sand.
Aquifer Classification	Secondary A
Aquifer Description	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers

Table 3.1: Geology and Hydrogeology

3.1.1. Artificial Ground, Landslips and Faults

There are no records within 250m of the site.

3.1.2. Radon

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. No Radon Protective Measures are considered necessary for new properties or extensions to existing ones.

3.1.3. Natural Ground Subsidence

The BGS has provided the following information as summarised in the table below.

PROCESS	RISK LEVEL
Shrink Swell Clay	Moderate
Landslides	Very Low
Running Sands	Very Low
Collapsible Deposits	Very Low
Ground Dissolution of Soluble Rocks	Negligible
Compressible Deposits	Negligible

Table 3.2: Ground Subsidence

3.2. Hydrology

3.2.1. Surface Water Features

There is one record of a surface water feature within 250m of the site, an inland river/drain 175m to the east.

3.2.2. Flooding

The site is located in an Environment Agency Flood Zone 1 (land having a less than 1 in 1,000 annual probability of river or sea flooding). Furthermore, the risk of flooding from rivers and sea (RoFRaS) is classified as Very Low. There are no flood defences or areas benefiting from flood defences within 250m of the site.

3.3. Controlled Waters

3.3.1. Abstraction Licenses

There is one record of a historical surface water abstraction 283m east of the site. The abstraction license is related to spray irrigation for Botley Hotel and Country Club.

There are no records of historical or current potable abstractions within 200m of the site.

3.3.2. Source Protection Zones

There are no SPZ within 500m of the site.

3.3.3. Nitrate Vulnerable Zones

The site is classified as a Nitrite Vulnerable Zone (NVZ), known as Hamble Estuary Eutrophic NVZ (TraC). Nitrite vulnerable zones are areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC).

4. FIELDWORK SUMMARY OF SCOPE AND RATIONALE

4.1. Site Management and Preparation

Suitably experienced Ridge staff supervised the two phases of intrusive investigation, which were undertaken 25 March to 27 March 2024 and 16 April to 24th April 2024. Methods employed during the investigation were carried out in general accordance with statutory guidance including BS5930:1999 *Code of Practice for Site Investigations (Amendment 3: 2015)* and BS10175:2011+A1:2013 *Investigation of Potentially Contaminated Sites: Code of Practice*.

A photographic log is included as Appendix 2.

4.1.1. Utility Clearance

Groundscan Limited had produced a detailed utility and services drawing dated February 2024, results of which were incorporated into the finalised positions onsite.

4.2. Rationale and Summary of Scope

The Site Investigation scope was provided by McCarthy Stone, with investigation positions set out by the project Structural Engineer, and comprised the following:

- Three days machine trial pitting and soakage testing (DFT01 – DFT02, SFT01 – SFT03). Deep trial pits were advanced to a maximum depth of 2.30mbgl, shallow trial pits were advanced to depths between 0.65mbgl and 0.82mbgl. Trial pits were advanced using a tracked 5t machine, with water supply for the soakage tests from a truck mounted bowser.
- Two days windowless sample borehole drilling (WS01-WS05, GWM01-GWM03) to a maximum depth of 5.00mbgl using a tracked dynamic sampling rig. Follow-on dynamic probing was used where windowless sampling was unable to advance to 5.00mbgl. Three boreholes (GWM01 – GWM03) were installed with a 50mm diameter standpipe to allow groundwater gauging and gas monitoring.
- One day Plate Load (CBR01 – CBR04) and Clegg Hammer testing across the site for coverage to allow conversion to CBR (%).
- Geotechnical and contamination laboratory analysis.

Following the first phase of investigation, it was deemed that traditional foundations would not be suitable for the proposed building and therefore a piled solution would be required which would need deeper investigations to be undertaken comprising:

- Three cable percussive boreholes (BH01 – BH03) drilled to a maximum depth of 25m, one of which was installed with 50mm diameter standpipe to allow groundwater gauging and gas monitoring.
- Geotechnical laboratory analysis.
- Four rounds of subsequent monitoring of groundwater in installed wells.

4.2.1. Soakage Testing

Five trial pits (DFT01 – DFT02, SFT01 – SFT03) were advanced to various depth between 0.65mbgl and 2.30mbgl to allow soakage testing to assess the possibility of utilising traditional soakaways on site. These targeted both shallow soils (SFT01 – SFT03) and deeper soils (DFT01 – DFT02).

Test locations were chosen based on site coverage and where access allowed.

4.2.2. Windowless Sample Boreholes

Eight windowless sample boreholes (WS01 – WS05, GWM01 – GWM03) were drilled on site as per Figure 3. The primary objective was to assess typical ground conditions across the site, and, in areas proposed as buildings. Furthermore, potential contamination areas were targeted – further detail is provided in Section 5.2.5.

The boreholes allowed the production of detailed engineers logs, recovery of samples for laboratory testing, and additionally allowed in situ Standard Penetration Testing to provide geotechnical parameters for future use.

Three of the boreholes (GWM01 – GWM03) were installed with 50mm diameter standpipe to allow groundwater gauging. The installation was designed to allow assessment of shallow groundwater across site.

4.2.3. Plate Load and Clegg Hammer Testing

Four Plate Load tests (CBR01 – CBR04) were undertaken at depths between 0.15mbgl and 0.25mbgl, targeting shallow natural soils, to allow subsequent conversion into California Bearing Ratio (CBR). These tests were completed across the site for coverage. Nine Clegg Hammer tests were conducted across the site to provide additional coverage for CBR% data.

4.2.4. Cable Percussive Boreholes

Three cable percussive boreholes (BH01 – BH03) were advanced to a target depth of 25.00mbgl. Positions and target depths were determined by the project Structural Engineer.

The primary objective was to allow logging of deep soils, *in situ* Standard Penetration/ U100 Tests, and to provide opportunity for collecting soil samples for subsequent laboratory analysis, within or close to proposed build footprints. Cable percussive locations were spread across the investigation area for coverage.

One borehole (BH02) was installed with 50mm diameter standpipe to allow groundwater gauging. Installations were designed to allow assessment of deeper groundwater levels on site.

4.2.5. Test Location Rationale

Test locations were provided by the project Structural Engineer. Assumed rationale for each test location completed is detailed in the table below.

HOLE ID	RATIONALE	MAX DEPTH (MBGL)
BH01	Located in the north-west of the proposed building, targeting deeper soils.	25.00
BH02	Positioned in the centre of proposed development in the centre portion of the site, targeting deeper soils.	25.00
BH03	Located in the south wing of the proposed building, targeting deeper soils.	25.00
WS01-05	Targeting area of proposed building to provide data for shallow foundation design.	5.00
GWM01-03	Spread for coverage across site to assess site-wide shallow groundwater levels.	5.00
SFT01-03	Positioned across areas of proposed paving to inform on shallow drainage options.	0.82
DFT01-02	Positioned in areas of proposed landscaping to inform on deeper soakaway drainage options.	2.30
CBR01-04	Targeting areas of proposed roadways and paving.	0.25

Table 5.1: Test Location Rationale

The layout of the exploratory positions is presented in Figure 3. Engineering Logs are presented in Appendix 2.

4.3. Soil Sampling

All intrusive locations were logged, and visual or olfactory evidence of contamination noted in accordance with best practice.

Soil sampling of the near surface materials was undertaken to assess the contamination risks to human health and controlled waters. Samples were also removed at varying depth for geotechnical testing.

Samples were handled using a fresh pair of nitrile gloves. Equipment was cleaned between use at different test locations and different sampling depths to prevent cross-contamination. Selected samples were placed in sealable bags, sealed glass jars or plastic tubs (dependent on the exact laboratory requirement and analysis to be undertaken) and stored in a temperature-controlled environment before transit.

4.4. Groundwater Gauging

All newly installed monitoring wells (GWM01 – GWM03, BH02) were gauged on four occasions to enable assessment of groundwater levels and the presence of any visual/ olfactory evidence of contamination on groundwater.

5. GROUND CONDITIONS ENCOUNTERED

5.1. Soil Conditions

5.1.1. Surface Covering

All test locations were surfaced with grass or soft landscaping.

5.1.2. Made Ground

Made Ground was identified in one test location to 0.45mbgl; GWM02 adjacent to the site entrance and the garages in the east of the site. It comprised a brown and grey sandy very gravelly Clay, including asphalt, brick and concrete gravels. No other Made Ground was encountered onsite beyond rare fragments of brick in the upper layers of Topsoil.

5.1.3. Topsoil

Topsoil comprising dark brown sandy slightly gravelly Clay was identified in all locations positioned on grass. Frequent rootlets were observed, along with rare fragments of brick. Topsoil ranged in depth between 0.25mbgl and 0.40mbgl, with an average thickness of 0.29m.

5.1.4. Wittering Formation

Soils of the Wittering Formation changed with depth, with shallow soils comprising very soft to soft, occasionally firm, orangish brown and grey laminated sandy Clay, with proportions of sand ranging from slightly sandy to very sandy. These soils were encountered in all exploratory positions, to maximum depths between 10.00mbgl and 14.20mbgl in the cable percussive boreholes, attaining an average thickness of 12.43m.

Deeper Wittering Formation soils encountered in the cable percussive typically comprised a medium dense to very dense bluish grey silty Sand with occasional thin lenses of Clay from between 10.00mbgl and 14.20mbgl to beyond the maximum investigation depth. A thicker band of dark grey Clay within the Sand was encountered between circa 20.50mbgl and 21.00mbgl. Metallic grey sand grains and fine gravels were also observed, thought to be pyrite.

5.1.5. Summary

The above natural soils are consistent with the published geology and findings of previous investigations.

5.2. Groundwater Conditions

5.2.1. Groundwater Strikes during Drilling

A summary of groundwater strikes noted during drilling is presented in the table below.

LOCATION	INITIAL STRIKE (MBGL)	RISING TO (MBGL) AFTER 15 MINUTES
BH01	2.60	1.70
	14.00	12.60
	21.00	11.00
BH02	1.70	1.40

LOCATION	INITIAL STRIKE (MBGL)	RISING TO (MBGL) AFTER 15 MINUTES
	2.60	1.40
BH03	2.00	1.60
	6.00	5.30
	13.50	10.00
	21.00	15.40
WS01	0.90	0.60
WS02	1.00	0.48
WS03	0.90	0.48
WS04	0.80	0.60
WS05	1.00	0.86
GWM01	0.90	0.45
GWM02	0.90	0.80
GWM03	0.80	0.80
DFT01	1.35	(Filling pit to) 2.00
DFT02	1.30	(Filling pit to) 1.70
SFT01	No groundwater encountered	
SFT02	No groundwater encountered	
SFT03	No groundwater encountered	

Table 6.1: Groundwater Strikes

5.2.2. Groundwater Levels during Monitoring

Results of the four rounds of groundwater level monitoring are detailed in the table below.

LOCATION	03/04/2024 (MBGL)	16/04/2024 (MBGL)	01/05/2024 (MBGL)	20/05/2024 (MBGL)
GWM01	0.10	0.61	0.10	0.86
GWM02	0.00	0.70	0.00	0.84
GWM03	0.16	0.81	0.90	0.98
BH02	-	-	0.60	0.95

Table 6.2: Groundwater Levels

5.3. Visual/ Olfactory Evidence of Contamination

5.3.1. Soils

There was no further visual/ olfactory evidence of contamination noted other than anthropogenic materials discussed in sections above.

5.3.2. Groundwater

There was no evidence of contamination noted during groundwater gauging.

6. CONTAMINATION ASSESSMENT

6.1. Relevant Industry Profile

Based on our review of historical site use, no Department of Environment Industry Profiles are relevant to the site's residential usage.

6.2. Selection of Contaminants of Concern for Analysis

Further to the above a screen of industry related contaminants was carried out. Determinand groups were chosen based on outcomes of desk-based research and site history as well as those contaminants more commonly present. Testing included PCBs, phenols, sulphates, asbestos, heavy metals, PAHs, TPH CWG, BTEX and MTBE.

Primary contaminant source areas relating to the study area include the present and historical structures onsite, including the garage, and the stockpiles of waste materials.

6.3. Soil Assessment Methodology

Specific soil sample location and depth was chosen based on site coverage, where anthropogenic materials were identified, and where desk-based research has shown contaminants are more likely to present.

6.3.1. Generic Assessment Criteria

Ridge have undertaken a screen of the soil laboratory results using generic assessment criteria. Generic assessment criteria (GAC) are conservative contaminant concentration values used for comparison purposes to assess the risk associated with contaminant concentrations found on site and are derived using non-site-specific information.

In order to assess the soil analyses results with regard to potential human health risks, Ridge has adopted published guidance criteria widely referred to by professionals within the industry, which include the following:

- Suitable 4 Use Levels (S4ULs) Generic Assessment Criteria (GAC) developed by the Chartered Institute of Environmental Health (CIEH) in partnership with Land Quality Management Ltd. (LQM);
- Category 4 Screening Levels (C4SL) for lead, produced by CL:AIRE (2014); and
- The UK Soil Guideline Values (SGVs) for selected metals, BTEX and phenols, produced by the EA and Department of Environment, Food and Rural Affairs (2009).

Proposals indicate a residential use of the site. Private residential gardens are not thought to be included within the proposals. Therefore, we have utilised the 'Residential Without Homegrown Produce' land use setting as the most appropriate. This land use setting is based on the assumption that gardens and soft landscaped areas will be managed by professional gardeners on an infrequent basis, and that residents will not be consuming homegrown produce.

Results were compared to the conservative 1.00% soil organic matter value unless otherwise stated.

With regard to human health, the CLEA model states that, 'the contamination is assumed to be at or within 1.00m of the surface' (CLR10 pg10). It is considered that at depths greater than 1m, the probability of human exposure via the direct contact pathways are significantly reduced, leaving inhalation of volatile compounds as the dominant pathway with regard to human health risks. Typically, volatile compounds only significantly affect the indoor inhalation pathway. Therefore, for the purposes of statistical analysis, data from the top 1.00m to 1.50m is used for assessment of risks to human health via direct contact pathways in accordance with the CLEA model, dependant on proposed future site levels.

6.4. Soil Assessment

6.4.1. General

Eight soil samples collected during the Ridge site investigation from Made Ground and shallow natural soils at various depths and locations were submitted to a UKAS accredited laboratory for analysis for a suite of asbestos, heavy metals, PAHs, TPH CWG, BTEX and MTBE.

Laboratory analysis certificates are included as Appendix 5.

The range of potentially hazardous contaminants present on the site can be wide and varied and the suite has been chosen to reflect commonly found contaminants.

Primarily, samples were obtained from shallow natural soils across site to inform on a baseline level of contamination, with a sample taken from the Made Ground encountered in GWM02, and an additional one in underlying natural soils to show contaminants had not migrated from Made Ground vertically. Further sample rationale is provided in the table below.

SAMPLE	ANALYSIS	RATIONALE	POTENTIAL CONTAMINANT SOURCE
WS01 0.20m	Full suite	Sample obtained from shallow natural soils.	General site coverage – centre west.
WS02 1.50m	Full suite	Sample obtained from shallow natural soils.	General site coverage – centre east.
WS03 0.70m	Full suite	Sample obtained from shallow natural soils.	Vicinity to material stockpiles/ burn pit.
WS05 1.20m	Full suite	Sample obtained from shallow natural soils.	General site coverage – centre west.
GWM01 0.50m	Full suite	Sample obtained from shallow natural soils.	General site coverage –north.
GWM02 0.30m	Full suite	Sample obtained from Made Ground with anthropogenic material observed.	Vicinity of garage/vehicle storage onsite.
GWM02 0.60m	Full Suite	Sample obtained from below Made Ground to assess potential impact from vertical migration of contaminants.	Vicinity of garage/vehicle storage onsite.
GWM03 0.80m	Full suite	Sample obtained from shallow natural soils.	General site coverage – centre south.

Table 7.1: Sample Rationale

6.4.2. Organic Matter

Organic matter was 6.2% in Made Ground, and 0.60 – 3.50% in natural soils.

6.4.3. Asbestos

Eight samples were tested for asbestos. None of the samples returned a positive identification of asbestos.

6.4.4. Heavy Metals

A summary of results is presented in the table below.

DETERMINAND	RESIDENTIAL WITHOUT HOMEGROWN PRODUCE		
	Max. Conc. (mg/kg)	GAC (mg/kg)	Exceedances of Screening Value
Arsenic	12.00	40.00	None
Cadmium	0.60	85.00	None
Chromium	26.00	910.00	None
Chromium VI	2.00	6.00	None
Copper	38.00	7100.00	None
Lead	149.00	310.00	None
Mercury	1.00	56.00	None
Nickel	8.00	180.00	None
Selenium	2.00	350.00	None
Zinc	247.00	40000.00	None
Total Phenols	2.00	750.00	None

Table 7.2: Heavy Metal Results

All results were below the GAC, with many below the laboratory limit of detection (LOD). Slightly elevated concentrations of lead and zinc were observed in the Made Ground in GWM02, but these were still well below the GAC.

6.4.5. Polycyclic Aromatic Hydrocarbons (PAHs)

A summary of results is presented in the table below.

DETERMINAND	RESIDENTIAL WITHOUT HOMEGROWN PRODUCE		
	Max. Conc. (mg/kg)	GAC (mg/kg)	Exceedances of Screening Value
Naphthalene	0.10	2.30	None
Acenaphthylene	0.10	2900.00	None
Acenaphthene	0.10	3000.00	None
Fluorene	0.10	2800.00	None
Phenanthrene	0.37	1300.00	None
Anthracene	0.12	31000.00	None
Fluoranthene	0.72	1500.00	None
Pyrene	0.72	3700.00	None
Benzo(a)anthracene	0.38	11.00	None
Chrysene	0.45	30.00	None
Benzo(b)fluoranthene	0.54	3.90	None
Benzo(k)fluoranthene	0.19	110.00	None
Benzo(a)pyrene	0.49	3.20	None
Indeno(1,2,3-cd)pyrene	0.42	45.00	None
Dibenz(a,h)anthracene	0.10	0.31	None
Benzo(ghi)perylene	0.39	360.00	None

Table 7.3: PAH Results

There were no exceedances of the GAC. Seven of the eight samples returned results for all determinands below the LOD, with only the Made Ground sample exhibiting PAHs above the LOD. All samples obtained from natural soils returned results for all determinands below LOD.

6.4.6. Total Petroleum Hydrocarbons (TPH)

A summary of results is presented in the table below.

DETERMINAND	RESIDENTIAL WITHOUT HOMEGROWN PRODUCE		
	Max. Conc. (mg/kg)	GAC (mg/kg)	Exceedances of Screening Value
Ali >C5-C6	0.01	42.00	None
Ali >C6-C8	0.05	100.00	None
Ali >C8-C10	2.00	27.00	None
Ali >C10-C12	2.00	130.00	None
Ali >C12-C16	3.00	1100.00	None
Ali >C16-C21	3.00	-	None
Ali >C21-C34	10.00	-	None
Ali >C5-C34	21.00	-	None
Aro >C5-C7	0.01	370.00	None
Aro >C7-C8	0.05	860.00	None
Aro >C8-C10	2.00	47.00	None
Aro >C10-C12	2.00	250.00	None
Aro >C12-C16	5.00	1800.00	None
Aro >C16-C21	3.00	1900.00	None
Aro >C21-C35	54	1900.00	None
Aro >C5-C35	58	-	None

Table 7.4: TPH Results

There were no exceedances of the GAC, and all determinands from all samples with the exception of the Made Ground in GWM02 returned results below LOD.

6.4.7. BTEX and MTBE

A summary of results is presented in the table below.

DETERMINAND	RESIDENTIAL WITHOUT HOMEGROWN PRODUCE		
	Max. Conc. (mg/kg)	GAC (mg/kg)	Exceedances of Screening Value
Benzene	0.002	0.38	None
Toluene	0.005	880.00	None
Ethylbenzene	0.002	83.00	None
Xylenes	0.002	88.00	None
MTBE	0.005	73.00	None

Table 7.5: BTEX/ MTBE Results

There were no exceedances of GAC, and furthermore all results were below LOD.

6.4.8. Discussion of Results

Results across the site appear to reflect observations made in the field i.e., there were no obvious signs of contamination over and above limited Made Ground noted in shallow soils.

No exceedances of the GAC were identified in any location on site. Slightly elevated concentrations of lead, zinc and PAHs were observed in the Made Ground sample from GWM02 at 0.30mbgl, however these were all still below GAC amounts.

It is possible that areas yet to be investigated such as the centre of the site will contain areas of Made Ground/ fill, and therefore subsequently there may be other areas with elevated contaminants.

6.5. Waste Material

The following section provides classification of typical soil materials identified on site during the recent Ground Investigation.

Waste classification should be based on analyses that are representative of the particular waste load, so it is normally not possible to classify the soils at the investigation stage, since the materials that will become waste have generally not been defined yet. Ground investigation data can however provide a useful guide to the likely waste classification and can indicate the scale of the classification analyses that will be required after the waste has been defined and before it is generated.

6.5.1. Identification of Hazardous Properties

Results from all soil samples that underwent the full contamination suite were input into a Soils Characterisation Assessment Tool (HazWaste Online) to identify whether soils on site had hazardous properties.

None of the samples returned hazardous properties.

The Haz-Waste Online output sheet is included as Appendix 6.

6.5.2. Waste Acceptance Criteria

The second part of the assessment process is a review of Waste Acceptance Classification (WAC) testing, which was carried out on one sample (COMP01 – a composite sample typical of shallow soils across the site).

Based on the testing undertaken all soils are considered suitable for disposal as Inert waste.

It is recommended that further WAC testing is undertaken during groundworks to target specific waste being removed from site. Waste classification should be based on analyses that are representative of the particular waste load.

WAC testing certificates are included within Appendix 6.

6.6. Ground Gas Assessment

6.6.1. Design of Monitoring Programme

In accordance with BS8576:2013 *Guidance on investigations for ground gas – permanent gases and volatile organic compounds*, the extent of monitoring deemed necessary to assess the ground gas and vapour regime is determined by the generation potential of the source, i.e. what is the risk that large volumes of gas can be generated and can plausibly migrate to pose a credible hazard to the identified receptors. This is known as a multiple-lines-of-evidence approach.

Factors detailed in the table below were pertinent in the design of the gas monitoring programme. Information detailed in the table has either been taken from the Desk Top Study or interpreted from the intrusive investigation conducted.

FACTOR	MORE MONITORING REQUIRED	LESS MONITORING REQUIRED
Landfills and waste sites	-	No records of any active or historical landfill or other waste sites recorded within 250m of the site.
Ground workings	-	No records within 500m of the site boundary.
Artificial Ground	-	No records within 500m of the site.
Made Ground Organic Content	-	No evidence of organic content. Following laboratory analysis of samples collected during the Ridge Investigation, Total Organic Carbon (TOC) ranged was 6.5% in Made Ground, however Made Ground was over extremely limited extent.
Natural Soils Organic Content	-	There was no evidence of degradable organic material in logged soils. Following laboratory analysis TOC ranged from 0.60% to 3.50%, with an average of 1.45%.
Volatiles	-	No evidence of petroleum hydrocarbons in soils.

Table 7.9: Factors influencing design of Gas Monitoring Programme

6.6.2. Generation Potential of Source

Based on the information within Table 7.6, the generation potential is considered to be **Very Low** and according to guidance this would equate to 'gas monitoring might not be necessary'.

Based on this, no further ground gas monitoring was considered necessary onsite.

7. GEOTECHNICAL TESTING AND ASSESSMENT

7.1. Introduction

This geotechnical assessment and the subsequent foundation design recommendations will use the findings of the investigation and the results of the in-situ and laboratory geotechnical testing carried out in the boreholes, and on representative samples of the materials encountered across the site.

This section discusses the key geotechnical characteristics of each encountered stratum as determined from field observations, in-situ and laboratory geotechnical testing.

The typical stratigraphy revealed during the ground investigation comprised Topsoil over clayey Wittering Formation to between 10.00m and 14.60m depth, with sandier soils of the Wittering Formation below this.

Please refer to Section 6 for further discussion on each stratum.

7.2. In – Situ Testing

7.2.1. Standard Penetration Testing (SPT)

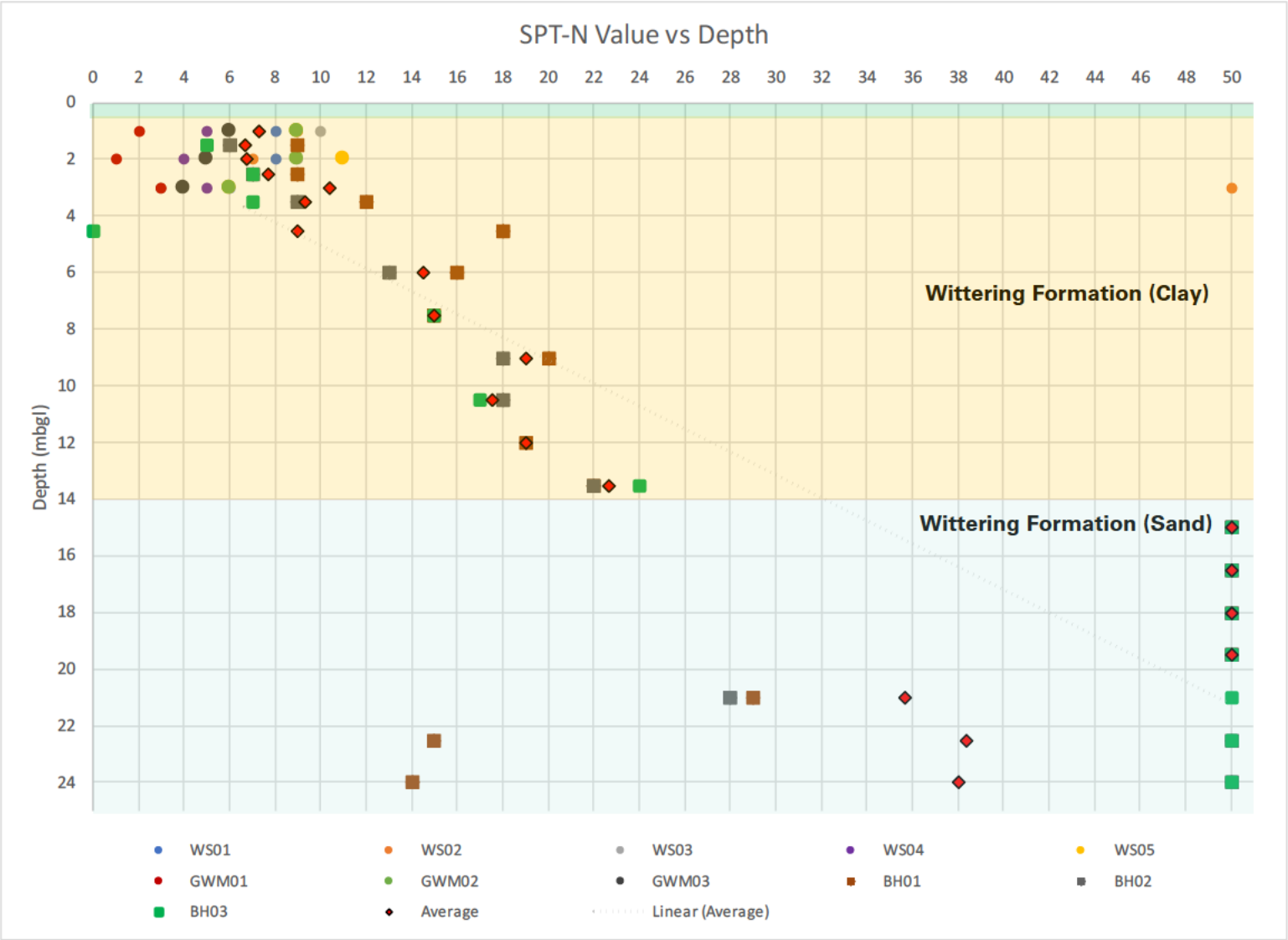
SPTs were completed throughout the drilling of all boreholes generally at 1.00m centres. SPT is an *in-situ* dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test is completed using a 63.5kg drop hammer weight, over a 750mm drop, measuring the blow counts for six, 75mm increments. The first two values are recorded as seating blows, with the remaining four values, added together to provide an 'N-value'.

The graph overleaf shows SPT results.

SPT 'N' values within shallow soils of the Wittering Formation are generally low, with average results between 6 and 10 within the first five metres of soil. There is a wide range of N values within these soils, with outlier results of 0 and 50, indicative of natural variability at shallow depths. A result of 0 is a test completed under the resting weight of the SPT hammer without the need to drop it, indicating a pocket of very soft soils. A result of 50 is likely due to an underground obstruction, such as a cobble, and in this instance is not considered representative of dense soils at this depth. Note that the tests stop at N=50 to avoid damage to the test equipment and the actual result will be higher.

SPT 'N' values generally increase with depth beyond 5.00mbgl, attaining average values between 14 and 20, before a marked jump up to average values of >50, reflecting a change in composition of the Wittering Formation from predominately Clay to predominantly very dense Sand at around 14.00mbgl. SPT values remain consistently high in this stratum to circa 21.00mbgl, where a softer Clay band within the sands is reflected by lower results of between 15 and 30, most prominent in BH01.

Engineering logs showing the full test results are included in Appendix 3.



Graph 8.1: Standard Penetration Testing Results

7.2.2. Dynamic Probing Testing (DP)

Dynamic Probing was undertaken in all Windowless Sampling locations between 0mbgl and 5.00mbgl to supplement SPT data where the Windowless Sampling rig was unable to advance to the full 5.00mbgl depth. DP testing involves the dropping of a 63.5kg drop hammer similar to SPT testing but is measured in continuous 100mm increments with the number of blows taken to progress 100mm recorded.

Results of DP testing reflect the low SPT values in shallow soils, with average blow counts between 0 and 2 per 100mm for the majority of tests. In WS02 and WS05, an increase in density is recorded between 3.00mbgl and 5.00mbgl, with results between 10-19 blows per 100mm and 5-10 blows per 100mm respectively.

Full Dynamic Probing results are provided in Appendix 3.

7.2.3. California Bearing Ratio Testing (CBR)

Testing across the site was completed to determine the equivalent in-situ CBR value using both Plate Load testing and Clegg Hammer testing.

Plate Load test results are shown in Table 8.1 below. Plate Load testing involves the use of a hydraulic jack pushing against a 5T tracked excavator used as kentledge, applying pressure to a 298mm diameter steel plate which is measured for settlement, providing parameters from which a CBR percentage can be calculated. At each location, Topsoil was stripped away, and the test undertaken on shallow natural soil.

Full Plate Load test certificates are provided in Appendix 3

LOCATION	DEPTH (MBGL)	MATERIAL	MAXIMUM SETTLEMENT (MM)	CBR%
CBR01	0.25	Clay	2.08	2
CBR02	0.15	Sandy Gravel	2.17	7
CBR03	0.25	Clay	2.16	1
CBR04	0.20	Clay	2.03	1

Table 8.1: Plate Load Testing

Table 8.2 presents data from Clegg Hammer testing. This involves of dropping a 4.5kg compaction hammer within a vertical guide tube from a fixed height, which strikes the test surface and decelerates at a rate determined by the stiffness of the material. An accelerometer measures the rate of deceleration and provides an Impact Value, which can be correlated with a CBR percentage.

TEST	DEPTH (MBGL)	IMPACT VALUE	CBR %
01	0.55	3	3
02	0.30	3	3

TEST	DEPTH (MBGL)	IMPACT VALUE	CBR %
03	0.40	0	0
04	0.35	2	2
05	0.40	4	4
06	0.00	0	0
07	0.30	4	4
08	0.35	4	4
09	0.40	4	4

Table 8.2: Clegg Hammer Testing

7.3. Laboratory Testing

Details of the specific procedure used in each case are shown below in Table 8.3 and the geotechnical test certificates are presented in Appendix 5.

TEST	STANDARD (BS1377:1990) UNLESS OTHERWISE INDICATED	SCHEDULED
Moisture Content	Part 2: 3.2	17
Atterberg Limit Test	Part 2: 4.3 & 5.3	17
PSD Wet Sieve/ Pipette Method	Part 2: 9.2/ 9.4	8
pH	Part 3: 9.5	23
Sulphate Testing	Part 3: 5.3	23
BRE Suite	pH, water and acid soluble sulphate and total sulphur	6
Quick Undrained Triaxial	Part 7: 9	3

Table 8.3: Summary of Geotechnical Testing

7.3.1. Moisture Content & Atterberg tests

Seventeen samples underwent Moisture Content & Atterberg limits testing to determine the consistency limits. The results are shown in Table 8.4 below.

SAMPLE ID	STRATA	MOISTURE CONT. W (%)	LIQUID LIMIT WL (%)	PLASTIC LIMIT WP (%)	425 μ M SIEVE (PASSING %)	PLASTICITY INDEX IP (%)	MODIFIED PLASTICITY INDEX (%)	CASAGRANDE CLASSIFICATION	VOLUME CHANGE POTENTIAL
WS01 0.90m	Silty Clay	40	74	34	100	40	40	CV Very High Plasticity	High
WS02 2.60m	Silty Sandy Clay	31	65	24	100	41	41	CH High Plasticity	High
WS03 1.20m	Silty Sandy Clay	44	76	32	100	44	44	CV Very High Plasticity	High
WS04 1.80m	Silty Sandy Clay	36	65	25	100	40	40	CH High Plasticity	High
WS05 2.00m	Silty Sandy Clay	34	59	29	100	30	30	CH High Plasticity	Medium
GWM01 1.00m	Silty Sandy Clay	29	64	24	100	40	40	CH High Plasticity	High
GWM02 1.50m	Silty Sandy Clay	32	63	29	100	34	34	CH High Plasticity	Medium
GWM03 2.40m	Silty Clay	39	77	34	100	43	43	CV Very High Plasticity	High
BH01 5.00m	Silty Clay	39	74	32	100	42	42	CV Very High Plasticity	High
BH01 14.00m	Silty Clay	23	54	20	100	34	34	CH High Plasticity	Medium
BH01 19.00m	Silty Clay	30	70	29	100	41	31	CH/V High/High Plasticity	Medium

SAMPLE ID	STRATA	MOISTURE CONT. W (%)	LIQUID LIMIT WL (%)	PLASTIC LIMIT WP (%)	425µM SIEVE (PASSING %)	PLASTICITY INDEX IP (%)	MODIFIED PLASTICITY INDEX (%)	CASAGRANDE CLASSIFICATION	VOLUME CHANGE POTENTIAL
BH02 7.00m	Clayey Silt	38	73	35	100	38	38	MV Very High Plasticity	Medium
BH02 13.00m	Silty Sandy Clay	23	49	21	100	28	28	CI Intermediate Plasticity	Medium
BH02 20.50m	Clayey Sandy Silt	38	64	32	100	32	32	MH High Plasticity	Medium
BH03 5.00m	Clayey Silt	39	71	36	100	35	35	MV Very High Plasticity	Medium
BH03 10.00m	Silty Sandy Clay	29	50	23	100	27	27	CI/H Inter/High Plasticity	Medium
BH03 20.50m	Silty Sandy Clay	33	64	28	100	36	36	CH High Plasticity	Medium

Table 8.4: Consistency Limits

The Atterberg limits testing returned the following results:

Intermediate Plasticity - one sample

High Plasticity - nine samples

Very High Plasticity – seven samples

In accordance with NHBC Guidance the Modified Plasticity Index translates to ten samples of Medium change potential and seven of High volume change potential.

7.3.2. pH/ Water Soluble Sulphate 2:1 extract

23no. representative samples of the exploratory holes underwent pH/ Water Soluble Sulphate 2:1 extract testing to determine the pH level and sulphate content of the material. The results are shown in Table 8.5 below.

LOCATION	DEPTH (MBGL)	PH VALUE	2:1 SULPHATE EXTRACT (MG/L)	CONCRETE CLASSIFICATION DESIGN CLASS	AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE CLASS
WS01	1.50	5.5	<10	DS-1	AC-1
WS02	1.20	5.4	<10	DS-1	AC-1
WS03	2.70	5.0	26	DS-1	AC-1
WS04	0.70	6.0	15	DS-1	AC-1
WS05	0.60	5.4	16	DS-1	AC-1
GWM01	2.80	4.7	110	DS-1	AC-1
GWM02	0.90	5.0	43	DS-1	AC-1
GWM03	1.40	4.7	24	DS-1	AC-1
BH01	3.00	4.8	550	DS-2	AC-1
BH01	7.00	6.6	430	DS-1	AC-1
BH01	16.00	8.3	160	DS-2	AC-1
BH01	20.00	8.5	120	DS-1	AC-1
BH01	25.00	7.5	270	DS-1	AC-1
BH02	3.50	4.6	2000	DS-2	AC-1
BH02	8.00	6.5	470	DS-1	AC-1
BH02	14.00	7.0	400	DS-1	AC-1
BH02	19.00	7.3	450	DS-1	AC-1
BH02	22.00	7.1	420	DS-1	AC-1
BH03	4.50	5.1	550	DS-2	AC-1
BH03	8.00	6.9	510	DS-2	AC-1
BH03	11.00	7.0	550	DS-2	AC-1
BH03	16.00	7.0	44	DS-1	AC-1
BH03	20.00	7.7	180	DS-1	AC-1

Table 8.5: pH/Sulphate Results

Results of pH and sulphate testing returned a wide range of values leading to both both DS-1 AC-1 and DS-2 AC-1 classifications. As outlined in *BRE Special Digest 1:2005 'Concrete in Aggressive Ground'*, in a data set of more than 10 samples, a characteristic value for the site should be determined by taking the mean of the highest 20% of water-soluble sulphate results, rounded to the nearest 100 mg/l, and the mean of the lowest 20% of pH results. Accordingly, a characteristic classification for the site is a Design Sulphate Classification of **DS-2** and an Aggressive Chemical Environment for Concrete class of **AC-1** based on a water-soluble sulphate value of 800 mg/l and a pH of 4.7.

7.3.3. BRE Suite

6no. representative samples of the exploratory holes underwent pH, water and acid soluble sulphate and total sulphur testing. The results are shown in Table 8.6 below.

LOCATION	DEPTH (MBGL)	PH VALUE	2:1 SULPHATE EXTRACT (MG/L)	SULPHUR, TOTAL (%)	ACID SOLUBLE SULPHATE (%)	TOTAL POTENTIAL SULPHATE (%)	OXIDISABLE SULPHIDES (%)
BH01	4.00	4.8	710	1.07	0.19	3.21	3.02
BH01	8.00	6.9	410	0.85	0.14	2.55	2.41
BH02	4.50	4.7	2100	5.32	0.13	15.96	15.83
BH02	17.00	7.2	560	0.45	0.83	1.35	0.52
BH03	9.50	7.0	240	0.82	0.08	2.46	2.38
BH03	25.00	7.5	150	0.19	0.05	0.57	0.52

Table 8.6: BRE Results

Further testing on the six soil samples from BH01-BH03 indicates the likely presence of pyrite in deeper soils of the Wittering Formation (>4.00mbgl) due to an Oxidisable Sulphide amount >0.3%, as determined using the method outlined in Part C5 of *BRE Special Digest 1:2005 'Concrete in Aggressive Ground'*. This additionally corroborates visual observations made during logging of the soils in the field. Based on the available data set, a mean of the two highest Total Potential Sulphate (TPS) percentages is taken, resulting in a highly conservative characteristic classification of DS-5 AC-4 based on a TPS of 9.5%.

As the pyritic soils are at a depth where piling is necessary, ground disturbance that could result in oxidation of pyrite is likely to be minimal, which combined with the lower Design Sulphate values recorded in section 7.3.2 provides reason to apply a limitation to **DS-4 AC-4**, as outlined in *BRE Special Digest 1:2005 'Concrete in Aggressive Ground'*. It will be necessary for any concrete piles extending further than 4.00mbgl used onsite are designed to this specification.

7.3.4. PSD Wet Sieve/ Pipette Method

Eight samples of the underlying sandier material from the Wittering Formation were submitted for determination of their composition of the material. The results are presented in Table 8.6.

SAMPLE ID	CLAY & SILT	SAND %	GRAVEL %	COBBLES %	SUBSEQUENT CHARACTERISATION
DFT01-2.20m	67	33	0	0	Sandy Silt/Clay

SAMPLE ID	CLAY & SILT	SAND %	GRAVEL %	COBBLES %	SUBSEQUENT CHARACTERISATION
DFT02-2.00m	82	18	0	0	Slightly sandy Silt/Clay
BH01-11.00m	10	88	2	0	Slightly gravelly slightly silty/clayey Sand
BH01-20.50m	77	23	0	0	Sandy Silt/Clay
BH02-11.00m	43	57	0	0	Very sandy Silt/Clay
BH02-14.50m	13	86	1	0	Silty/clayey Sand
BH03-13.50m	88	9	3	0	Slightly gravelly slightly sandy Silt/Clay
BH03-23.00m	32	67	1	0	Very silty/clayey Sand

Table 8.7: PSD Analysis

7.3.5. Undrained Triaxial

Three samples underwent multi-stage unconsolidated undrained triaxial tests to allow assessment of undrained shear strength. Results are presented in the table below.

SAMPLE ID	CELL PRESSURES KPA	UNDRAINED SHEAR STRENGTH	FAILURE STRAIN %
BH01 - 12.00m	124, 249, 498	18.00, 19.00, 21.00	3.40, 4.20, 5.00
BH02 - 7.50m	75, 150, 300	7.00, 8.10, 9.50	0.75, 2.30, 2.70
BH03 - 9.00m	90, 180, 360	15.00, 19.00, 19.00	6.00, 7.00, 7.20

Table 8.8: Undrained Triaxial

7.4. Characteristic Geotechnical Parameters

Based on the laboratory test results, in-situ testing and subsequent analysis a range of characteristic geotechnical parameters, which should be used in the subsequent geotechnical and foundation design calculations are presented in Table 8.10.

STRATUM	PARAMETER		SOURCE	VALUE
Wittering Formation (Clay)	Unit Weight (kN/m ³)		QUTXL Tests	15.69 - 17.94kN/m ³
	Undrained Shear Strength	c_{uk} (kN/m ²)	QUTXL Tests	8 - 19kN/m ²
		ϕ_{uk} (°)		0.6 – 0.7°
	Modulus of Deformation	Undrained E_{uk} (MN/m ²)	$E_{uk}/c_{uk} = 348$	2.784 - 6.612MN/m ²
		Drained E'_{uk} (MN/m ²)	CIRIA 143 (0.75 E_{uk})	2.088 – 4.959MN/m ²
Wittering Formation (Silty Sand)	Unit Weight (kN/m ³)		BS8002	18.5kN/m ³
	Angle of Shearing Resistance ϕ	°	Peck, Hanson & Thorburn	40°

Table 8.10: Characteristic Geotechnical Parameters

7.5. Foundations

The ground investigation proved the expected general strata sequence comprising a thin layer of Topsoil, underlain by a cohesive Wittering Formation unit, with deeper soils comprising silty sand.

The selection and design of foundations is beyond the scope of current instructions and is the responsibility of the designers of the proposed building. The following recommendations, deriving from observations made during the investigation and testing are provided to assist the design process.

7.5.1. Traditional foundations

Based on the low SPT-N values recorded in the shallow soils of the Wittering Formation (0.00mbgl to 5.00mbgl) and presence of groundwater at shallow depth (<1.00mbgl), it is considered that the ground conditions identified are generally unsuitable for traditional foundations for the proposed building.

All foundation design should take the shrinkage potential of tested soils into account.

7.5.2. Piled Foundations

For the proposed development it is recommended that piled foundations are used, taking loads through the soft cohesive Wittering Formation to transfer into the underling granular Wittering Formation silts and sands.

Preliminary pile design calculations are shown in Table 8.11, below, which are only provided for guidance at this time.

The following factors have been used in the derivation of pile loads as detailed below.

Calculation Model Factor – Overall FOS = 1.00

Compression – Overall FOS = 2.50

Compression – Additional FOS Combination

FOS on shaft resistance = 1.00

FOS on end bearing = 3.00

Tension – Factor applied to skin friction

FOS on shaft resistance = 3.00

Higher carrying capacities are often achieved by driven piles, however, as the use of driven piles can cause environmental issues (noise and vibration) the initial axial resistance calculations have been carried out on CFA piles.

It should be acknowledged that the carrying capacity of a pile group is generally less than the sum of the individual piles. Therefore, it is recommended that a pile group analysis is carried out if load bearing piles are placed closer than 1.5 x pile diameter.

The clay has been found to be of medium and high shrinkage potential. Heave protection, new tree planting and ground floor slab design should take this shrinkage potential into account.

The design parameters above have been used to calculate preliminary pile lengths for various pile diameters and loadings. It should be noted that this information is for guidance only and actual design should be carried out by the Piling Contractor at the appropriate time.

DIAMETER/ LOAD	350KN	500KN	750KN	1000KN
450mm	16.20m	17.60m	20.60m	23.20m
600mm	14.10m	14.90m	17.40m	19.60m
750mm	14.00m	14.10m	15.20m	17.10m

Table 8.11: Preliminary Pile Calculations

7.6. Foundations – General

Other foundation solutions are available and it will be necessary for a suitable risk assessment to be carried out by the foundations designer's at the appropriate time. This could potentially include ground improvement or a piled raft, subject to specialist assessment.

The above recommendations are based on interpolation of ground conditions between exploratory hole locations and interpretation should take the access restrictions at the time of investigation into account.

7.7. Floor slabs

Due to the presence of shallow shrinkable indigenous clay, it is recommended that the proposed building utilises a suspended ground floor slab.

7.8. Pavement Design

Numerous CBR tests were undertaken on site and returned values between 0% and 7% at depths between 0.00mbgl and 0.55mbgl, indicative of soft shallow ground conditions. These values should be used for preliminary pavement design, supported by CBR testing at formation at the appropriate time.

7.9. Earthworks

The site is relatively level and not much re-grading is expected to prepare the site for the proposed development. Ground levels are typically between 25.00 – 28.00 AOD.

7.10. Buried Concrete

Buried concrete should be specified to comply with the findings of the testing carried out, as summarised in Table 8.5. This was characterised as DS-2 AC-1 for the site, based on analysis of the available data set.

7.11. Infiltration Drainage

Soakaway testing proved poor infiltration drainage in all tests, as a result of a combination of cohesive shallow soils and high groundwater levels. Therefore, the use of soakaway drains for the disposal of surface water from the proposed development is considered not feasible.

It is recommended that the existing surface water drainage network is investigated as it may be possible to re-use parts of this within the developed site, subject to the necessary permissions.

7.12. Further Geotechnical Investigation

Further groundwater level monitoring may be useful to provide additional seasonal data for incorporation into the foundation/ pile design.

8. CONCEPTUAL SITE MODEL/ RISK ASSESSMENT

8.1. Sources

Following investigations conducted to date and screening of chemical analysis results, no contaminant sources have been identified.

Having classified the site as CS1, no gas protective measures are required in the proposed development. Further to this, there is not considered a risk from soil vapour in investigated areas.

8.2. Receptors

Receptors that may be affected by the identified contaminant sources are considered to be:

8.2.1. Human

- Future residential end users
- Any future maintenance workers
- Construction workers during development

8.2.2. Environmental

- Superficial and bedrock Secondary (A) Aquifers

8.3. Pathways

The key environmental pathways and exposure routes by which potentially toxic substances may possibly reach the identified potential receptors are considered to be:

8.3.1. Indirect

- Vertical and lateral migration of organic and inorganic compounds through underlying geology
- Migration of contaminants and corrosive damage to future services

8.3.2. Direct

- Inhalation of contaminated dust
- Ingestion
- Dermal contact

9. CONTAMINATION RISK ASSESSMENT

9.1. Risk Assessment Procedure

By considering the sources, pathways and receptors (pollutant linkages), an assessment of the human health/ environmental risks is made with reference to the significance and degree of the risk. This assessment is based on consideration of whether the source contamination can reach a receptor and hence whether it is of major or minor significance.

The risk assessment has been undertaken with reference to BS 10175:2011+A1:2013 and CIRIA Document C552: Contaminated Land Risk assessment 'A Guide to Good Practice'. The risk assessment has been carried out by assessing the severity of the potential consequence, taking into account both the potential magnitude of the hazard and the sensitivity of the target, based on the categories provided below.

CATEGORY	EXAMPLES
High	Residential with gardens/Groundwater Source Protection Zone
Medium	Residential without gardens/Principal (Major) Aquifer/sensitive watercourse
Low	Commercial and industrial use/Secondary (Minor) Aquifer
Very Low	Construction and maintenance workers/non-sensitive watercourse

Table 10.1: Sensitivity of receptor

CATEGORY	EXAMPLES
Gross Impact	Heavily contaminated gasworks or industrial Site, hazardous waste landfill
Moderate Impact	Major leaks and spills from fuel infrastructure (e.g. petrol stations), domestic waste landfills
Slight Impact	Minor leaks and spills from fuel infrastructure, 'inert' waste landfills

Table 10.2: Magnitude of impact

MAGNITUDE OF IMPACT	SENSITIVITY OF RECEPTOR			
	High	Medium	Low	Very Low
Gross Impact	Severe	Medium	Mild	Minor
Moderate Impact	Medium	Mild	Minor	Minor
Slight Impact	Mild	Minor	Minor	Minor

Table 10.3: Level of severity of potential hazard

The likelihood of an event (probability) takes into account both the presence of the hazard and target and the integrity of the pathway and has been assessed based on the categories given below.

CATEGORY	EXAMPLES
High likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

Table 10.4: Probability of risk definition

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

PROBABILITY OF RISK	SENSITIVITY OF RECEPTOR			
	Severe/ High	Medium	Mild/ Low	Minor/ V. Low
High likelihood	Very High	High	Moderate	Low/Moderate
Likely	High	Moderate	Low/Moderate	Low
Low likelihood	Moderate	Low/Moderate	Low	Very Low
Unlikely	Low/Moderate	Low	Very Low	Very Low

Table 10.5: Level of risk for potential hazard definition

The assessment is discussed below in terms of plausible pollutant linkages. A complete assessment of the pollutant linkages is presented in Table 10.6.

A description of these risk classifications and likely action required are given in CIRIA 552 as:

Very high risk – High probability that severe harm could arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation and remediation are likely to be required.

High risk – Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required, and remedial works may be necessary in the short term and are likely over the long term.

Moderate risk – It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long term.

Low risk – It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.

Very low risk – It is a low possibility that harm could arise to a designated receptor. In the event of such harm being realised it is not likely to be severe.

9.2. Pollutant Linkage Discussion

As no source of contamination has been identified by the site investigation, no pollutant linkage is considered to exist, and therefore no risk is posed to site receptors from ground contamination. No further assessment of pollutant linkages is considered necessary at this stage.

Should any unidentified contaminant sources be encountered during the construction phase, such as large quantities of Made Ground, the risk assessment will require further refinement and Ridge should be contacted to provide further advice and, if necessary, additional testing of soil samples from the affected areas.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1. Contamination

The design of the Site Investigation incorporated information from the previously issued reports, with contamination source areas investigated as far as practicable.

Currently, no source of contamination has been identified on-site during investigation works, and therefore no risk is thought to be posed to any present or future receptors at the site.

10.1.1. Waste Removal

Only a limited extent of shallow Made Ground was encountered on the site, within the area of the site entrance. The majority of soils encountered were natural and exhibited no significant signs of anthropogenic materials.

Shallow soils have been classified as Inert across the site.

We recommend further targeted testing when removing portions of material from the site to allow appropriate classification – this may allow significant cost savings associated with waste disposal.

10.2. Geotechnical

10.2.1. Foundations

Traditional foundations are deemed unsuitable for use on the site due to the soft nature of shallow soils and low SPT results recorded, along with the presence of shallow groundwater. All foundation design should take the shrinkage potential of tested soils into account.

For proposed buildings a piled solution is recommended with piles transferring loads through the softer cohesive Wittering Formation Clays and into denser Sands encountered at depth. Ground improvement or use of a piled raft may also be possible, subject to specialist assessment.

10.2.2. Groundwater

Groundwater was encountered at shallow depths between 0.80mbgl and 1.70mbgl during investigations, with additional deeper water strikes encountered in the cable percussive boreholes. During monitoring, groundwater was recorded at <1.00mbgl in all locations.

Where groundwater is encountered within any shallow excavations during the construction phase it should be dealt with appropriately and removed using good engineering practices. Groundwater levels are dependent upon seasonal variations and levels may change after periods of heavy rainfall or prolonged drought.

10.2.3. Buried Concrete

Laboratory testing indicated that shallow site soils can be characterised as DS-2 AC-1 based on analysis of the available data set. However, presence of pyrite in soils below 4.00mbgl necessitates a more conservative DS-4 AC-4 classification for concrete piles below this depth, due to higher Total Potential Sulphate amounts. Specification of buried concrete should take into account the full set of results included in Tables 8.5 and 8.6 and the subsequent analysis.

10.2.4. Earthworks

Given the relatively level nature of the site, excessive earthworks are not considered necessary to prepare the site for the proposed development.

10.2.5. Roadways and Pavements

California Bearing Ratio tests were undertaken on site and returned values between 0% and 7% at depths between 0.00mbgl and 0.55mbgl. These values should be used for preliminary pavement design, supported by CBR testing at formation at the appropriate time.

10.2.6. Soakaways

Soakaway testing did not produce favourable results, and it is considered that ground conditions on site are unsuitable for soakaway drainage due to their cohesive nature and the presence of shallow groundwater. It may be possible to re-use some of the existing surface water drainage network, subject to the necessary permissions and capacity checks.

10.2.7. Floor Slab

Given the presence of shrinkable clay it is recommended that a suspended ground floor slab is used for the proposed building.

10.2.8. Further Geotechnical Investigation

Further groundwater level monitoring would provide additional seasonal data for incorporation into the foundation/pile design. It is considered that the data gathered between March and May 2024 is representative of higher than usual spring groundwater levels, however longer-term monitoring should be undertaken to assess winter conditions between November and February, where groundwater levels are likely to be at their highest. This would enable greater confidence in the data available for design purposes and could result in cost savings, although conservative groundwater level estimates using data gathered to date would be sufficient.

FIGURE 1 - SITE LOCATION PLAN



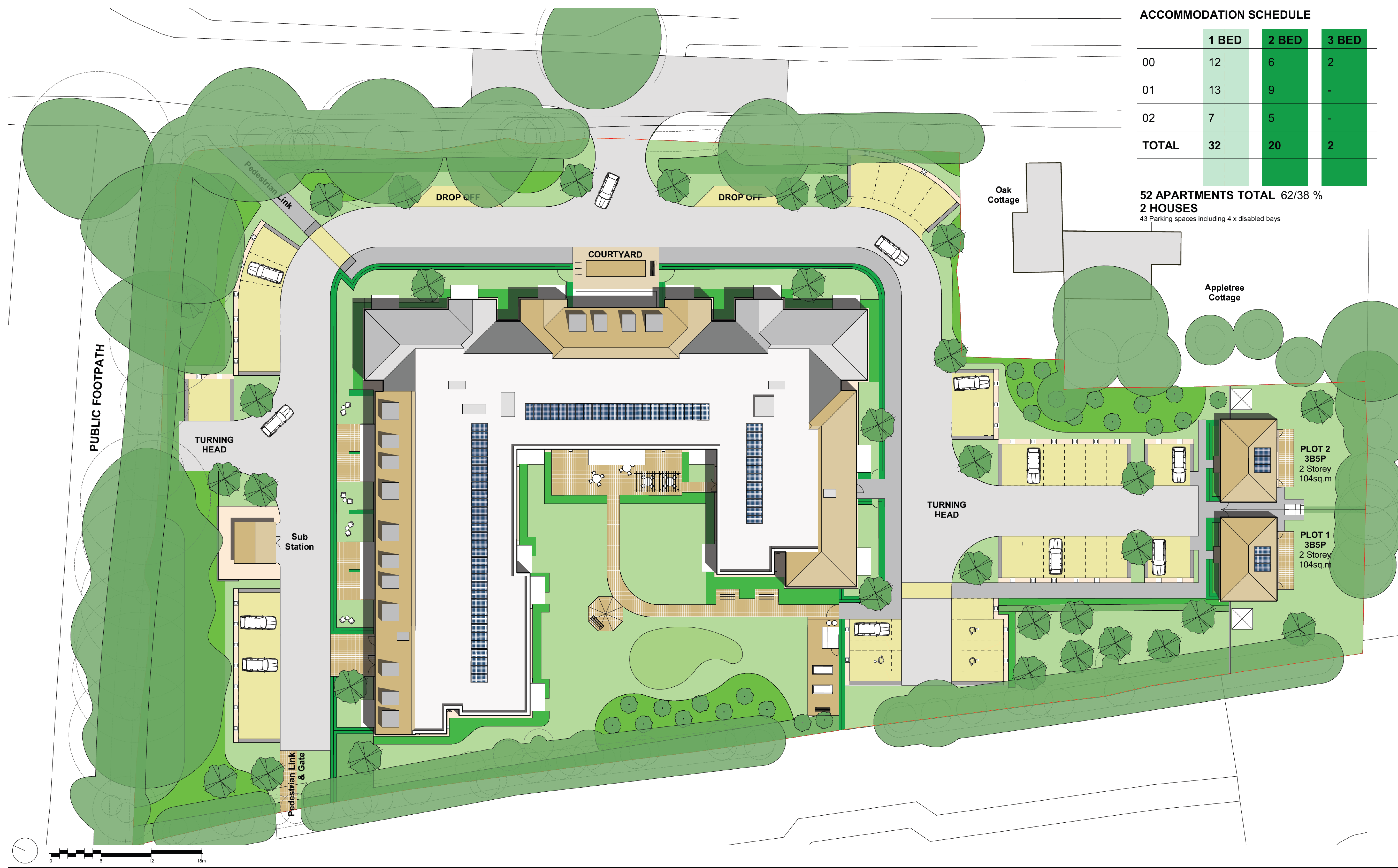
Project:		Boorley Green, Hampshire		Title:	Site Location Plan	
Job Number:	5024854	Client:	McCarthy Stone	Ridge and Partners LLP TEL: 01962 834300 www.ridge.co.uk	1 Royal Court Kings Worthy Winchester SO23 7TW	
Drawing:	5024854-Fig1	Revision:	-			
Drawn:	EP	Date:	June 2024			
Checked by:	ME	Scale:	NTS			

FIGURE 2 - DEVELOPMENT PLANS

ACCOMMODATION SCHEDULE

	1 BED	2 BED	3 BED
00	12	6	2
01	13	9	-
02	7	5	-
TOTAL	32	20	2

52 APARTMENTS TOTAL 62/38 %
2 HOUSES
43 Parking spaces including 4 x disabled bays



FOR PINKFILE
Refer to Landscape drawing
SO 2977 02 LA 001 by Terrafirma

McCARTHY STONE
Life, we'll live

PROPOSED SITE LAYOUT (ROOF)

PROJECT	Boorley Green	JOB NO	24.013
SCALE	1/200 @ A1	DATE	April 2024
DRAWN BY/CHECKED BY	CK / SK	REVISION	A
DWG#	SO_2977_03_AC_010		

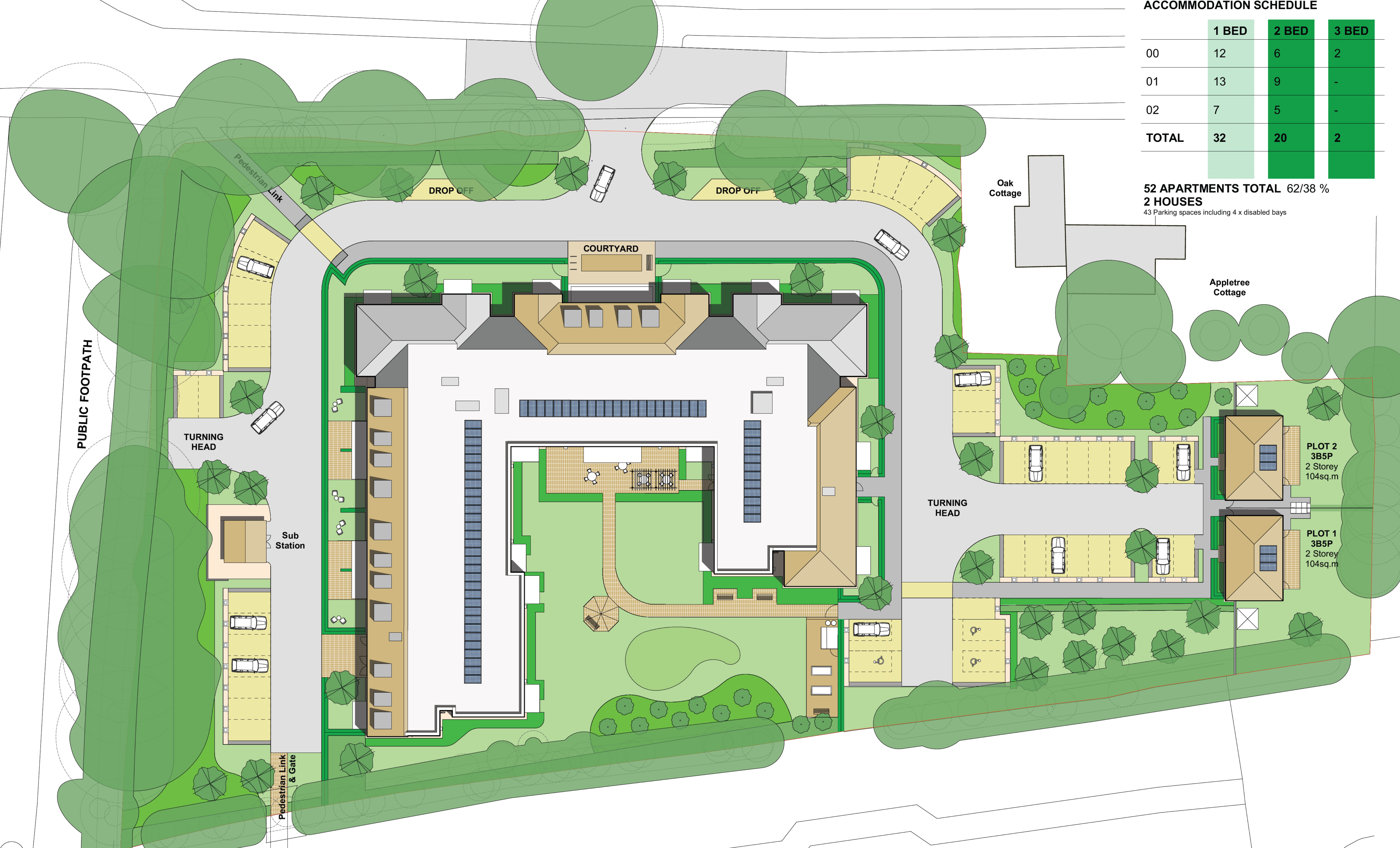
A - Detached houses	17.07.24	SK	CJC
Rev	Description	Date	DB CB

FIGURE 3 - TEST LOCATION PLAN

ACCOMMODATION SCHEDULE

	1 BED	2 BED	3 BED
00	12	6	2
01	13	9	-
02	7	5	-
TOTAL	32	20	2

52 APARTMENTS TOTAL 62/38 %
2 HOUSES
43 Parking spaces including 4 x disabled bays



FOR PINKFILE
Refer to Landscape drawing
SO 2977 02 LA 001 by Terrafirma

McCARTHY STONE
Life, well lived

PROPOSED SITE
LAYOUT (ROOF)

PROJECT	JOB NO
Boorley Green	24.013
SCALE	DATE
1/200 @ A1	April 2024
DRAWN BY/CHECKED BY	REVISION
CK / SK	A
DWG#	
SO_2977_03_AC_010	

A - Detached houses	17.07.24	SK	CJC
Rev	Description	Date	DB CB

hgp

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hgp-architects.co.uk

APPENDIX 1 - REPORT CONDITIONS

Report Conditions

This report is produced solely for the benefit of **McCarthy Stone** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the Site.

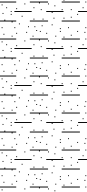
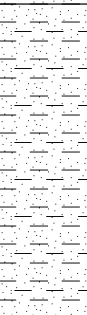
This report is based on a visual Site inspection, study of readily accessible referenced historical records, information supplied by those parties noted in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. Where ground contamination is suspected but no physical Site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to detailed activities related to the Site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, not revealed by this research cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ridge and Partners LLP. In time improved practices or amended legislation may necessitate a re-assessment.

The report is necessarily limited to those aspects of land contamination specifically reported on and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents that may occur. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous use and abuse of the Site and adjacent Sites. The report concentrates on the Site as defined in the report and provides an opinion on surrounding Sites. If migrating pollution or contamination (past or present) exists this can only practically be better assessed following extensive on and off Site intrusive investigations and monitoring.

APPENDIX 2 - ENGINEERING LOGS

[illegible]

RIDGE		Ridge and Partners LLP www.ridge.co.uk		Trial Pit Log				Trial Pit No. DFT02 Sheet 1 of 1	
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL	
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: 5T Tracked Excavator		Depth: 2.00m		Hole Type: TP	
Project ID: 5024854		Date: 25/03/2024 - 27/03/2024		Co-ords:		Level: 27.91m AoD		Scale: 1:25	
	Depth (m)	Level (mAOD)	Legend	Stratum Description	Water Strikes	Sample and In Situ Testing			
						Depth (m)	Type	Results	
1	0.25	27.91		Grass onto dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded medium flint. (TOPSOIL)					
		27.66		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)					
	0.95	26.96		Soft orangish brown and grey laminated very sandy CLAY. (WITTERING FORMATION)					
2	2.00			End of Trial Pit at 2.000m					
3									
4									
5									
Dimensions			Soakage Test Information				Trial Pit Support		
Pit Length	Pit Width	Test Number	Date Test	Depth Start	Depth End	Duration	Pit Stability	Shoring Used	
2.00	0.35						Progressive collapse from 1.00m to 2.00m backfilling pit to 1.80m depth.		
Remarks Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 1.30m depth.									
Logged in general accordance with BS 5930: Code of practice for ground investigations.									

Project Name: Boorley Green, Hampshire

Client: McCarthy Stone

Contractor: MCD

Logged By:
TL

Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA

Equipment: 5T Tracked Excavator

Depth: 0.65m

Hole Type:
TP

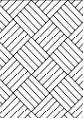
Project ID: 5024854

Date: 25/03/2024 - 27/03/2024

Co-ords:

Level: 26.97m AoD

Scale:
1:25

Depth (m)	Level (mAOD)	Legend	Stratum Description	Water Strikes	Sample and In Situ Testing		
					Depth (m)	Type	Results
0.40 0.65	26.97		Grass onto dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium flint. (TOPSOIL)				
	26.57		Soft orangish brown mottled grey slightly sandy CLAY. (WITTERING FORMATION)				
	End of Trial Pit at 0.650m						
1							
2							
3							
4							
5							
Dimensions		Soakage Test Information			Trial Pit Support		
Pit Length	Pit Width	Test Number	Date Test	Depth Start	Depth End	Duration	Pit Stability
1.50	0.35						Pit remained upright and stable.
Remarks							
Position cleared by CAT & Genny prior to excavation. No groundwater encountered.							
Logged in general accordance with BS 5930: Code of practice for ground investigations.							

Trial Pit Log

Trial Pit No.

SFT02

Sheet 1 of 1

Project Name: Boorley Green, Hampshire

Client: McCarthy Stone

Contractor: MCD

Logged By:
TL

Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA

Equipment: 5T Tracked Excavator

Depth: 0.80m

Hole Type:
TP

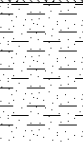
Project ID: 5024854

Date: 25/03/2024 -
27/03/2024

Co-ords:

Level: 27.78m AoD

Scale:
1:25

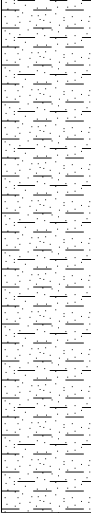
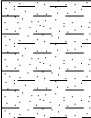
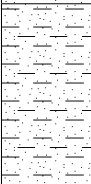
Depth (m)	Level (mAOD)	Legend	Stratum Description	Water Strikes	Sample and In Situ Testing		
					Depth (m)	Type	Results
0.30	27.78		Grass onto dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium flint and rare brick. (TOPSOIL)				
	27.48		Soft orangish brown mottled grey slightly sandy CLAY. (WITTERING FORMATION)				
	0.80		End of Trial Pit at 0.800m				
1							
2							
3							
4							
5							
Dimensions		Soakage Test Information			Trial Pit Support		
Pit Length	Pit Width	Test Number	Date Test	Depth Start	Depth End	Duration	Pit Stability
1.50	0.30						Pit remained upright and stable.
Remarks							
Position cleared by CAT & Genny prior to excavation. No groundwater encountered.							
Logged in general accordance with BS 5930: Code of practice for ground investigations.							

RIDGE			Ridge and Partners LLP www.ridge.co.uk			Trial Pit Log			Trial Pit No. SFT03 Sheet 1 of 1		
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone			Contractor: MCD		Logged By: TL		
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: 5T Tracked Excavator			Depth: 0.65m		Hole Type: TP		
Project ID: 5024854		Date: 25/03/2024 - 27/03/2024		Co-ords:			Level: 27.92m AoD		Scale: 1:25		

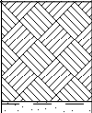
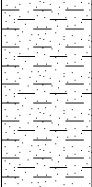
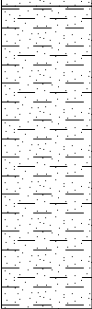
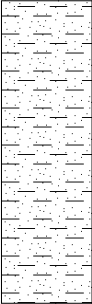
RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. WS01 Sheet 1 of 1							
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL							
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.00m		Hole Type: WLS							
Project ID: 5024854		Date: 25/03/2024		Co-cords:		Level: 27.09m AoD		Scale: 1:25							
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description							
		Depth (m)	Type	Results											
					0.35	26.74		Grass onto dark brown slightly sandy CLAY with frequent rootlets and rare fragments of brick and ash. (TOPSOIL)							
									Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	1					
		1.00	SPT	N=8 (2,1/2,2,2,2)											
		2.00	SPT	N=8 (2,1/2,2,2,2)					2						
					2.30	24.79		Soft orangish brown and grey laminated very sandy CLAY. (WITTERING FORMATION)							
		3.00	SPT	N=6 (2,2/1,2,2,1)	3.00	24.09		End of Borehole at 3.000m	3						
									4						
									5						
Groundwater Information										Hole Diameter		Casing Diameter			
Date		Depth Strike		Time Elapsed		Depth Water		Depth Base		Diameter		Depth Base		Diameter	
25/03/2024 00:00:00		0.90		60		0.60									
Remarks:														AGS	
Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 0.90m depth. Windowless drilling terminated at 3.00m due to collapse. Adjacent dynamic probing undertaken to 5.00m.															
Logged in general accordance with BS 5930: Code of practice for ground investigations.															

RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. WS02 Sheet 1 of 1				
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL				
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.00m		Hole Type: WLS				
Project ID: 5024854		Date: 25/03/2024		Co-cords:		Level: 27.23m AoD		Scale: 1:25				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		1.00	SPT	N=9 (2,2/2,3,2,2)	0.40	26.83		Grass onto dark brown slightly sandy CLAY with rare brick fragments. (TOPSOIL)	1			
					2.00	SPT	N=7 (2,3/2,1,2,2)	1.00		26.23		Soft orangish brown mottled grey slightly sandy CLAY. (WITTERING FORMATION)
								1.30		25.93		Very soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)
								2.20		25.03		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)
												Firm to stiff orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)
3.00	SPT	N=50 (5,12/15,13,22,0)	3.00	24.23		End of Borehole at 3.000m	3					
										4		
										5		
Groundwater Information										Hole Diameter	Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter					
25/03/2024 00:00:00	1.00	60	0.48									
Remarks:												
Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 1.00m depth. Windowless drilling terminated at 3.00m due to refusal. Adjacent dynamic probing undertaken 4.00m.												
Logged in general accordance with BS 5930: Code of practice for ground investigations.												

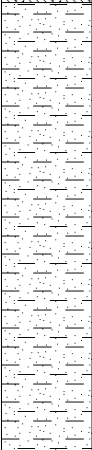
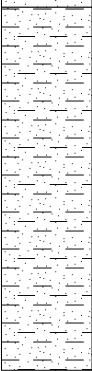
RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. WS03 Sheet 1 of 1							
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL							
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.00m		Hole Type: WLS							
Project ID: 5024854		Date: 25/03/2024		Co-cords:		Level: 27.58m AoD		Scale: 1:25							
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description							
		Depth (m)	Type	Results											
		0.25			0.25	27.33		Grass onto dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)	1						
		1.00	SPT	N=10 (2,2/2,3,2,3)	1.45	26.13		Soft orangish brown and grey laminated slightly sandy CLAY. (WITTERING FORMATION)							
		2.00	SPT	N=9 (2,2/3,2,2,2)	3.00	24.58		Soft orangish brown and grey laminated very sandy CLAY. (WITTERING FORMATION)		2					
		3.00	SPT	N=3 (1,1/0,1,1,1)	3.00	24.58		End of Borehole at 3.000m	3						
									4						
									5						
Groundwater Information										Hole Diameter		Casing Diameter			
Date		Depth Strike		Time Elapsed		Depth Water		Depth Base		Diameter		Depth Base		Diameter	
25/03/2024 00:00:00		0.90		60		0.48									
Remarks:															
Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 0.90m depth. Windowless drilling terminated at 3.00m due to collapse. Adjacent dynamic probing undertaken to 5.00m.															
Logged in general accordance with BS 5930: Code of practice for ground investigations.															

RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. WS04 Sheet 1 of 1							
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL							
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.50m		Hole Type: WLS							
Project ID: 5024854		Date: 26/03/2024		Co-cords:		Level: 27.86m AoD		Scale: 1:25							
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description							
		Depth (m)	Type	Results											
					0.30	27.56		Grass onto dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium flint and rare brick. (TOPSOIL)	1						
		1.00	SPT	N=5 (0,1/1,2,1,1)				Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)							
		2.00	SPT	N=4 (1,1/1,1,1,1)	2.00	25.86		Very soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)							
		2.40			2.40	25.46		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)							
		3.00	SPT	N=5 (0,1/1,2,1,1)	3.00	24.86			3						
								End of Borehole at 3.500m	4						
									5						
Groundwater Information										Hole Diameter		Casing Diameter			
Date		Depth Strike		Time Elapsed		Depth Water		Depth Base		Diameter		Depth Base		Diameter	
26/03/2024 00:00:00		0.80		60		0.6									
Remarks:															
Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 0.80m depth. Windowless drilling terminated at 3.50m due to collapse. Dynamic probing undertaken from 3.50m to 5.00m.															
Logged in general accordance with BS 5930: Code of practice for ground investigations.															

RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. WS05 Sheet 1 of 1	
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL	
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.50m		Hole Type: WLS	
Project ID: 5024854		Date: 26/03/2024		Co-cords:		Level: 27.69m AoD		Scale: 1:25	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25	27.44		Grass onto dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subrounded to subangular fine to medium flint. (TOPSOIL)	
		1.00	SPT	N=9 (1,3/2,2,2,3)	1.10	26.59		Very soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
		2.00	SPT	N=11 (5,5/4,6,1,0)	2.60	25.09		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
		3.00	SPT	N=6 (1,0/1,1,0,4)	3.00	24.69		Very soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
								End of Borehole at 3.500m	
Groundwater Information						Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter		
26/03/2024 00:00:00	1.00	60	0.86						
Remarks:									
Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 1.00m depth. Windowless drilling terminated at 3.50m due to collapse. Dynamic probing undertaken from 3.50m to 5.00m.									
Logged in general accordance with BS 5930: Code of practice for ground investigations.									

RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. GWM01 Sheet 1 of 1	
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL	
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.00m		Hole Type: WLS	
Project ID: 5024854		Date: 26/03/2024		Co-cords:		Level: 26.92m AoD		Scale: 1:25	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.33	26.59		Grass onto dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium flint and rare brick. (TOPSOIL)	
		1.00	SPT	N=2 (2,1/0,0,1,1)	1.00	25.92		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
		2.00	SPT	N=1 (1,1/0,1,0,0)	2.00	24.92		[Poor recovery] Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
		3.00	SPT	N=3 (1,1/0,1,1,1)	3.00	23.92		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
								End of Borehole at 3.000m	
Groundwater Information						Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter		
26/03/2024 00:00:00	0.90	60	0.45						
Remarks: Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 0.90m depth. Windowless drilling terminated at 3.00m due to collapse. Dynamic probing undertaken from 3.00m to 5.00m.									
Logged in general accordance with BS 5930: Code of practice for ground investigations.									

RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. GWM02 Sheet 1 of 1							
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL							
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.00m		Hole Type: WLS							
Project ID: 5024854		Date: 25/03/2024		Co-cords:		Level: 27.85m AoD		Scale: 1:25							
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description							
		Depth (m)	Type	Results											
		1.00	SPT	N=9 (2,2/3,2,2,2)	0.45	27.40		Grass onto dark brown and grey sandy very gravelly CLAY. Gravel is subangular to subrounded fine to coarse asphalt, flint, brick and concrete. (MADE GROUND)	1						
					0.80	27.05		Soft bluish grey slightly sandy CLAY. (WITTERING FORMATION)							
								Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)							
2.00	SPT	N=9 (2,3/3,2,2,2)	1.30	26.55		Firm orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	2								
						3.00		SPT	N=6 (2,2/2,1,2,1)	3.00	24.85	End of Borehole at 3.000m	3		
								4							
								5							
Groundwater Information										Hole Diameter		Casing Diameter			
Date		Depth Strike		Time Elapsed		Depth Water		Depth Base		Diameter		Depth Base		Diameter	
25/03/2024 00:00:00		0.90		30		0.8									
Remarks:															
Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 0.90m depth. Windowless drilling terminated at 3.00m due to collapse. Adjacent dynamic probing undertaken to 5.00m.															
Logged in general accordance with BS 5930: Code of practice for ground investigations.															

RIDGE		Ridge and Partners LLP www.ridge.co.uk		WLS Borehole Log				Borehole No. GWM03 Sheet 1 of 1	
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By: TL	
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando Terrier Rig		Depth: 3.00m		Hole Type: WLS	
Project ID: 5024854		Date: 26/03/2024		Co-cords:		Level: 27.88m AoD		Scale: 1:25	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	27.58		Grass onto dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)	
		1.00	SPT	N=6 (1,1/2,1,2,1)				Very soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
		2.00	SPT	N=5 (2,1/2,1,1,1)	1.80	26.08		Soft orangish brown and grey laminated sandy CLAY. (WITTERING FORMATION)	
		3.00	SPT	N=4 (1,0/1,1,1,1)	3.00	24.88		End of Borehole at 3.000m	
Groundwater Information						Hole Diameter		Casing Diameter	
Date	Depth Strike	Time Elapsed	Depth Water	Depth Base	Diameter	Depth Base	Diameter		
26/03/2024 00:00:00	0.80	30	0.80						
Remarks: Position cleared by CAT & Genny prior to excavation. Groundwater encountered at 0.80m depth. Windowless drilling terminated at 3.00m due to collapse. Dynamic probing undertaken from 3.00m to 5.00m.									
Logged in general accordance with BS 5930: Code of practice for ground investigations.									

RIDGE Ridge and Partners LLP www.ridge.co.uk				Cable Percussive Borehole Log				Borehole No. BH01 Sheet 1 of 3						
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone				Contractor: MCD		Logged By: EP				
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment: Dando 2000				Depth: 25.00m		Hole Type: CP				
Project ID: 5024854		Date: 16/04/2024 - 18/04/2024		Co-cords: E450442.00 N114827.00		Level: 26.93m AoD		Scale: 1:50						
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results										
		0.30 - 0.80	B		0.30	26.63		GRASS ONTO TOPSOIL: brown to dark brown slightly gravelly silty CLAY. Gravel is subangular to subrounded medium to coarse . Rare brick fragments. Frequent roots. (TOPSOIL) Soft orangish brown mottled grey slightly silty sandy CLAY. With rare roots and rootlets. (WITTERING FORMATION)						
		1.00	D											
		1.50 - 1.95	SPTL S											
		1.50	SPT	N=9 (1,1/2,2,2,3)										
		2.00	D											
		2.50 - 2.95	SPTL S											
		2.50	SPT	N=9 (1,1/2,2,2,3)										
		3.00	D											
		3.00 - 3.50	B		3.00	23.93								
		3.50 - 3.95	SPTL S											
		3.50	SPT	N=12 (2,3/3,3,3,3)										
		4.00	D											
		4.50 - 4.95	SPTL S											
		4.50	SPT	N=18 (2,2/2,6,5,5)	4.90	22.03								
		5.00	D											
		6.00 - 6.45	SPTL S											
		6.00	SPT	N=16 (3,2/3,3,5,5)										
		7.00	D											
		7.50 - 7.95	SPTL S											
		7.50	SPT	N=15 (2,3/3,4,4,4)										
8.00	D													
9.00 - 9.45	SPTL S													
9.00	SPT	N=20 (2,3/5,4,7,4)												
10.00	D													
10.00					10.00	16.93				10				
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation						
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation			
25.00	200													
Remarks:										AGS				
Position cleared by CAT & Genny prior to excavation.														
Logged in general accordance with BS 5930: Code of practice for ground investigations.														

RIDGE Ridge and Partners LLP www.ridge.co.uk		Cable Percussive Borehole Log				Borehole No. BH01 Sheet 2 of 3					
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone		Contractor: MCD		Logged By: EP					
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando 2000		Depth: 25.00m		Hole Type: CP					
Project ID: 5024854	Date: 16/04/2024 - 18/04/2024	Co-cords: E450442.00 N114827.00		Level: 26.93m AoD		Scale: 1:50					
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		10.50 - 10.80	U	N=19 (3,4/4,5,5,5)	13.50	13.43		Soft bluish grey slightly clayey silty SAND. Sand is fine to medium grained. Occasional bands of dark clay. (WITTERING FORMATION)	11		
		11.00	D								
		12.00 - 12.45	SPTL S								
		12.00	SPT								
		13.00	D								
		13.50 - 13.95	SPTL S								
		13.50	SPT								
		14.00	D								
		15.00 - 15.45	SPTL S								
		15.00 - 15.50	B								
		15.00	SPT								
		16.00	D								
		16.50 - 16.95	SPTL S								
		16.50	SPT								
		17.00	D								
18.00 - 18.45	SPTL S	N=50 (25 for 100mm/50 for 255mm)	13.50	13.43		Very soft bluish grey silty SAND. Uncommon bands of clay and rare fine to medium gravel. (WITTERING FORMATION)	14				
18.00	SPT										
19.00	D										
19.50 - 19.95	SPTL S	N=50 (25 for 120mm/50 for 100mm)					15				
19.50	SPT										
									16		
									17		
									18		
									19		
									20		
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
25.00	200										
Remarks:											
Position cleared by CAT & Genny prior to excavation.											
Logged in general accordance with BS 5930: Code of practice for ground investigations.											

RIDGE Ridge and Partners LLP www.ridge.co.uk		Cable Percussive Borehole Log				Borehole No. BH01 Sheet 3 of 3					
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone		Contractor: MCD		Logged By: EP					
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando 2000		Depth: 25.00m		Hole Type: CP					
Project ID: 5024854	Date: 16/04/2024 - 18/04/2024	Co-cords: E450442.00 N114827.00		Level: 26.93m AoD		Scale: 1:50					
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		20.00	D	N=29 (3,4/6,7,8,8)	25.00	1.93		Very soft bluish grey silty SAND. Uncommon bands of clay and rare fine to medium gravel. (WITTERING FORMATION)	21 22 23 24 25 26 27 28 29 30		
	20.50	D									
	20.50 - 21.00	B									
	21.00 - 21.45	SPTL S									
	21.00	SPT									
	22.00	D									
	22.50 - 22.95	SPTL S									
	22.50	SPT									
	23.00	D									
	24.00 - 24.45	SPTL S									
24.00	SPT										
		25.00	D	N=14 (4,4/3,3,4,4)				End of Borehole at 25.000m			
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
25.00	200										
Remarks:											
Position cleared by CAT & Genny prior to excavation.											
Logged in general accordance with BS 5930: Code of practice for ground investigations.											

RIDGE Ridge and Partners LLP www.ridge.co.uk				Cable Percussive Borehole Log				Borehole No. BH02 Sheet 1 of 3			
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By:			
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment:		Depth: 25.00m		Hole Type: CP			
Project ID: 5024854		Date: 18/04/2024 - 19/04/2024		Co-cords: E450473.00 N114812.00		Level: 27.40m AoD		Scale: 1:50			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.50 - 1.00	B	N=6 (1,1/1,1,2,2)	0.30	27.10		GRASS ONTO TOPSOIL: brown to dark brown slightly gravelly silty CLAY. Gravel is subangular to subrounded medium to coarse . Rare brick fragments. Frequent roots. (TOPSOIL) Soft orangish brown mottled grey slightly silty sandy CLAY. With rare subrounded medium gravels .With rare roots and rootlets. (WITTERING FORMATION)			1
		1.50 - 1.95	SPTL S								2
		1.50 2.00	SPT D								
		2.50 - 2.95	SPTL S	N=7 (1,1/1,2,2,2)	3.50	23.90		Stiff mottled grey laminated slightly sandy silty CLAY . (WITTERING FORMATION)			3
		2.50 3.00	SPT D								4
		3.50 - 3.95	SPTL S								
		3.50 - 4.00 3.50	B SPT	N=9 (1,1/2,2,2,3)	4.50	22.90		Grey stiff slightly silty sandy CLAY. With occasional medium gravels of mudstone. (WITTERING FORMATION)			5
		4.50 - 4.95 4.50 - 5.00	U B								6
		6.00 - 6.45	SPTL S								7
		6.00	SPT	N=13 (2,3/3,3,4,3)	7.00	D					8
		7.50 - 7.95	U								9
		8.00	D								
		9.00	SPT	N=18 (3,3/4,4,5,5)							10
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
Remarks:										AGS	
Position cleared by CAT & Genny prior to excavation.											
Logged in general accordance with BS 5930: Code of practice for ground investigations.											

RIDGE Ridge and Partners LLP www.ridge.co.uk		Cable Percussive Borehole Log				Borehole No. BH02 Sheet 2 of 3									
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone		Contractor: MCD		Logged By:									
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment:		Depth: 25.00m		Hole Type: CP									
Project ID: 5024854	Date: 18/04/2024 - 19/04/2024	Co-cords: E450473.00 N114812.00		Level: 27.40m AoD		Scale: 1:50									
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description							
		Depth (m)	Type	Results											
		10.50 - 10.95	SPTL S	N=18 (3,4/4,5,5,4)	14.50	12.90		Grey stiff slightly silty sandy CLAY. With occasional medium gravels of mudstone. (WITTERING FORMATION)	11						
		10.50	SPT												
		11.00	D												
		12.00 - 12.45	U						12						
		12.50	D												
		13.00	D												
		13.50 - 13.95	SPTL S	N=22 (4,4/4,6,6,6)								13			
		13.50	SPT												
		14.00	D												
		14.30	D										14		
		14.50 - 15.00	B												
		15.00 - 15.45	SPTL S										N=50 (9,12/50 for 125mm)		
		15.00	SPT												
		16.00	D												
		16.50 - 16.95	SPTL S	N=50 (25 for 109mm/50 for 80mm)										16	
		16.50	SPT												
		17.00	D												
		18.00 - 18.45	SPTL S	N=50 (31 for 105mm/50 for 100mm)											17
		18.00	SPT												
		19.00	D												
19.50 - 19.95	SPTL S	N=50 (25 for 99mm/50 for 100mm)							18						
19.50	SPT														
20.00	D														
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation							
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation				
Remarks:										AGS					
Position cleared by CAT & Genny prior to excavation.															
Logged in general accordance with BS 5930: Code of practice for ground investigations.															

RIDGE				Ridge and Partners LLP www.ridge.co.uk				Cable Percussive Borehole Log				Borehole No. BH02 Sheet 3 of 3							
Project Name: Boorley Green, Hampshire								Client: McCarthy Stone				Contractor: MCD				Logged By:			
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA								Equipment:				Depth: 25.00m				Hole Type: CP			
Project ID: 5024854				Date: 18/04/2024 - 19/04/2024				Co-cords: E450473.00 N114812.00				Level: 27.40m AoD				Scale: 1:50			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description											
		Depth (m)	Type	Results															
		20.50	D	N=28 (4,5/7,7,7,7)	20.50	6.90		Soft to very soft grey slightly silty SAND.				21							
		20.50 - 21.00	B					(WITTERING FORMATION)											
		21.00 - 21.45	SPTL S					Soft grey slightly sandy very silty CLAY.											
		21.00	SPT					(WITTERING FORMATION)											
		22.00	D					Soft grey slightly clayey silty SAND.											
		22.50 - 22.95	SPTL S					(WITTERING FORMATION)											
		22.50	SPT																
		23.00	D																
		24.00 - 24.45	SPTL S																
		24.00	SPT																
		25.00	D	N=50 (8,12/50 for 195mm)	25.00	2.40		End of Borehole at 25.000m				25							
												26							
												27							
												28							
												29							
												30							
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation											
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation								
Remarks:																			
Position cleared by CAT & Genny prior to excavation.																			
Logged in general accordance with BS 5930: Code of practice for ground investigations.																			

RIDGE Ridge and Partners LLP www.ridge.co.uk		Cable Percussive Borehole Log				Borehole No. BH03 Sheet 1 of 3					
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone		Contractor: MCD		Logged By:					
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment:		Depth: 25.00m		Hole Type: CP					
Project ID: 5024854		Date: 22/04/2024 - 23/04/2024		Co-cords: E450464.00 N114828.00		Level: 27.70m AoD					
Scale: 1:50											
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.30	27.40		GRASS ONTO TOPSOIL: soft brown to dark brown slightly gravelly silty CLAY. Gravel is subangular to subrounded medium to coarse . Rare brick fragments. Frequent roots. (TOPSOIL)			
		1.00 - 1.30	B					Soft orangish brown mottled grey slightly sandy silty CLAY. Rare medium grained subrounded gravels. With rare roots and rootlets and infrequent dark reddish soil.	1		
		1.50 - 1.95	SPTL S					(WITTERING FORMATION)			
		1.50	SPT	N=5 (1,1/1,1,2,1)					2		
		2.00	D								
		2.50 - 2.95	SPTL S						3		
		2.50	SPT	N=7 (1,1/1,2,2,2)							
		3.00	D								
		3.50 - 3.95	SPTL S			3.50	24.20		Stiff mottled grey laminated slightly sandy silty CLAY. Occasional pockets of dark sandy clay.		
		3.50 - 4.00	B						(WITTERING FORMATION)	4	
		3.50	SPT	N=7 (1,1/2,2,1,2)							
		4.50 - 4.95	SPTL S							5	
		4.50	SPT	0 (1,/,,,)							
		5.00	D								
		6.00 - 6.45	U							6	
		6.00 - 6.50	B								
7.00	D							7			
7.50 - 7.95	SPTL S										
7.50	SPT	N=15 (2,3/3,4,4,4)						8			
8.00	D										
9.00 - 9.45	U							9			
9.50	D										
10.00	D							10			
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
Remarks:										AGS	
Position cleared by CAT & Genny prior to excavation.											
Logged in general accordance with BS 5930: Code of practice for ground investigations.											

RIDGE Ridge and Partners LLP www.ridge.co.uk		Cable Percussive Borehole Log				Borehole No. BH03 Sheet 2 of 3																	
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone		Contractor: MCD		Logged By:															
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment:		Depth: 25.00m		Hole Type: CP															
Project ID: 5024854		Date: 22/04/2024 - 23/04/2024		Co-cords: E450464.00 N114828.00		Level: 27.70m AoD		Scale: 1:50															
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description															
		Depth (m)	Type	Results																			
		10.50 - 10.95	SPTL S	N=17 (3,4/4,3,5,5)	12.00	15.70		Stiff mottled grey laminated slightly sandy silty CLAY. Occasional pockets of dark sandy clay. (WITTERING FORMATION)		11													
		10.50	SPT																				
		11.00	D																				
		12.00 - 12.45	U					13.70	14.00			Soft grey to light grey laminated silty sandy CLAY. (WITTERING FORMATION)		12									
		12.00 - 12.50	B																				
		13.00	D																				
		13.50 - 13.95	SPTL S	N=24 (3,4/5,7,6,6)				13.70	14.00				Soft to firm grey with light slightly silty clayey SAND. (WITTERING FORMATION)		13								
		13.50 - 14.00	B																				
		13.50	SPT																				
		14.00	D																				
		15.00 - 15.45	SPTL S	N=73 (9,12/73 for 260mm)									13.70			14.00				14			
		15.00	SPT																				
16.00	D																						
16.50 - 16.95	SPTL S	N=50 (8,10/50 for 249mm)	13.70	14.00						15													
16.50	SPT																						
17.00	D																						
18.00 - 18.45	SPTL S	N=53 (6,12/53 for 168mm)				13.70	14.00											16					
18.00	SPT																						
19.00	D																						
19.50 - 19.95	SPTL S	N=50 (4,8/50 for 245mm)						13.70	14.00										17				
19.50	SPT																						
20.00	D																						
Hole Diameter		Casing Diameter											Chiselling				Inclination and Orientation						
Depth Base	Diameter	Depth Base											Diameter	Depth Top	Depth Base	Duration	Tool			Depth Top	Depth Base	Inclination	Orientation
Remarks:										AGS													
Position cleared by CAT & Genny prior to excavation.																							
Logged in general accordance with BS 5930: Code of practice for ground investigations.																							

RIDGE Ridge and Partners LLP www.ridge.co.uk				Cable Percussive Borehole Log				Borehole No. BH03 Sheet 3 of 3					
Project Name: Boorley Green, Hampshire				Client: McCarthy Stone				Contractor: MCD		Logged By:			
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA				Equipment:				Depth: 25.00m		Hole Type: CP			
Project ID: 5024854		Date: 22/04/2024 - 23/04/2024		Co-cords: E450464.00 N114828.00		Level: 27.70m AoD		Scale: 1:50					
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results									
		20.50 - 21.00	B	N=50 (5,11/50 for 260mm)	20.50	7.20		Soft to firm grey with light slightly silty clayey SAND. (WITTERING FORMATION)		21			
		21.00 - 21.45	SPTL S		21.00	6.70			Soft grey slightly sandy very silty CLAY. (WITTERING FORMATION)				
		21.00	SPT		Soft to firm grey with light slightly silty clayey SAND. (WITTERING FORMATION)								
		22.00	D	N=51 (7,15/51 for 176mm)						22			
		22.50 - 22.95	SPTL S										
		22.50	SPT										
		23.00	D	N=50 (7,13/50 for 149mm)						23			
		24.00 - 24.45	SPTL S										
		24.00	SPT										
		25.00	D	25.00	2.70	End of Borehole at 25.000m		25					
													26
													27
											28		
											29		
											30		
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation		
Remarks:										AGS			
Position cleared by CAT & Genny prior to excavation.													
Logged in general accordance with BS 5930: Code of practice for ground investigations.													

APPENDIX 3 – IN-SITU TESTING RESULTS

Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Hole ID: SFT01



Test 1

Date: 25/3/2024

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	0.170	0.48	100.0%
0.25	0.170	0.48	100.0%
0.50	0.170	0.48	100.0%
0.73	0.170	0.48	100.0%
1.00	0.170	0.48	100.0%
1.50	0.170	0.48	100.0%
2.00	0.170	0.48	100.0%
2.50	0.170	0.48	100.0%
3.00	0.170	0.48	100.0%
3.50	0.180	0.47	97.9%
4.00	0.180	0.47	97.9%
4.50	0.180	0.47	97.9%
5.00	0.180	0.47	97.9%
6.00	0.180	0.47	97.9%
7.00	0.180	0.47	97.9%
8.00	0.180	0.47	97.9%
9.00	0.180	0.47	97.9%
10.00	0.180	0.47	97.9%
15.00	0.180	0.47	97.9%
20.00	0.180	0.47	97.9%
30.00	0.190	0.46	95.8%
40.00	0.190	0.46	95.8%
50.00	0.200	0.45	93.8%
60.00	0.210	0.44	91.7%
90.00	0.230	0.42	87.5%
120.00	0.250	0.40	83.3%
180.00	0.290	0.36	75.0%
240.00	0.320	0.33	68.8%
10.00	0.940	-0.29	-60.4%

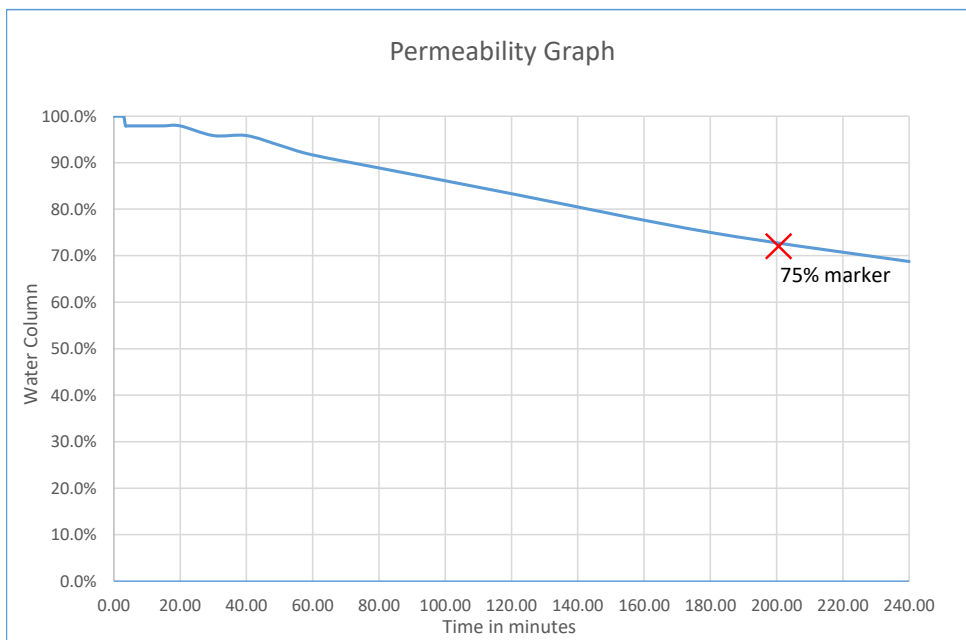
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas.

Pit Size		Time in mins	
Length	1.65	180	75%
Width	0.35		25%
Depth	0.65		

invalid 25% and/or 75% times

Infiltration Rate from 75%-25%

not valid m/s



Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Date: 25/3/2024

Hole ID: SFT01-02



Test 2

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	0.170	0.48	100.0%
0.25	0.170	0.48	100.0%
0.50	0.170	0.48	100.0%
0.73	0.170	0.48	100.0%
1.00	0.170	0.48	100.0%
1.50	0.170	0.48	100.0%
2.00	0.170	0.48	100.0%
2.50	0.170	0.48	100.0%
3.00	0.170	0.48	100.0%
3.50	0.170	0.48	100.0%
4.00	0.170	0.48	100.0%
4.50	0.170	0.48	100.0%
5.00	0.170	0.48	100.0%
6.00	0.170	0.48	100.0%
7.00	0.170	0.48	100.0%
8.00	0.170	0.48	100.0%
9.00	0.170	0.48	100.0%
10.00	0.170	0.48	100.0%
15.00	0.180	0.47	97.9%
20.00	0.180	0.47	97.9%
30.00	0.180	0.47	97.9%
40.00	0.190	0.46	95.8%
50.00	0.190	0.46	95.8%
60.00	0.190	0.46	95.8%
90.00	0.210	0.44	91.7%
17.00	0.890	-0.24	-50.0%

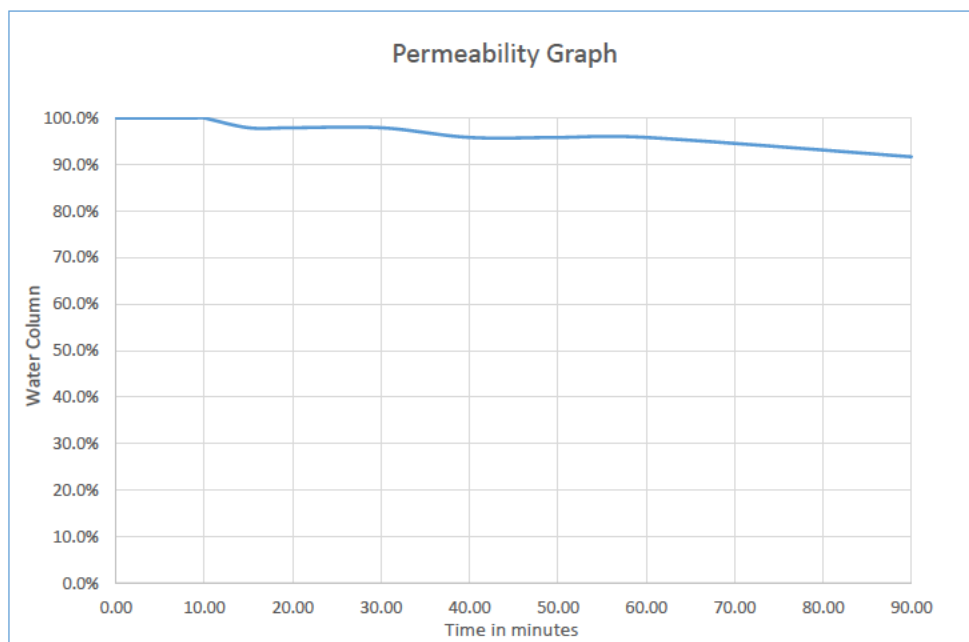
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas.

Pit Size		Time in mins	
Length	1.65		75%
Width	0.35		25%
Depth	0.65		

Infiltration Rate

from 75%-25%

not valid m/s



Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Hole ID: SFT02-01

Date: 25/3/2024



Test 1

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	0.260	0.56	100.0%
0.25	0.260	0.56	100.0%
0.50	0.260	0.56	100.0%
0.73	0.260	0.56	100.0%
1.00	0.260	0.56	100.0%
1.50	0.260	0.56	100.0%
2.00	0.260	0.56	100.0%
2.50	0.260	0.56	100.0%
3.00	0.260	0.56	100.0%
3.50	0.260	0.56	100.0%
4.00	0.260	0.56	100.0%
4.50	0.260	0.56	100.0%
5.00	0.260	0.56	100.0%
6.00	0.260	0.56	100.0%
7.00	0.260	0.56	100.0%
8.00	0.260	0.56	100.0%
9.00	0.260	0.56	100.0%
10.00	0.260	0.56	100.0%
15.00	0.260	0.56	100.0%
20.00	0.260	0.56	100.0%
30.00	0.260	0.56	100.0%
40.00	0.260	0.56	100.0%
50.00	0.260	0.56	100.0%
60.00	0.260	0.56	100.0%
90.00	0.260	0.56	100.0%
120.00	0.270	0.55	98.2%
180.00	0.270	0.55	98.2%
240.00	0.270	0.55	98.2%
25.00	0.880	-0.06	-10.7%

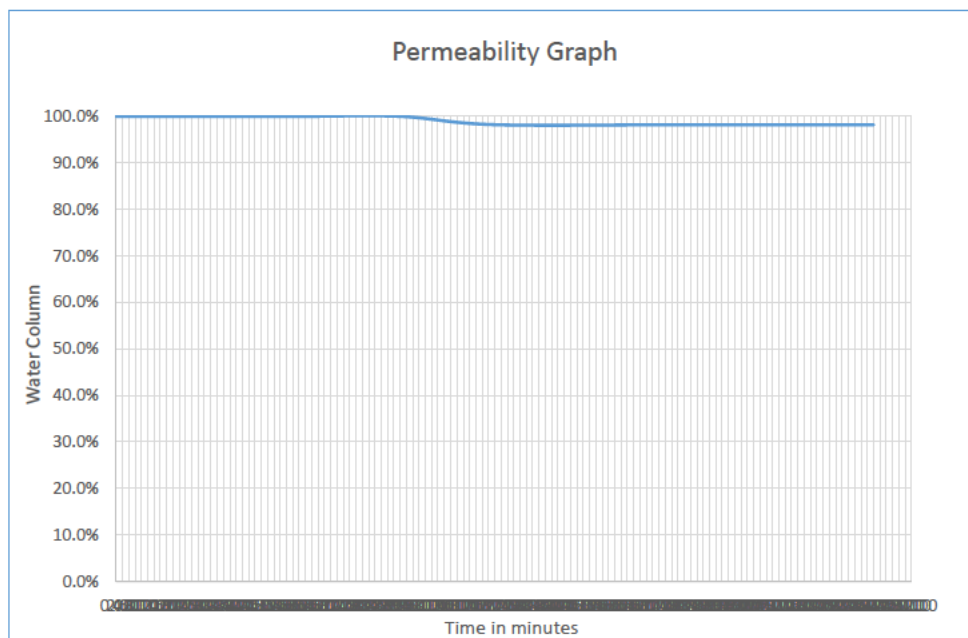
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas.

Pit Size		Time in mins	
Length	0.35		75%
Width	0.35		25%
Depth	0.82		

Infiltration Rate

from 75%-25%

not valid m/s



Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Hole ID: SFT03-01

Date: 25/3/2024



Test 1

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	0.190	0.46	100.0%
0.25	0.190	0.46	100.0%
0.50	0.190	0.46	100.0%
0.73	0.190	0.46	100.0%
1.00	0.190	0.46	100.0%
1.50	0.190	0.46	100.0%
2.00	0.190	0.46	100.0%
2.50	0.190	0.46	100.0%
3.00	0.190	0.46	100.0%
3.50	0.190	0.46	100.0%
4.00	0.190	0.46	100.0%
4.50	0.190	0.46	100.0%
5.00	0.190	0.46	100.0%
6.00	0.190	0.46	100.0%
7.00	0.190	0.46	100.0%
8.00	0.190	0.46	100.0%
9.00	0.190	0.46	100.0%
10.00	0.190	0.46	100.0%
15.00	0.190	0.46	100.0%
20.00	0.190	0.46	100.0%
30.00	0.190	0.46	100.0%
40.00	0.190	0.46	100.0%
50.00	0.190	0.46	100.0%
60.00	0.200	0.45	97.8%
90.00	0.220	0.43	93.5%
120.00	0.220	0.43	93.5%
180.00	0.230	0.42	91.3%
240.00	0.250	0.40	87.0%
13.00	0.820	-0.17	-37.0%

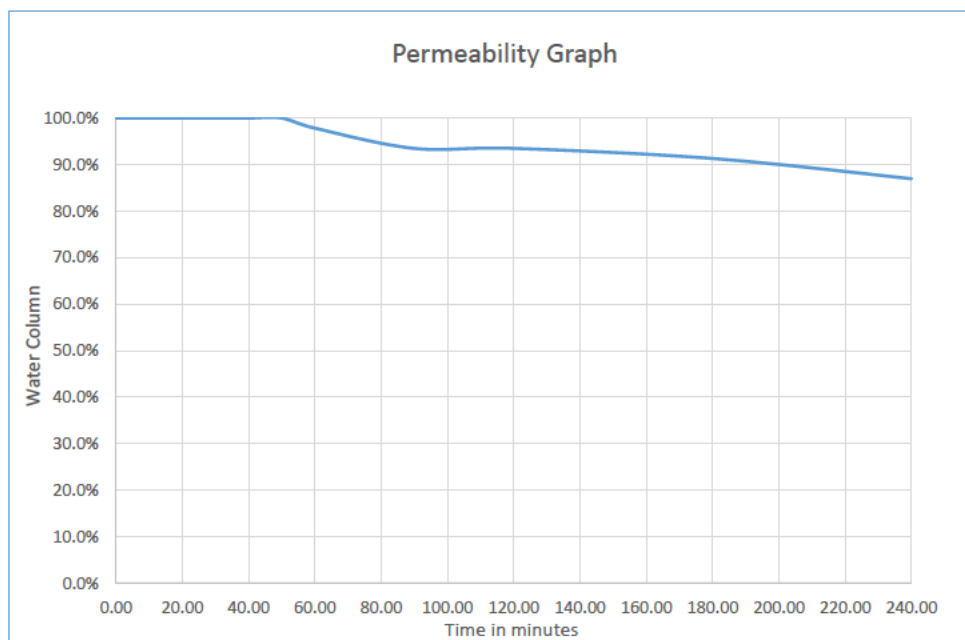
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas.

Pit Size		Time in mins	
Length	0.35		75%
Width	0.35		25%
Depth	0.65		

Infiltration Rate

from 75%-25%

not valid m/s



Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Hole ID: SF203

Date: 25/3/2024



Test 1

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	0.190	0.46	100.0%
0.25	0.190	0.46	100.0%
0.50	0.190	0.46	100.0%
0.73	0.190	0.46	100.0%
1.00	0.190	0.46	100.0%
1.50	0.190	0.46	100.0%
2.00	0.190	0.46	100.0%
2.50	0.190	0.46	100.0%
3.00	0.190	0.46	100.0%
3.50	0.190	0.46	100.0%
4.00	0.190	0.46	100.0%
4.50	0.190	0.46	100.0%
5.00	0.190	0.46	100.0%
6.00	0.190	0.46	100.0%
7.00	0.190	0.46	100.0%
8.00	0.190	0.46	100.0%
9.00	0.190	0.46	100.0%
10.00	0.190	0.46	100.0%
15.00	0.190	0.46	100.0%
20.00	0.200	0.45	97.8%
30.00	0.200	0.45	97.8%
40.00	0.200	0.45	97.8%
50.00	0.200	0.45	97.8%
60.00	0.210	0.44	95.7%
90.00	0.220	0.43	93.5%
120.00	0.230	0.42	91.3%
120.00	0.650	0.00	0.0%

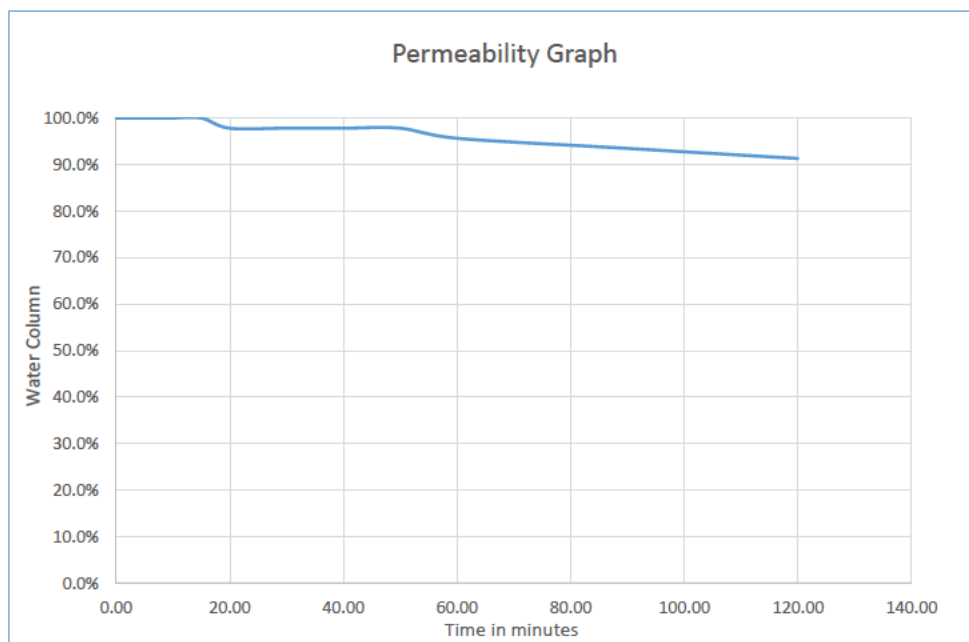
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas.

Pit Size		Time in mins	
Length	0.35		75%
Width	0.35		25%
Depth	0.65		

Infiltration Rate

from 75%-25%

not valid m/s



Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Hole ID: DFT01

Date: 25/3/2024



Test 1

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	1.050	1.25	100.0%
0.25	1.050	1.25	100.0%
0.50	1.040	1.26	100.8%
0.73	1.040	1.26	100.8%
1.00	1.040	1.26	100.8%
1.50	1.040	1.26	100.8%
2.00	1.030	1.27	101.6%
2.50	1.030	1.27	101.6%
3.00	1.030	1.27	101.6%
3.50	1.030	1.27	101.6%
4.00	1.030	1.27	101.6%
4.50	1.030	1.27	101.6%
5.00	1.020	1.28	102.4%
6.00	1.020	1.28	102.4%
7.00	1.020	1.28	102.4%
8.00	1.020	1.28	102.4%
9.00	1.020	1.28	102.4%
10.00	1.020	1.28	102.4%
15.00	1.020	1.28	102.4%
20.00	1.010	1.29	103.2%
30.00	1.010	1.29	103.2%
40.00	1.000	1.30	104.0%
50.00	0.990	1.31	104.8%
60.00	0.970	1.33	106.4%
90.00	0.940	1.36	108.8%
120.00	0.920	1.38	110.4%
120.00	2.300	0.00	0.0%

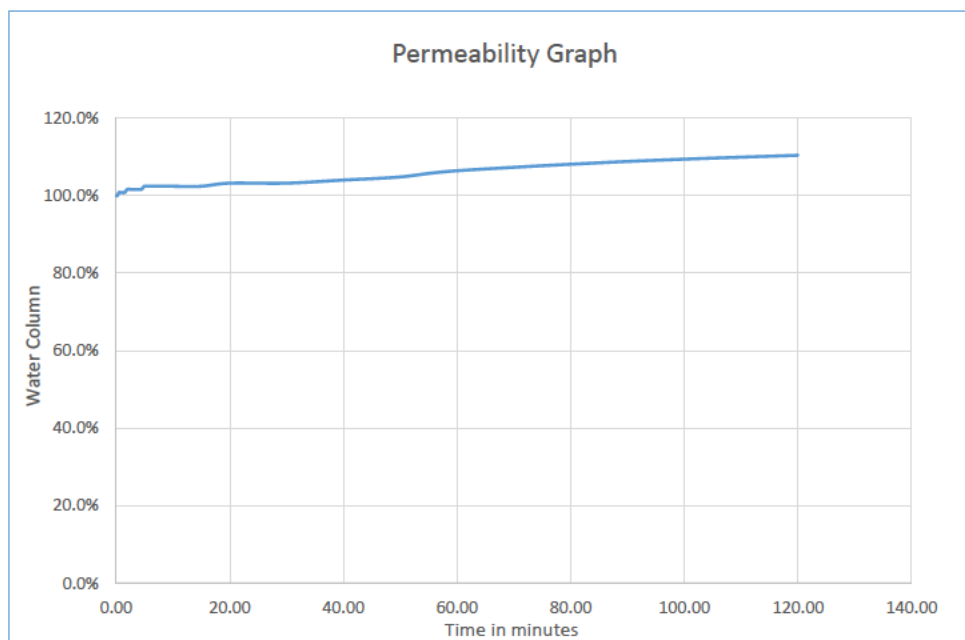
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas.

Pit Size		Time in mins	
Length	0.35		75%
Width	0.35		25%
Depth	2.30		

Infiltration Rate

from 75%-25%

not valid m/s



Soakaway Test Results & Soil Infiltration Rate

Site: Boorley Green

Project: 5018440

Hole ID: DFT02

Date: 25/3/2024



Test 1

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	1.000	0.80	100.0%
0.25	1.000	0.80	100.0%
0.50	1.000	0.80	100.0%
0.73	1.000	0.80	100.0%
1.00	1.000	0.80	100.0%
1.50	0.980	0.82	102.5%
2.00	0.980	0.82	102.5%
2.50	0.970	0.83	103.8%
3.00	0.970	0.83	103.8%
3.50	0.970	0.83	103.8%
4.00	0.970	0.83	103.8%
4.50	0.970	0.83	103.8%
5.00	0.970	0.83	103.8%
6.00	0.970	0.83	103.8%
7.00	0.970	0.83	103.8%
8.00	0.970	0.83	103.8%
9.00	0.970	0.83	103.8%
10.00	0.970	0.83	103.8%
15.00	0.960	0.84	105.0%
20.00	0.950	0.85	106.3%
30.00	0.930	0.87	108.8%
40.00	0.910	0.89	111.3%
50.00	0.890	0.91	113.8%
60.00	0.880	0.92	115.0%
90.00	0.860	0.94	117.5%
120.00	0.830	0.97	121.3%
180.00	0.790	1.01	126.3%
240.00	0.740	1.06	132.5%
10.00	0.630	1.17	146.3%

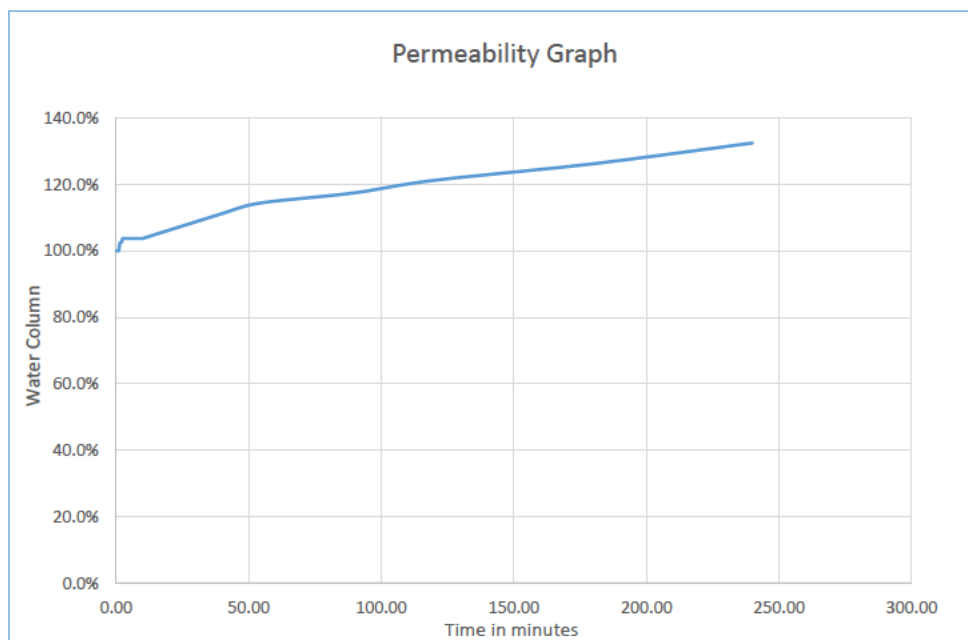
Notes: Testing non-compliant with BRE Digest 365 due to access restrictions to the proposed test areas. Collapsed from 2m. Water level before fill .1m

Pit Size		Time in mins	
Length	0.35		75%
Width	0.35		25%
Depth	1.80		

Infiltration Rate

from 75%-25%

not valid m/s



RIDGE Ridge and Partners LLP www.ridge.co.uk		Dynamic Probe Log		Probe No. DP-GWM01 Sheet 1 of 1																																																																																																																																																																
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone	Contractor: MCD	Logged By: TL																																																																																																																																																																
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando Terrier Rig	Depth: 5.00m	Test Type: DPSH- A																																																																																																																																																																
Project ID: 5024854	Date: 26/03/2024	Co-ords:	Level: 26.92m AoD	Scale: 1:50																																																																																																																																																																
Depth (mbgl) 0 10 20 30 40 50 Blows Increments <table><tr><td>0.50</td><td></td><td></td><td></td><td></td></tr><tr><td>1.00</td><td></td><td></td><td></td><td></td></tr><tr><td>1.50</td><td></td><td></td><td></td><td></td></tr><tr><td>2.00</td><td></td><td></td><td></td><td></td></tr><tr><td>2.50</td><td></td><td></td><td></td><td></td></tr><tr><td>3.00</td><td>1</td><td></td><td></td><td></td></tr><tr><td>3.25</td><td>0</td><td></td><td></td><td></td></tr><tr><td>3.50</td><td>1</td><td></td><td></td><td></td></tr><tr><td>3.75</td><td>0</td><td></td><td></td><td></td></tr><tr><td>4.00</td><td>1</td><td></td><td></td><td></td></tr><tr><td>4.25</td><td>1</td><td></td><td></td><td></td></tr><tr><td>4.50</td><td>2</td><td></td><td></td><td></td></tr><tr><td>4.75</td><td>1</td><td></td><td></td><td></td></tr><tr><td>5.00</td><td>2</td><td></td><td></td><td></td></tr><tr><td>5.25</td><td>1</td><td></td><td></td><td></td></tr><tr><td>5.50</td><td>2</td><td></td><td></td><td></td></tr><tr><td>5.75</td><td>1</td><td></td><td></td><td></td></tr><tr><td>6.00</td><td>2</td><td></td><td></td><td></td></tr><tr><td>6.25</td><td></td><td></td><td></td><td></td></tr><tr><td>6.50</td><td></td><td></td><td></td><td></td></tr><tr><td>6.75</td><td></td><td></td><td></td><td></td></tr><tr><td>7.00</td><td></td><td></td><td></td><td></td></tr><tr><td>7.25</td><td></td><td></td><td></td><td></td></tr><tr><td>7.50</td><td></td><td></td><td></td><td></td></tr><tr><td>7.75</td><td></td><td></td><td></td><td></td></tr><tr><td>8.00</td><td></td><td></td><td></td><td></td></tr><tr><td>8.25</td><td></td><td></td><td></td><td></td></tr><tr><td>8.50</td><td></td><td></td><td></td><td></td></tr><tr><td>8.75</td><td></td><td></td><td></td><td></td></tr><tr><td>9.00</td><td></td><td></td><td></td><td></td></tr><tr><td>9.25</td><td></td><td></td><td></td><td></td></tr><tr><td>9.50</td><td></td><td></td><td></td><td></td></tr></table>					0.50					1.00					1.50					2.00					2.50					3.00	1				3.25	0				3.50	1				3.75	0				4.00	1				4.25	1				4.50	2				4.75	1				5.00	2				5.25	1				5.50	2				5.75	1				6.00	2				6.25					6.50					6.75					7.00					7.25					7.50					7.75					8.00					8.25					8.50					8.75					9.00					9.25					9.50				
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Project Name: Boorley Green, Hampshire		Client: McCarthy Stone	Contractor: MCD	Logged By: TL
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando Terrier Rig	Depth: 5.00m	Test Type: DPSH- A
Project ID: 5024854	Date: 25/03/2024	Co-ords:	Level: 27.85m AoD	Scale: 1:50
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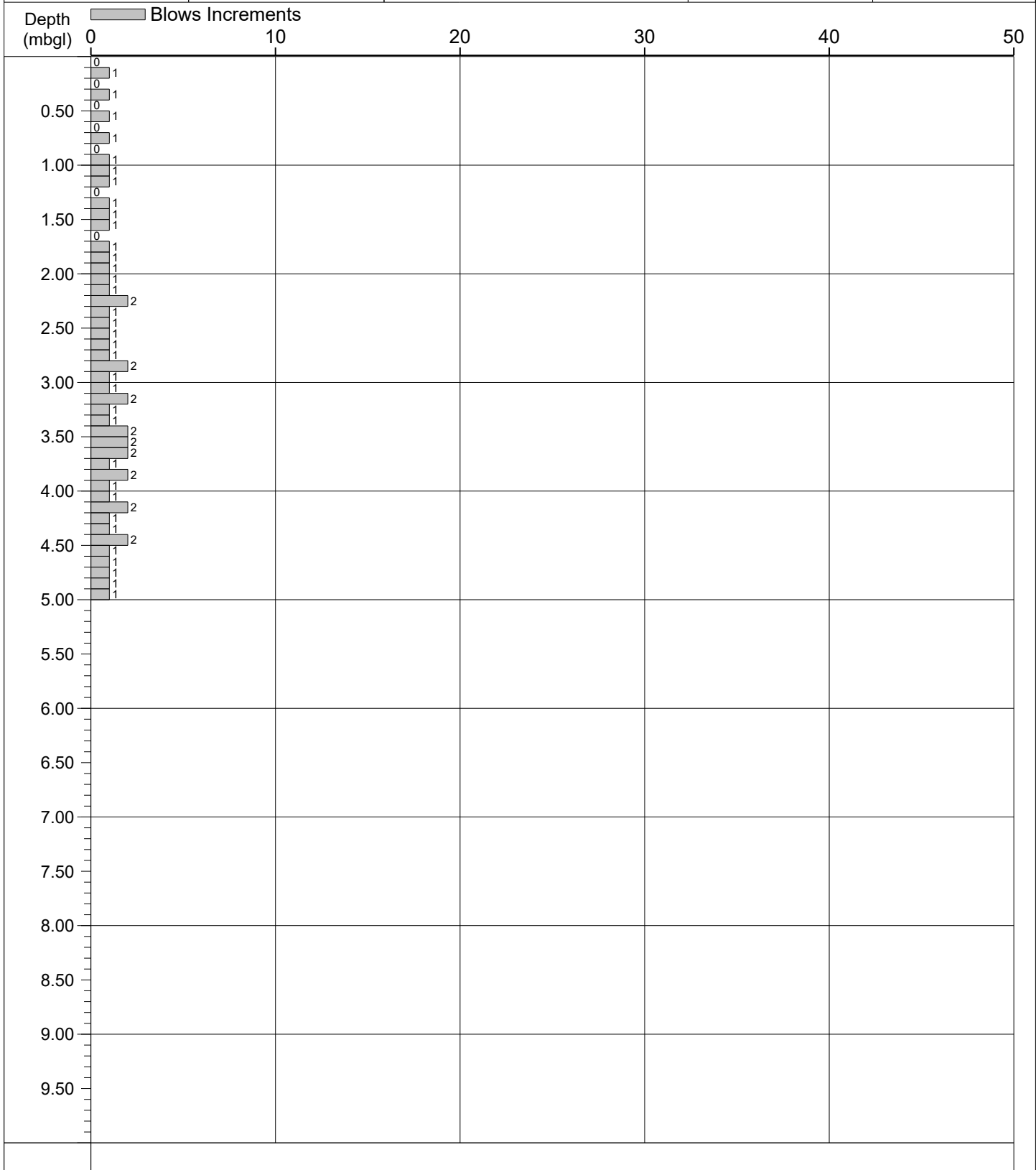


Probe No.
DP-WS01
Sheet 1 of 1
Logged By: TL
Test Type: DPSH- A
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Test Type:
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Dynamic probing undertaken from surface level adjacent to WS01.



Logged in general accordance with BS 5930: Code of practice for ground investigations.

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RIDGE Ridge and Partners LLP www.ridge.co.uk		Dynamic Probe Log		Probe No. DP-WS02 Sheet 1 of 1																																																																																																																																																																																					
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RIDGE Ridge and Partners LLP www.ridge.co.uk		Dynamic Probe Log		Probe No. DP-WS03 Sheet 1 of 1
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone	Contractor: MCD	Logged By: TL
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando Terrier Rig	Depth: 5.00m	Test Type: DPSH- A
Project ID: 5024854	Date: 25/03/2024	Co-ords:	Level: 27.58m AoD	Scale: 1:50
Depth (mbgl) Blows Increments 01020304050 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50				
Remarks: Dynamic probing undertaken from surface level adjacent to WS03. AGS				
Logged in general accordance with BS 5930: Code of practice for ground investigations.				

Dynamic Probe Log

Probe No.
DP-WS03

Sheet 1 of 1

Project Name: Boorley Green, Hampshire

Client: McCarthy Stone

Contractor: MCD

Logged By:
TL

Location: Oak Tree Cottage, Winchester Road,
Boorley Green, Hampshire, SO32 2UA

Equipment: Dando Terrier Rig

Depth: 5.00m

Test Type:
DPSH- A

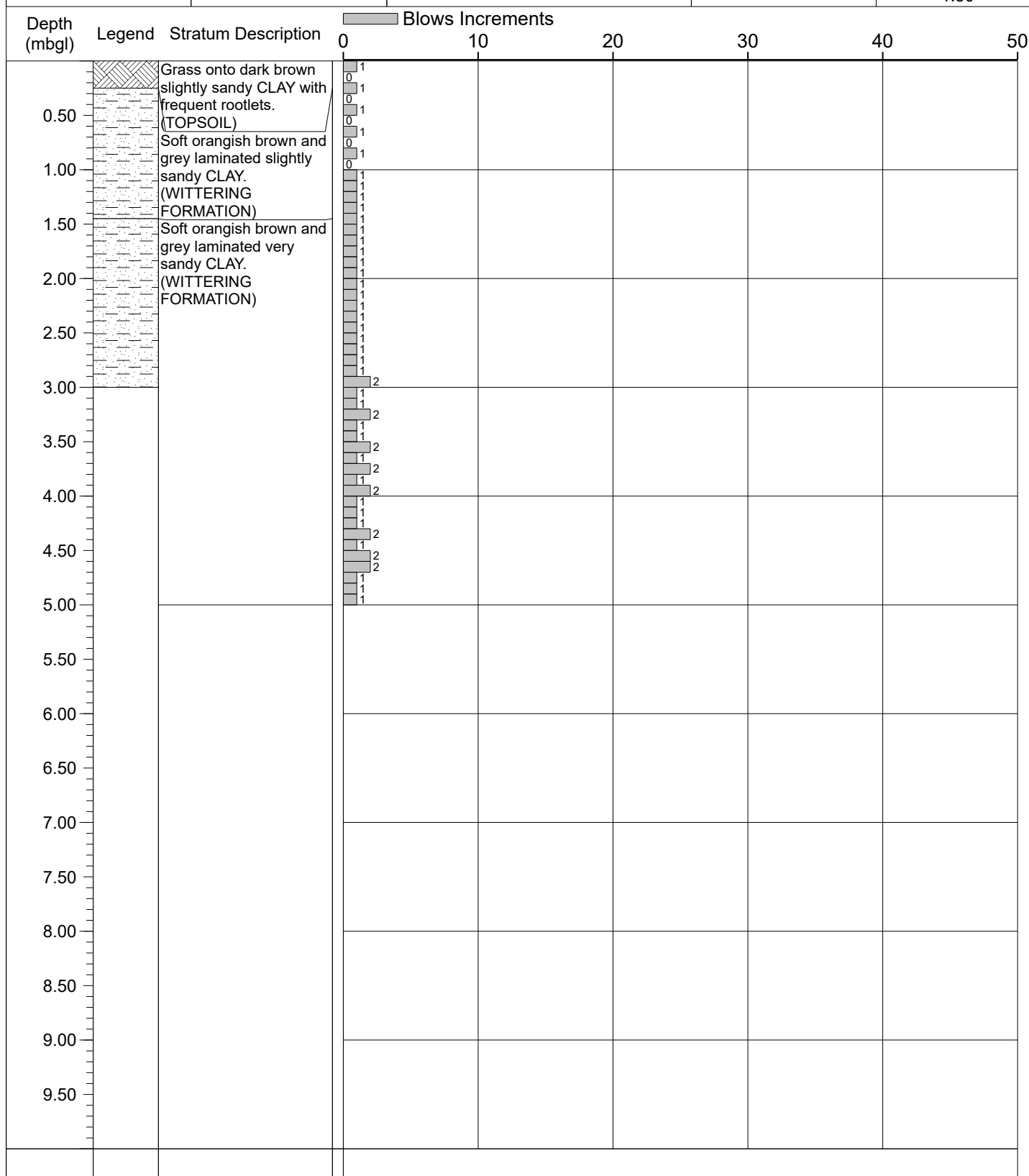
Project ID: 5024854

Date: 25/03/2024

Co-ords:

Level: 27.58m AoD

Scale:
1:50



Remarks:

Dynamic probing undertaken from surface level adjacent to WS03.



Logged in general accordance with BS 5930: Code of practice for ground investigations.

RIDGE Ridge and Partners LLP www.ridge.co.uk		Dynamic Probe Log		Probe No. DP-WS04 Sheet 1 of 1
Project Name: Boorley Green, Hampshire		Client: McCarthy Stone	Contractor: MCD	Logged By: TL
Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando Terrier Rig	Depth: 5.00m	Test Type: DPSH- A
Project ID: 5024854	Date: 26/03/2024	Co-ords:	Level: 27.86m AoD	Scale: 1:50
Depth (mbgl) Blows Increments 01020304050 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50				
Remarks: Dynamic probing undertaken from base of WS04 at 3.50mbgl. AGS				
Logged in general accordance with BS 5930: Code of practice for ground investigations.				

RIDGE Ridge and Partners LLP www.ridge.co.uk		Dynamic Probe Log		Probe No. DP-WS04 Sheet 1 of 1																																																																																																																									
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Location: Oak Tree Cottage, Winchester Road, Boorley Green, Hampshire, SO32 2UA		Equipment: Dando Terrier Rig	Depth: 5.00m	Test Type: DPSH- A																																																																																																																																																	
Project ID: 5024854	Date: 26/03/2024	Co-ords:	Level: 27.69m AoD	Scale: 1:50																																																																																																																																																	
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RIDGE Ridge and Partners LLP www.ridge.co.uk		Dynamic Probe Log		Probe No. DP-WS05 Sheet 1 of 1																																																																																																																										
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Certificate for the Determination of the Vertical Deformation and Strength Characteristics
of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 11452-3

Report Date: 26/03/2024

Client: Ridge and Partnership LLP
Address: The Cowyards, Blenheim Park
Oxford Road
Woodstock, Oxfordshire
OX20 1QR

Site: Land adjacent to Oak Tree Cottage, Winchester SO23 2DH

Test Details

Test Location: CBR1

Description: Brown Clay

Material Class: Underside of Topsoil

Layer: 0.25mBGL

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Date of Test: 26/03/2024

Reaction Load: 5 Tonne Excavator

Weather: Overcast

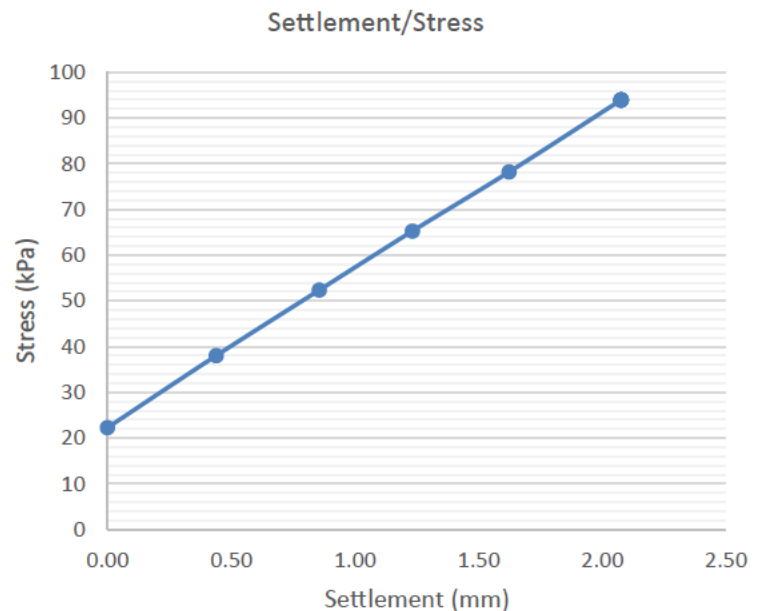
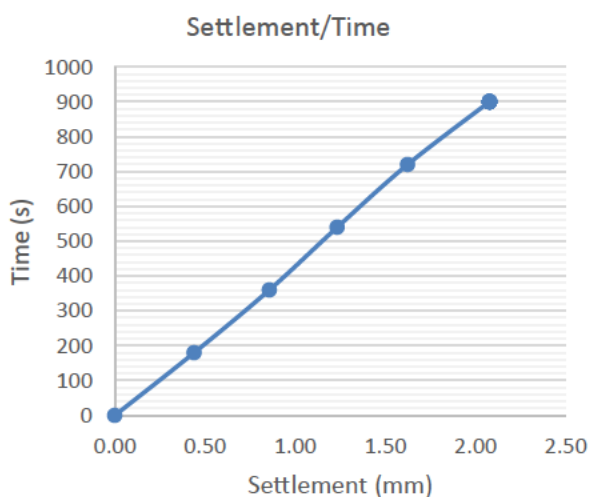
Plate Diameter (mm): 298

Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.44	38
360	0.86	52
540	1.23	65
720	1.62	78
900	2.08	94

Maximum Applied Stress (kPa):	94
Maximum Settlement (mm):	2.08
Equivalent CBR Value (%):	2
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	23

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the Vertical Deformation and Strength Characteristics
of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 11452-4

Report Date: 26/03/2024

Client: Ridge and Partnership LLP
Address: The Cowyards, Blenheim Park
Oxford Road
Woodstock, Oxfordshire
OX20 1QR

Site: Land adjacent to Oak Tree Cottage, Winchester SO23 2DH

Test Details

Test Location: CBR2

Description: Sandy Gravel

Material Class: Underside of Topsoil

Layer: 0.15mBGL

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Date of Test: 26/03/2024

Reaction Load: 5 Tonne Excavator

Weather: Overcast

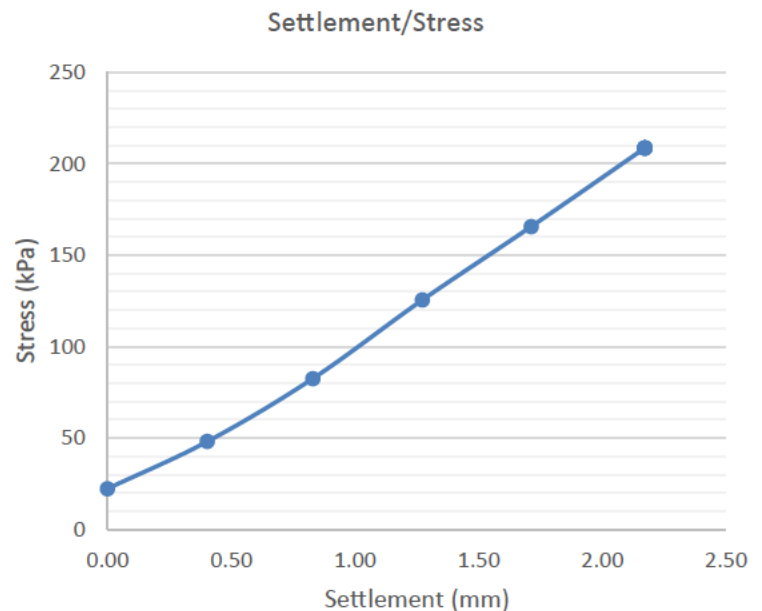
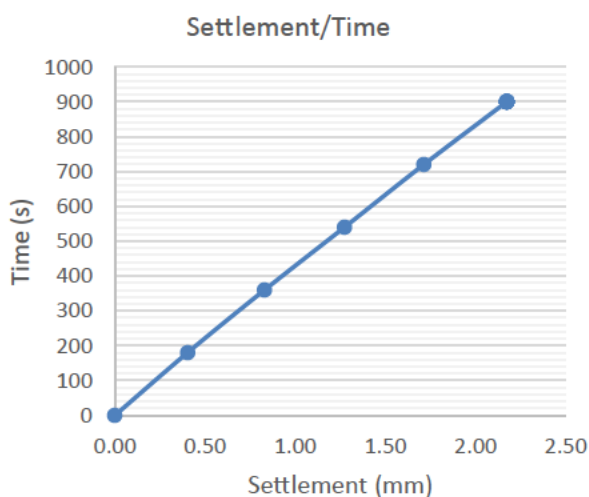
Plate Diameter (mm): 298

Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.40	48
360	0.83	82
540	1.27	125
720	1.71	166
900	2.17	209

Maximum Applied Stress (kPa):	209
Maximum Settlement (mm):	2.17
Equivalent CBR Value (%):	7
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	43

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the Vertical Deformation and Strength Characteristics
of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 11452-2

Report Date: 26/03/2024

Client: Ridge and Partnership LLP
Address: The Cowyards, Blenheim Park
Oxford Road
Woodstock, Oxfordshire
OX20 1QR
Site: Land adjacent to Oak Tree Cottage, Winchester SO23 2DH

Test Details

Test Location: CBR3
Description: Brown Clay
Material Class: Underside of Topsoil
Layer: 0.25mBGL
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

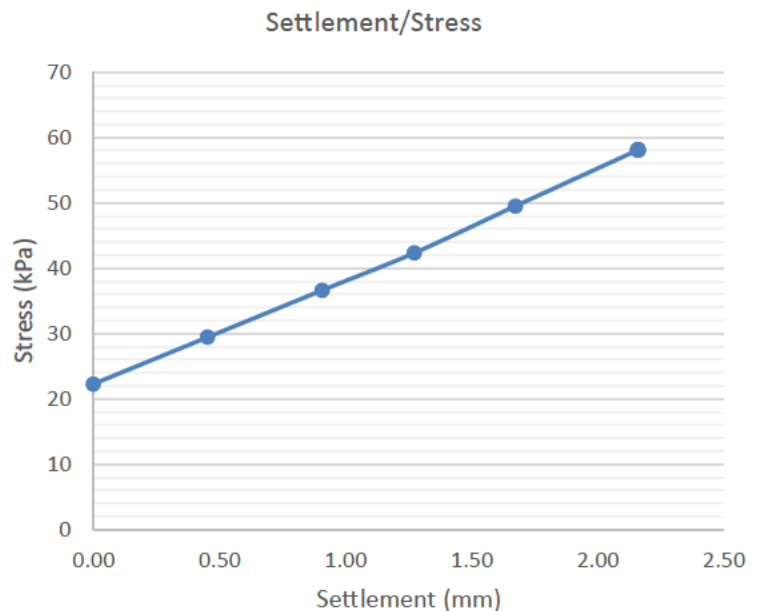
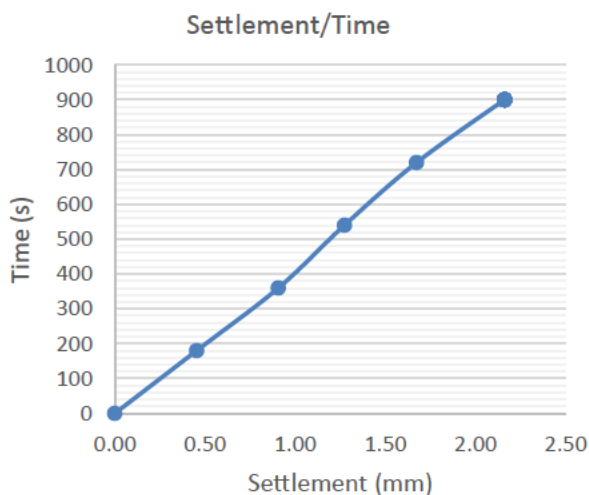
Date of Test: 26/03/2024
Reaction Load: 5 Tonne Excavator
Weather: Overcast
Plate Diameter (mm): 298

Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.45	29
360	0.91	37
540	1.27	42
720	1.67	50
900	2.16	58

Maximum Applied Stress (kPa):	58
Maximum Settlement (mm):	2.16
Equivalent CBR Value (%):	1
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	15

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the Vertical Deformation and Strength Characteristics
of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 11452-1

Report Date: 26/03/2024

Client: Ridge and Partnership LLP
Address: The Cowyards, Blenheim Park
Oxford Road
Woodstock, Oxfordshire
OX20 1QR

Site: Land adjacent to Oak Tree Cottage, Winchester SO23 2DH

Test Details

Test Location: CBR4

Description: Brown Clay

Material Class: Underside of Topsoil

Layer: 0.2mBGL

Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Date of Test: 26/03/2024

Reaction Load: 5 Tonne Excavator

Weather: Overcast

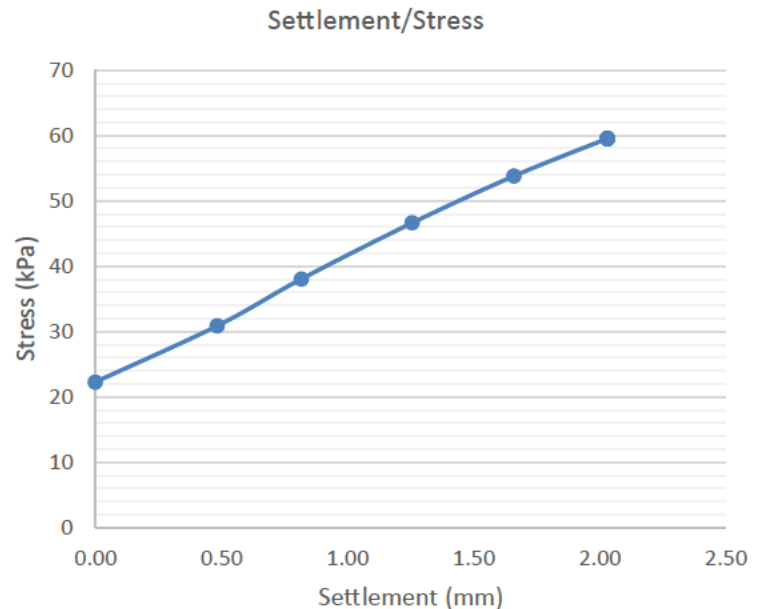
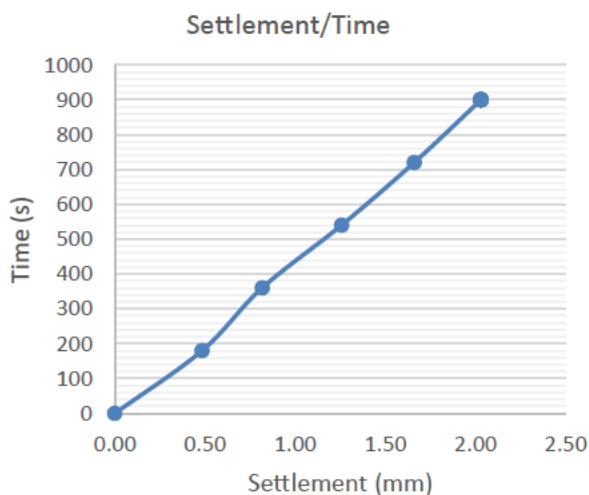
Plate Diameter (mm): 298

Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.48	31
360	0.82	38
540	1.26	47
720	1.66	54
900	2.03	60

Maximum Applied Stress (kPa):	60
Maximum Settlement (mm):	2.03
Equivalent CBR Value (%):	1
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	16

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



APPENDIX 4 – MONITORING RECORDS

Ground Water Monitoring

Project Name:	Boorley Green
Project Reference:	5024854

	Date	Personnel	Equipment Used	Weather
Round 1	03/04/2024	OS	Dip Meter	Grey Mild



ID	Pipe Diameter (mm)	Monitoring Round	DTW (mbgl)	DTB (mbgl)	Comments
GWM01	50	1	0.1	1.8	
GWM02	50	1	0.0	2.7	~0.5m of water bailed to remove surface water covering bung.
GWM03	50	1	0.16	2.83	

Ground Water Monitoring

Project Name:	Boorley Green
Project Reference:	5024854

	Date	Personnel	Equipment Used	Weather
Round 1	03/04/2024	OS	Dip Meter	Grey Mild
Round 2	16/04/2024	EP	Dip Meter	Clear/Windy



ID	Pipe Diameter (mm)	Monitoring Round	DTW (mbgl)	DTB (mbgl)	Comments
GWM01	50	2	.61	1.8	
GWM02	50	2	.70	2.7	
GWM03	50	2	.81	2.83	

Ground Water Monitoring

Project Name:	Boorley Green
Project Reference:	5024854

	Date	Personnel	Equipment Used	Weather
Round 1	03/04/2024	OS	Dip Meter	Grey Mild
Round 2	16/04/2024	EP	Dip Meter	Clear/Windy
Round 3	01/05/2024	ep	Dip Meter	showers/mild



--	--	--

ID	Pipe Diameter (mm)	Monitoring Round	DTW (mbgl)	DTB (mbgl)	Comments
GWM01	50	3	.1	1.8	
GWM02	50	3	0	2.7	
GWM03	50	3	.9	2.83	
BH02	50	3	.6	10	

Ground Water Monitoring

Project Name:	Boorley Green
Project Reference:	5024854

	Date	Personnel	Equipment Used	Weather
Round 1	03/04/2024	OS	Dip Meter	Grey Mild
Round 2	16/04/2024	EP	Dip Meter	Clear/Windy
Round 3	01/05/2024	ep	Dip Meter	showers/mild
Round 4	20/05/2024	EP	Dip Meter	Dry/Warm



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ID	Pipe Diameter (mm)	Monitoring Round	DTW (mbgl)	DTB (mbgl)	Comments
GWM01	50	3	0.86	1.8	
GWM02	50	3	0.84	2.7	
GWM03	50	3	0.98	2.83	
BH02	50	3	0.95	10	

APPENDIX 5 – CONTAMINATION ASSESSMENT



Tom Lockwood
Ridge
Partnership House
Moorside Road
Winchester
SO23 7RX

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-03372

Site Reference: Boorley Green, Hampshire

Project / Job Ref: 5024854

Order No: 627722

Sample Receipt Date: 02/04/2024

Sample Scheduled Date: 02/04/2024

Report Issue Number: 2

Reporting Date: 10/04/2024



Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.
This report supersedes 24-03372, issue no.1.
Reason for reissue: TPH Aliphatic C8-C10 results corrected.

Opinions and interpretations are outside the laboratory's scope or ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
DETS Report No: 24-03372	~Date Sampled	25/03/24	25/03/24	25/03/24	26/03/24	26/03/24
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Boorley Green, Hampshire	~TP / BH No	WS01	WS02	WS03	WS05	GWM01
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 627722	~Depth (m)	0.20	1.50	0.70	1.20	0.50
Reporting Date: 10/04/2024	DETS Sample No	707255	707256	707257	707258	707259

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	6.1	5.1	5.0	4.6	5.4
Total Cyanide	mg/kg	< 1	NONE	< 1	2	< 1	< 1	< 1
Organic Matter (SOM)	%	< 0.1	MCERTS	3.5	1	1.3	0.6	1.3
Arsenic (As)	mg/kg	< 2	MCERTS	7	12	11	12	10
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	13	19	26	12	18
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	17	12	12	6	9
Lead (Pb)	mg/kg	< 3	MCERTS	71	25	33	12	24
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	5	< 3	< 3	< 3	3
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	47	29	35	22	31
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

~ Sample details provided by the customer



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate

DETS Report No: 24-03372	~Date Sampled	25/03/24	26/03/24	26/03/24	25/03/24
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Boorley Green, Hampshire	~TP / BH No	GWM02	GWM02	GWM03	COMP01
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 627722	~Depth (m)	0.30	0.60	0.80	None Supplied
Reporting Date: 10/04/2024	DETS Sample No	707260	707261	707262	707263

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.7	6.9	5.4	5.9
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Organic Matter (SOM)	%	< 0.1	MCERTS	6.2	1.4	1.2	1.3
Arsenic (As)	mg/kg	< 2	MCERTS	8	6	11	8
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.6	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	12	14	21	19
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	38	8	8	8
Lead (Pb)	mg/kg	< 3	MCERTS	149	27	17	13
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	8	< 3	< 3	< 3
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	247	46	29	25
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

~ Sample details provided by the customer



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-03372	~Date Sampled	25/03/24	25/03/24	25/03/24	26/03/24	26/03/24
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Boorley Green, Hampshire	~TP / BH No	WS01	WS02	WS03	WS05	GWM01
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 627722	~Depth (m)	0.20	1.50	0.70	1.20	0.50
Reporting Date: 10/04/2024	DETS Sample No	707255	707256	707257	707258	707259

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6

~ Sample details provided by the customer



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-03372	~Date Sampled	25/03/24	26/03/24	26/03/24	25/03/24	
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: Boorley Green, Hampshire	~TP / BH No	GWM02	GWM02	GWM03	COMP01	
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
~Order No: 627722	~Depth (m)	0.30	0.60	0.80	None Supplied	
Reporting Date: 10/04/2024	DETS Sample No	707260	707261	707262	707263	

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.37	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	0.12	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.72	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.72	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.38	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.45	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.54	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.19	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.49	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.42	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.39	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	4.8	< 1.6	< 1.6	< 1.6	< 1.6

~ Sample details provided by the customer



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 24-03372	~Date Sampled	25/03/24	25/03/24	25/03/24	26/03/24	26/03/24
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Boorley Green, Hampshire	~TP / BH No	WS01	WS02	WS03	WS05	GWM01
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 627722	~Depth (m)	0.20	1.50	0.70	1.20	0.50
Reporting Date: 10/04/2024	DETS Sample No	707255	707256	707257	707258	707259

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	< 42

~ Sample details provided by the customer



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Soil Analysis Certificate - TPH CWG Banded					
DETS Report No: 24-03372	~Date Sampled	25/03/24	26/03/24	26/03/24	25/03/24
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Boorley Green, Hampshire	~TP / BH No	GWM02	GWM02	GWM03	COMP01
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 627722	~Depth (m)	0.30	0.60	0.80	None Supplied
Reporting Date: 10/04/2024	DETS Sample No	707260	707261	707262	707263

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	3	< 3	< 3	< 3	
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	54	< 10	< 10	< 10	
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	58	< 21	< 21	< 21	
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	58	< 42	< 42	< 42	

~ Sample details provided by the customer



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-03372	~Date Sampled	25/03/24	25/03/24	25/03/24	26/03/24	26/03/24
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Boorley Green, Hampshire	~TP / BH No	WS01	WS02	WS03	WS05	GWM01
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: 627722	~Depth (m)	0.20	1.50	0.70	1.20	0.50
Reporting Date: 10/04/2024	DETS Sample No	707255	707256	707257	707258	707259

Determinand	Unit	RL	Accreditation						
Benzene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
Toluene : HS 1D MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
o-xylene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
MTBE : HS 1D MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5

~ Sample details provided by the customer



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-03372	~Date Sampled	25/03/24	26/03/24	26/03/24	25/03/24	
Ridge	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: Boorley Green, Hampshire	~TP / BH No	GWM02	GWM02	GWM03	COMP01	
~Project / Job Ref: 5024854	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
~Order No: 627722	~Depth (m)	0.30	0.60	0.80	None Supplied	
Reporting Date: 10/04/2024	DETS Sample No	707260	707261	707262	707263	

Determinand	Unit	RL	Accreditation					
Benzene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene : HS 1D MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene : HS 1D MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE : HS 1D MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

~ Sample details provided by the customer

Waste Acceptance Criteria Analytical Certificate

DETS Report No: 24-03372		~Date Sampled	25/03/24				Landfill Waste Acceptance Criteria Limits		
Ridge		~Time Sampled	None Supplied				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
~Site Reference: Boorley Green, Hampshire		~TP / BH No	COMP01						
~Project / Job Ref: 5024854		~Additional Refs	None Supplied						
~Order No: 627722		~Depth (m)	None Supplied						
Reporting Date: 10/04/2024		DETS Sample No	707263						
Determinand	Unit	MDL					3%	5%	6%
TOC ^{MO}	%	< 0.1	0.7				--	--	10%
Loss on Ignition ^{MO}	%	< 0.01	7.30				6	--	--
BTEX ^{MO}	mg/kg	< 0.05	< 0.05				1	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1	500	--	--			
Mineral Oil ^{MO}	mg/kg	< 10	< 10	100	--	--			
Total PAH ^{MO}	mg/kg	< 1.7	< 1.7	--	>6	--			
pH ^{MO}	pH Units	N/a	5.9	--	To be evaluated	To be evaluated			
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1						
Eluate Analysis			10:1 mg/l			Cumulative 10:1 * mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic ^U		< 0.0002			< 0.002	0.5	2	25	
Barium ^U		0.0055			0.055	20	100	300	
Cadmium ^U		< 0.0002			< 0.002	0.04	1	5	
Chromium ^U		< 0.0002			< 0.002	0.5	10	70	
Copper ^U		0.0005			0.005	2	50	100	
Mercury ^U		< 0.00004			< 0.0004	0.01	0.2	2	
Molybdenum ^U		< 0.0002			< 0.002	0.5	10	30	
Nickel ^U		< 0.0002			< 0.002	0.4	10	40	
Lead ^U		< 0.0002			< 0.002	0.5	10	50	
Antimony ^U		< 0.0002			< 0.002	0.06	0.7	5	
Selenium ^U		< 0.0002			< 0.002	0.1	0.5	7	
Zinc ^U		0.003			0.03	4	50	200	
Chloride ^U		< 1.0			< 10	800	15000	25000	
Fluoride ^U		< 0.5			< 5	10	150	500	
Sulphate ^U		< 1.0			< 10	1000	20000	50000	
TDS	9			90	4000	60000	100000		
Phenol Index ^U	< 0.01			< 0.1	1	-	-		
DOC ^U	2.8			28.2	500	800	1000		
Leach Test Information									
Sample Mass (kg)		0.11							
Dry Matter (%)		80.5							
Moisture (%)		24.2							
Stage 1									
Volume Eluate L10 (litres)		0.88							

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepancies with current legislation

M Denotes MCERTS accredited test.

U Denotes ISO17025 accredited test

~ Sample details provided by the customer

* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 24-03372	
Ridge	
~Site Reference: Boorley Green, Hampshire	
~Project / Job Ref: 5024854	
~Order No: 627722	
Reporting Date: 10/04/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
707255	WS01	None Supplied	0.20	18	Brown sandy clay with vegetation
707256	WS02	None Supplied	1.50	23.3	Orange clay
707257	WS03	None Supplied	0.70	25.2	Orange clay
707258	WS05	None Supplied	1.20	20	Grey clay
707259	GWM01	None Supplied	0.50	15.6	Grey sandy clay
707260	GWM02	None Supplied	0.30	9.7	Brown sandy loam with brick and concrete
707261	GWM02	None Supplied	0.60	14.9	Brown sandy clay
707262	GWM03	None Supplied	0.80	21.6	Light brown sandy clay
707263	COMP01	None Supplied	None Supplied	19.5	Orange clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{1/5}

~ Sample details provided by the customer



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-03372

Ridge

~Site Reference: Boorley Green, Hampshire

~Project / Job Ref: 5024854

~Order No: 627722

Reporting Date: 10/04/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (all: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (all: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried

AR As Received

~ Sample details provided by the customer



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-03372

Ridge

~Site Reference: Boorley Green, Hampshire

~Project / Job Ref: 5024854

~Order No: 627722

Reporting Date: 10/04/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	U	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (COD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

~ Sample details provided by the customer



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
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Lenham Heath
Maidstone
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Tel : 01622 850410



List of HWOL Acronyms and Operators

DETS Report No: 24-03372

Ridge

~Site Reference: Boorley Green, Hampshire

~Project / Job Ref: 5024854

~Order No: 627722

Reporting Date: 10/04/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by the customer

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-2) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-2) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Expanded Uncertainty Measurement	Unit
TOC	Soil	12.2	%
Loss on Ignition	Soil	22.9	%
BTEX	Soil	11.2	%
Sum of PCBs	Soil	43.4	%
Mineral Oil	Soil	9.0	%
Total PAH	Soil	18.5	%
pH	Soil	0.335	Units
Acid Neutralisation Capacity	Soil	18.0	%
Clay Content	Soil	15.0	%
Silt Content	Soil	14.0	%
Sand Content	Soil	13.0	%
Loss on Ignition	Soil	22.9	%
pH	Soil	0.335	Units
Carbonate	Soil	12.0	%
Total Nitrogen	Soil	12.0	%
Phosphorus (Extractable)	Soil	24.0	%
Potassium (Extractable)	Soil	20.0	%
Magnesium (Extractable)	Soil	26.0	%
Zinc	Soil	21.6	%
Copper	Soil	18.2	%
Nickel	Soil	24.3	%
Available Sodium	Soil	23.0	%
Available Calcium	Soil	23.0	%
Electrical Conductivity	Soil	10.0	%

APPENDIX 6 – WASTE ASSESSMENT

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



OAS17-MA9QC-E2LAG

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Job name

5024854 - Boorley Green

Description/Comments

The following report provides classification of typical soil materials identified on site during the recent Ground Investigation.

Waste classification should be based on analyses that are representative of the particular waste load, so it is normally not possible to classify the soils at the investigation stage, since the materials that will become waste have generally not been defined yet.

Ground investigation data can however provide a useful guide to the likely waste classification and can indicate the scale of the classification analyses that will be required after the waste has been defined and before it is generated.

DETS Lab Files: 24-03372.2

Project

5024854

Site

Boorley Green

Classified by

Name: **Max Smeeth**
Date: **22 May 2024 11:42 GMT**
Telephone: **07824692661**
Company: **Ridge & Partners LLP**
Ridge and Partners LLP
1 Royal Court
Kings Worthy
SO23 7TW

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

09 Feb 2023

Next 3 year Refresher due by Feb 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land adjacent to Oak Tree Cottage, Boorley Green, Hampshire

Post Code **SO32 2UA**

SIC for the process giving rise to the waste

43999 Other specialised construction activities n.e.c.

Description of industry/producer giving rise to the waste

Development of a three-storey retirement home with associated landscaping and parking.

Description of the specific process, sub-process and/or activity that created the waste

Waste arising from piling, foundation excavations, and minor groundworks.

Description of the waste

Typical natural soils - slightly gravelly sandy Clay.

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results			Page
					Inert	SNRHW	Hazardous	
1	WS01-0.20-25/03/2024	0.20	Non Hazardous		-	-	N/A	3
2	WS02-1.50-25/03/2024	1.50	Non Hazardous		-	-	N/A	6
3	WS03-0.70-25/03/2024	0.70	Non Hazardous		-	-	N/A	9
4	WS05-1.20-26/03/2024	1.20	Non Hazardous		-	-	N/A	12
5	GWM01-0.50-26/03/2024	0.50	Non Hazardous		-	-	N/A	15
6	GWM02-0.30-25/03/2024	0.30	Non Hazardous		-	-	N/A	18
7	GWM02-0.60-26/03/2024	0.60	Non Hazardous		-	-	N/A	22
8	GWM03-0.80-26/03/2024	0.80	Non Hazardous		-	-	N/A	25
9	COMP01--25/03/2024		Non Hazardous		Pass	Fail	N/A	28

Related documents

#	Name	Description
1	24-03372.2.hwol	DETS South .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

WAC results

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate the samples in this Job: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Report

Created by: Max Smeeth

Created date: 22 May 2024 11:42 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	31
Appendix B: Rationale for selection of metal species	32
Appendix C: Version	33

Classification of sample: WS01-0.20-25/03/2024

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

Sample details

Sample name:	LoW Code:
WS01-0.20-25/03/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				7 mg/kg	1.32	7.579 mg/kg	0.000758 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13 mg/kg	1.462	15.58 mg/kg	0.00156 %	✓	
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
	024-017-00-8									
5	copper { dicopper oxide; copper (I) oxide }				17 mg/kg	1.126	15.695 mg/kg	0.00157 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead chromate }			1	71 mg/kg	1.56	90.812 mg/kg	0.00582 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
7	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				5 mg/kg	2.976	12.203 mg/kg	0.00122 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
10	zinc { zinc chromate }				47 mg/kg	2.774	106.916 mg/kg	0.0107 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
11	TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
			TPH							
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
13	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
18	 pH		PH		6.1 pH		6.1 pH	6.1 pH			
19	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	 acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	 acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	 fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	 phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	 anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	 fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	 pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
29	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
30	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
31	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
32	 indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
33	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
34	 benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
35	 monohydric phenols		P1186		<2 mg/kg		<2 mg/kg	<0.0002 %			<LOD
Total:									0.0275 %		

Key	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS01-0.20-25/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	6.1	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS02-1.50-25/03/2024

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

Sample details

Sample name:	LoW Code:
WS02-1.50-25/03/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.50 m	
Moisture content:	
23.3%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 23.3% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	12.152 mg/kg	0.00122 %	✓		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				19 mg/kg	1.462	21.299 mg/kg	0.00213 %	✓		
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				12 mg/kg	1.126	10.363 mg/kg	0.00104 %	✓		
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	25 mg/kg	1.56	29.909 mg/kg	0.00192 %	✓		
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				<3 mg/kg	2.976	<8.929 mg/kg	<0.000893 %			<LOD
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				29 mg/kg	2.774	61.705 mg/kg	0.00617 %	✓		
	024-007-00-3	236-878-9	13530-65-9								
11	TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %			<LOD
			TPH								
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
13	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
15	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-023-00-4	202-849-4	100-41-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	xylene									
	601-022-00-9	202-422-2 [1]	95-47-6 [1]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
		203-396-5 [2]	106-42-3 [2]							
		203-576-3 [3]	108-38-3 [3]							
		215-535-7 [4]	1330-20-7 [4]							
17	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				2 mg/kg	1.884	2.89 mg/kg	0.000289 %	✓	
	006-007-00-5									
18	pH				5.1 pH		5.1 pH	5.1 pH		
			P1186							
19	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
21	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
24	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
25	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
26	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
27	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
35	monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
			P1186							
Total:								0.0193 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS02-1.50-25/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	5.1	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value
	SNRHW WAC criteria fail

Classification of sample: WS03-0.70-25/03/2024

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

Sample details

Sample name:	LoW Code:
WS03-0.70-25/03/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.70 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
25.2%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 25.2% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		arsenic { arsenic trioxide }				11 mg/kg	1.32	10.864 mg/kg	0.00109 %	✓	
		033-003-00-0	215-481-4	1327-53-3							
2		cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
		048-002-00-0	215-146-2	1306-19-0							
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				26 mg/kg	1.462	28.424 mg/kg	0.00284 %	✓	
			215-160-9	1308-38-9							
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
		024-017-00-8									
5		copper { dicopper oxide; copper (I) oxide }				12 mg/kg	1.126	10.106 mg/kg	0.00101 %	✓	
		029-002-00-X	215-270-7	1317-39-1							
6		lead { lead chromate }			1	33 mg/kg	1.56	38.502 mg/kg	0.00247 %	✓	
		082-004-00-2	231-846-0	7758-97-6							
7		mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7							
8		nickel { nickel chromate }				<3 mg/kg	2.976	<8.929 mg/kg	<0.000893 %		<LOD
		028-035-00-7	238-766-5	14721-18-7							
9		selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
		028-031-00-5	239-125-2	15060-62-5							
10		zinc { zinc chromate }				35 mg/kg	2.774	72.627 mg/kg	0.00726 %	✓	
		024-007-00-3	236-878-9	13530-65-9							
11		TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
				TPH							
12		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4							
13		benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2							
14		toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3							
15		ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
18	 pH		PH		5 pH		5 pH	5pH		
19	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	 acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	 acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	 fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	 phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	 anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	 fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	 pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	 indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	 benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	 monohydric phenols		P1186		<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
Total:								0.0214 %		

Key	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS03-0.70-25/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	5	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value
	SNRHW WAC criteria fail

Classification of sample: WS05-1.20-26/03/2024

✔

Non Hazardous Waste

Classified as 17 05 04

in the List of Waste

Sample details

Sample name:	LoW Code:
WS05-1.20-26/03/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.20 m	
Moisture content:	
20%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 20% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	12.675 mg/kg	0.00127 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				12 mg/kg	1.462	14.031 mg/kg	0.0014 %	✓	
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
	024-017-00-8									
5	copper { dicopper oxide; copper (I) oxide }				6 mg/kg	1.126	5.404 mg/kg	0.00054 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead chromate }			1	12 mg/kg	1.56	14.974 mg/kg	0.00096 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
7	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				<3 mg/kg	2.976	<8.929 mg/kg	<0.000893 %		<LOD
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
10	zinc { zinc chromate }				22 mg/kg	2.774	48.825 mg/kg	0.00488 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
11	TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
			TPH							
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
13	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4							

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
16		xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }					<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
		006-007-00-5									
18	 pH					4.6 pH		4.6 pH	4.6 pH		
				PH							
19		naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3							
20	 acenaphthylene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8							
21	 acenaphthene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9							
22	 fluorene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7							
23	 phenanthrene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8							
24	 anthracene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7							
25	 fluoranthene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0							
26	 pyrene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0							
27		benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3							
28		chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9							
29		benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2							
30		benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9							
31		benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8							
32	 indeno[123-cd]pyrene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5							
33		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3							
34	 benzo[ghi]perylene					<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2							
35	 monohydric phenols					<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
				P1186							
Total:									0.0158 %		

Key

 User supplied data Determinand values ignored for classification, see column 'Conc. Not Used' for reason Determinand defined or amended by HazWasteOnline (see Appendix A) Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration

<LOD Below limit of detection

CLP: Note 1 Only the metal concentration has been used for classification

WAC results for sample: WS05-1.20-26/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	4.6	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value
	SNRHW WAC criteria fail

Classification of sample: GWM01-0.50-26/03/2024

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

Sample details

Sample name:	LoW Code:
GWM01-0.50-26/03/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15.6%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 15.6% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		arsenic { arsenic trioxide }				10 mg/kg	1.32	11.144 mg/kg	0.00111 %	✓	
		033-003-00-0	215-481-4	1327-53-3							
2		cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
		048-002-00-0	215-146-2	1306-19-0							
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18 mg/kg	1.462	22.204 mg/kg	0.00222 %	✓	
			215-160-9	1308-38-9							
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
		024-017-00-8									
5		copper { dicopper oxide; copper (I) oxide }				9 mg/kg	1.126	8.552 mg/kg	0.000855 %	✓	
		029-002-00-X	215-270-7	1317-39-1							
6		lead { lead chromate }			1	24 mg/kg	1.56	31.596 mg/kg	0.00203 %	✓	
		082-004-00-2	231-846-0	7758-97-6							
7		mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
		080-010-00-X	231-299-8	7487-94-7							
8		nickel { nickel chromate }				3 mg/kg	2.976	7.536 mg/kg	0.000754 %	✓	
		028-035-00-7	238-766-5	14721-18-7							
9		selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
		028-031-00-5	239-125-2	15060-62-5							
10		zinc { zinc chromate }				31 mg/kg	2.774	72.583 mg/kg	0.00726 %	✓	
		024-007-00-3	236-878-9	13530-65-9							
11		TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
				TPH							
12		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4							
13		benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2							
14		toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3							
15		ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
18	 pH		PH		5.4 pH		5.4 pH	5.4 pH			
19	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
20	 acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
21	 acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
22	 fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
23	 phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	 anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
25	 fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
26	 pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
28	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
29	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
30	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
31	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
32	 indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
33	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
34	 benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
35	 monohydric phenols		P1186		<2 mg/kg		<2 mg/kg	<0.0002 %			<LOD
Total:									0.0201 %		

Key	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: GWM01-0.50-26/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	5.4	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value
	SNRHW WAC criteria fail

Classification of sample: GWM02-0.30-25/03/2024

Non Hazardous Waste

Classified as 17 05 04
in the List of Waste

Sample details

Sample name:	LoW Code:
GWM02-0.30-25/03/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30 m	
Moisture content:	
9.7%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.7% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				8 mg/kg	1.32	9.538 mg/kg	0.000954 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.6 mg/kg	1.142	0.619 mg/kg	0.0000619 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				12 mg/kg	1.462	15.837 mg/kg	0.00158 %	✓	
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
	024-017-00-8									
5	copper { dicopper oxide; copper (I) oxide }				38 mg/kg	1.126	38.634 mg/kg	0.00386 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead chromate }			1	149 mg/kg	1.56	209.868 mg/kg	0.0135 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
7	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				8 mg/kg	2.976	21.501 mg/kg	0.00215 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
10	zinc { zinc chromate }				247 mg/kg	2.774	618.748 mg/kg	0.0619 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
11	TPH (C6 to C40) petroleum group				58 mg/kg		52.374 mg/kg	0.00524 %	✓	
			TPH							
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
13	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4							

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
16		xylene				<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD	
		601-022-00-9	202-422-2 [1]	95-47-6 [1]								
			203-396-5 [2]	106-42-3 [2]								
			203-576-3 [3]	108-38-3 [3]								
		215-535-7 [4]	1330-20-7 [4]									
17		cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD	
		006-007-00-5										
18		pH				7.7 pH		7.7 pH	7.7 pH			
				PH								
19		naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-052-00-2	202-049-5	91-20-3								
20		acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			205-917-1	208-96-8								
21		acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-469-6	83-32-9								
22		fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
			201-695-5	86-73-7								
23		phenanthrene				0.37 mg/kg		0.334 mg/kg	0.0000334 %	✓		
			201-581-5	85-01-8								
24		anthracene				0.12 mg/kg		0.108 mg/kg	0.0000108 %	✓		
			204-371-1	120-12-7								
25		fluoranthene				0.72 mg/kg		0.65 mg/kg	0.000065 %	✓		
			205-912-4	206-44-0								
26		pyrene				0.72 mg/kg		0.65 mg/kg	0.000065 %	✓		
			204-927-3	129-00-0								
27		benzo[a]anthracene				0.38 mg/kg		0.343 mg/kg	0.0000343 %	✓		
		601-033-00-9	200-280-6	56-55-3								
28		chrysene				0.45 mg/kg		0.406 mg/kg	0.0000406 %	✓		
		601-048-00-0	205-923-4	218-01-9								
29		benzo[b]fluoranthene				0.54 mg/kg		0.488 mg/kg	0.0000488 %	✓		
		601-034-00-4	205-911-9	205-99-2								
30		benzo[k]fluoranthene				0.19 mg/kg		0.172 mg/kg	0.0000172 %	✓		
		601-036-00-5	205-916-6	207-08-9								
31		benzo[a]pyrene; benzo[def]chrysene				0.49 mg/kg		0.442 mg/kg	0.0000442 %	✓		
		601-032-00-3	200-028-5	50-32-8								
32		indeno[123-cd]pyrene				0.42 mg/kg		0.379 mg/kg	0.0000379 %	✓		
			205-893-2	193-39-5								
33		dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD	
		601-041-00-2	200-181-8	53-70-3								
34		benzo[ghi]perylene				0.39 mg/kg		0.352 mg/kg	0.0000352 %	✓		
			205-883-8	191-24-2								
35		monohydric phenols				<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD	
				P1186								
Total:									0.0912 %			

Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration

<LOD Below limit of detection

CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No evident free draining liquid phase. Limit values determined in accordance with WM3 worked example for the determination of HP3.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00524%)

WAC results for sample: GWM02-0.30-25/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	7.7	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: GWM02-0.60-26/03/2024

✔

Non Hazardous Waste

Classified as 17 05 04

in the List of Waste

Sample details

Sample name:	LoW Code:
GWM02-0.60-26/03/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.60 m	
Moisture content:	
14.9%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14.9% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide } 033-003-00-0215-481-41327-53-3				6 mg/kg	1.32	6.742 mg/kg	0.000674 %	✓	
2	cadmium { cadmium oxide } 048-002-00-0215-146-21306-19-0				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-91308-38-9				14 mg/kg	1.462	17.413 mg/kg	0.00174 %	✓	
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } 024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
5	copper { dicopper oxide; copper (I) oxide } 029-002-00-X215-270-71317-39-1				8 mg/kg	1.126	7.665 mg/kg	0.000767 %	✓	
6	lead { lead chromate } 082-004-00-2231-846-07758-97-6			1	27 mg/kg	1.56	35.84 mg/kg	0.0023 %	✓	
7	mercury { mercury dichloride } 080-010-00-X231-299-87487-94-7				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
8	nickel { nickel chromate } 028-035-00-7238-766-514721-18-7				<3 mg/kg	2.976	<8.929 mg/kg	<0.000893 %		<LOD
9	selenium { nickel selenate } 028-031-00-5239-125-215060-62-5				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
10	zinc { zinc chromate } 024-007-00-3236-878-913530-65-9				46 mg/kg	2.774	108.597 mg/kg	0.0109 %	✓	
11	TPH (C6 to C40) petroleum group TPH				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X216-653-11634-04-4				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
13	benzene 601-020-00-8200-753-771-43-2				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
14	toluene 601-021-00-3203-625-9108-88-3				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
15	ethylbenzene 601-023-00-4202-849-4100-41-4				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
18	 pH PH				6.9 pH		6.9 pH	6.9 pH		
19	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	 acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	 acenaphthene 201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	 fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	 phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	 anthracene 204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	 fluoranthene 205-912-4	206-44-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	 pyrene 204-927-3	129-00-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	 indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	 benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	 monohydric phenols P1186				<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
Total:								0.0231 %		

Key

 User supplied data Determinand values ignored for classification, see column 'Conc. Not Used' for reason Determinand defined or amended by HazWasteOnline (see Appendix A) Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration

<LOD Below limit of detection

CLP: Note 1 Only the metal concentration has been used for classification

WAC results for sample: GWM02-0.60-26/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	6.9	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: GWM03-0.80-26/03/2024

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

Sample details

Sample name:	LoW Code:
GWM03-0.80-26/03/2024	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.80 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
21.6%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 21.6% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11 mg/kg	1.32	11.386 mg/kg	0.00114 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				21 mg/kg	1.462	24.063 mg/kg	0.00241 %	✓	
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
	024-017-00-8									
5	copper { dicopper oxide; copper (I) oxide }				8 mg/kg	1.126	7.062 mg/kg	0.000706 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead chromate }			1	17 mg/kg	1.56	20.789 mg/kg	0.00133 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
7	mercury { mercury dichloride }				<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				<3 mg/kg	2.976	<8.929 mg/kg	<0.000893 %		<LOD
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { nickel selenate }				<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
10	zinc { zinc chromate }				29 mg/kg	2.774	63.073 mg/kg	0.00631 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
11	TPH (C6 to C40) petroleum group				<42 mg/kg		<42 mg/kg	<0.0042 %		<LOD
			TPH							
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
13	benzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
18	 pH		PH		5.4 pH		5.4 pH	5.4 pH		
19	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	 acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	 acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	 fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	 phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	 anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	 fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	 pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	 indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	 benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	 monohydric phenols		P1186		<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
Total:								0.0187 %		

Key	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: GWM03-0.80-26/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the Inert (Inert waste landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%		3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg		100	-	-
7	pH	pH	5.4	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value
	SNRHW WAC criteria fail

Classification of sample: COMP01--25/03/2024

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

Sample details

Sample name:	LoW Code:
COMP01--25/03/2024	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19.5% (wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 19.5% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				8	mg/kg	1.32	8.503	mg/kg	0.00085 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				19	mg/kg	1.462	22.354	mg/kg	0.00224 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				8	mg/kg	1.126	7.251	mg/kg	0.000725 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	13	mg/kg	1.56	16.323	mg/kg	0.00105 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				<3	mg/kg	2.976	<8.929	mg/kg	<0.000893 %		<LOD
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				25	mg/kg	2.774	55.83	mg/kg	0.00558 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	TPH (C6 to C40) petroleum group				<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
			TPH									
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
13	benzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
14	toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
15	ethylbenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
	601-023-00-4	202-849-4	100-41-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
17	 cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
18	 pH				5.9 pH		5.9 pH	5.9 pH		
19	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	 acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	 acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	 fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	 phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	 anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	 fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	 pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
32	 indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
33	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
34	 benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
35	 monohydric phenols		P1186		<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
Total:								0.0172 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: COMP01--25/03/2024

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"

The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample FAILS the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	0.7	3	5	6
2	LOI (loss on ignition)	%	7.3	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.05	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.1	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<1.7	100	-	-
7	pH	pH	5.9	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	<1	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	<0.002	0.5	2	25
10	barium	mg/kg	0.055	20	100	300
11	cadmium	mg/kg	<0.002	0.04	1	5
12	chromium	mg/kg	<0.002	0.5	10	70
13	copper	mg/kg	0.005	2	50	100
14	mercury	mg/kg	<0.0004	0.01	0.2	2
15	molybdenum	mg/kg	<0.002	0.5	10	30
16	nickel	mg/kg	<0.002	0.4	10	40
17	lead	mg/kg	<0.002	0.5	10	50
18	antimony	mg/kg	<0.002	0.06	0.7	5
19	selenium	mg/kg	<0.002	0.1	0.5	7
20	zinc	mg/kg	0.03	4	50	200
21	chloride	mg/kg	<10	800	15,000	25,000
22	fluoride	mg/kg	<5	10	150	500
23	sulphate	mg/kg	<10	1,000	20,000	50,000
24	phenol index	mg/kg	<0.1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	28.2	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	90	4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	SNRHW WAC criteria fail

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

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

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

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

• ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

• salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

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

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

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

■ **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

cadmium {cadmium oxide}

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

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

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

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2024.142.6063.11222 (21 May 2024)

HazWasteOnline Database: 2024.142.6063.11222 (21 May 2024)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

APPENDIX 7 – GEOTECHNICAL TEST CERTIFICATES



Laboratory Report



Contract Number: 72081

Client Ref: 5024854

Client PO: 627721

Date Received: 03-04-2024

Date Completed: 23-04-2024

Report Date: 23-04-2024

Client: Ridge

This report has been checked and approved by:

Contract Title: **Boorley Green, Hampshire**
For the attention of: **Tom Lockwood**



Brendan Evans
Office Administrator

Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	8
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	8
PSD Wet Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	2
Water Soluble Sulphate 2:1 extract Sub-contracted Test	8
pH value of soil Sub-contracted Test	8
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

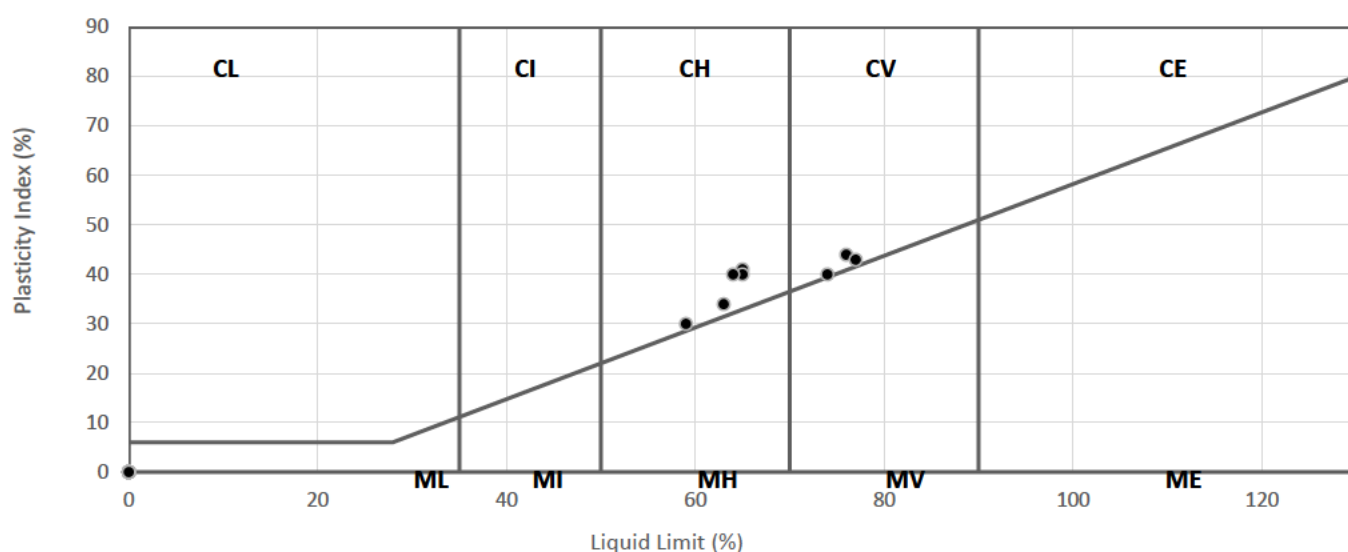
Wayne Honey (HR & HSE Manager)

Contract Number	72081	
Project Name	Boorley Green, Hampshire	
Date Tested	16/04/2024	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION



Operator

Clayton Jenkins



2788

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 72081

Borehole/Pit No. DFT01

Project Name Boorley Green, Hampshire

Sample No. 1

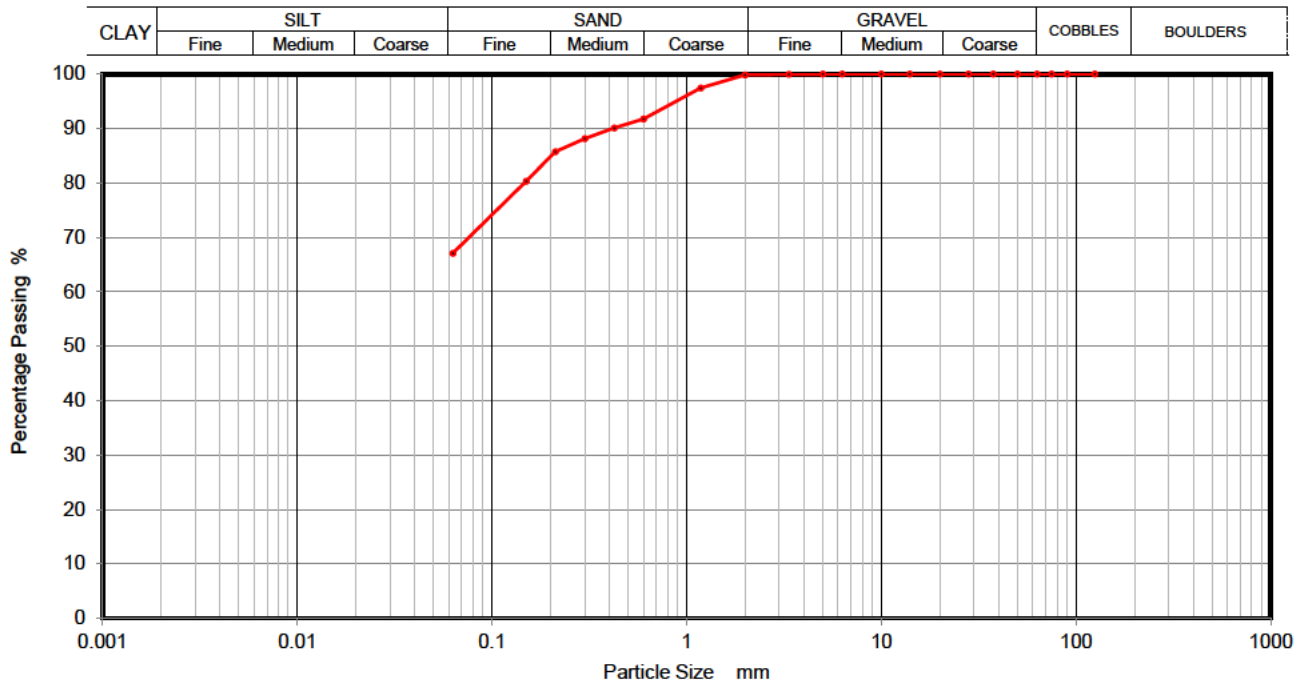
Soil Description Brown fine to coarse sandy SILT/CLAY

Depth Top 2.20

Depth Base

Date Tested 16/04/2024

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	97		
0.6	92		
0.425	90		
0.3	88		
0.212	86		
0.15	80		
0.063	67		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	33
Silt and Clay	67

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator

Cameron Thomas



4161



7 - 11 Harding Street
Leicester
LE1 4DH

GSTL

Unit 3-4 Heol Aur
Dafen Ind Estate
Dafen
SA14 8QN

Analytical Test Report: L24/03304/GSL - 24-44088

Your Project Reference:	Boorley Green Hampshire 5024854		
Your Order Number:	72081	Samples Received / Instructed:	17/04/2024 / 17/04/2024
Report Issue Number:	1	Sample Tested:	17/04 to 22/04/2024
Samples Analysed:	8 soil samples	Report issued:	22/04/2024

James Gane
Analytical Services Manager
CTS Group

Notes:**General**

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 08.04.2024

Issued by: J. Gane

Issue No: 4

Rev No: 6



7 - 11 Harding Street
Leicester
LE1 4DH

L24/03304/GSL - 24-44088

Project Reference - Boorley Green Hampshire 5024854

Analytical Test Results - Chemical Analysis

Lab Reference			355566	355567	355568	355569	355570	355571
Client Sample ID			-	-	-	-	-	-
Client Sample Location			WS01	WS02	WS03	WS04	WS05	GWM01
Client Sample Type			D	D	D	D	D	D
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			1.50	1.20	2.70	0.70	0.60	2.80
Depth - Bottom (m)			1.50	1.20	2.70	0.70	0.60	2.80
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Clay	Clay	Loam	Clay	Clay	Clay
Determinant	Units	Accreditation						
Water soluble sulphate (as SO ₄)	(mg/l)	u	< 10	< 10	26	15	16	110
pH Value	pH Units	MCERTS	5.5	5.4	5.0	6.0	5.4	4.7



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L24/03304/GSL - 24-44088

Project Reference - Boorley Green Hampshire 5024854

Analytical Test Results - Chemical Analysis

Lab Reference			355572	355573
Client Sample ID			-	-
Client Sample Location			GWM02	GWM03
Client Sample Type			D	D
Client Sample Number			-	-
Depth - Top (m)			0.90	1.40
Depth - Bottom (m)			0.90	1.40
Date of Sampling			-	-
Time of Sampling			-	-
Sample Matrix			Clay	Clay
Determinant	Units	Accreditation		
Water soluble sulphate (as SO ₄)	(mg/l)	u	43	24
pH Value	pH Units	MCERTS	5.0	4.7



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L24/03304/GSL - 24-44088

Project Reference - Boorley Green Hampshire 5024854

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
355566	-	WS01	D	-	Light brown very sandy silty clay	-	-	100
355567	-	WS02	D	-	Light brown very sandy silty clay	-	-	100
355568	-	WS03	D	-	Light brown slightly gravelly slightly sandy silty loam	-	-	100
355569	-	WS04	D	-	Light brown very sandy silty clay	-	-	95
355570	-	WS05	D	-	Light brown very sandy silty clay	-	-	100
355571	-	GWM01	D	-	Light brown very sandy silty clay	-	-	100
355572	-	GWM02	D	-	Light brown very sandy silty clay	-	-	100
355573	-	GWM03	D	-	Light brown very sandy silty clay	-	-	100



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L24/03304/GSL - 24-44088

Project Reference - Boorley Green Hampshire 5024854

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
355566	-	WS01	D	-	
355567	-	WS02	D	-	
355568	-	WS03	D	-	
355569	-	WS04	D	-	
355570	-	WS05	D	-	
355571	-	GWM01	D	-	
355572	-	GWM02	D	-	
355573	-	GWM03	D	-	

L24/03304/GSL - 24-44088

Project Reference - Boorley Green Hampshire 5024854

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis

L24/03304/GSL - 24-44088

Project Reference - Boorley Green Hampshire 5024854

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
355566	-	WS01	D	-		A
355567	-	WS02	D	-		A
355568	-	WS03	D	-		A
355569	-	WS04	D	-		A
355570	-	WS05	D	-		A
355571	-	GWM01	D	-		A
355572	-	GWM02	D	-		A
355573	-	GWM03	D	-		A



Laboratory Report



Contract Number: 72540

Client Ref: 5024854

Client PO: 628320

Date Received: 01-05-2024

Date Completed: 24-05-2024

Report Date: 24-05-2024

Client: Ridge

This report has been checked and approved by:

Contract Title: **Boorley Green, Hampshire**
For the attention of: **Tom Lockwood**

Brendan Evans
Office Administrator

Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	9
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	9
PSD Wet Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	6
Water Soluble Sulphate 2:1 extract Sub-contracted Test	15
pH value of soil Sub-contracted Test	15
BRE Reduced Suite includes pH, water & acid soluble sulphate and total sulphur Sub-contracted Test	6
Quick Undrained Triaxial Compression Test - Multi-stage Loading of a single specimen (100mm diameter) BS 1377:1990 - Part 7 : 9 - * UKAS	3
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (HR & HSE Manager)

GEO Site & Testing Services Ltd

Unit 3-4 Heol Aur, Dafen Ind Est, Llanelli, Carmarthenshire SA14 8QN

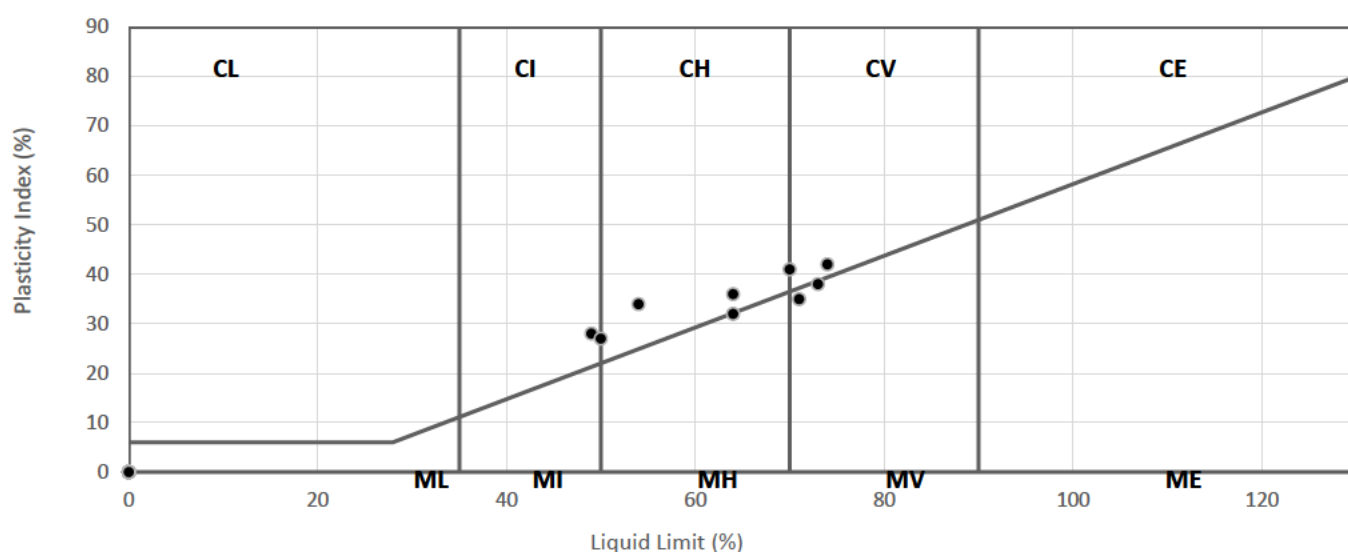
Tel: 01554 784 040 Fax: 01554 784 040 info@gstl.co.uk https://gstl.co.uk

Contract Number	72540	
Project Name	Boorley Green, Hampshire	
Date Tested	21/05/2024	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION



Operator

Clayton Jenkins



2788

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 72540

Borehole/Pit No. BH01

Project Name Boorley Green, Hampshire

Sample No. 1

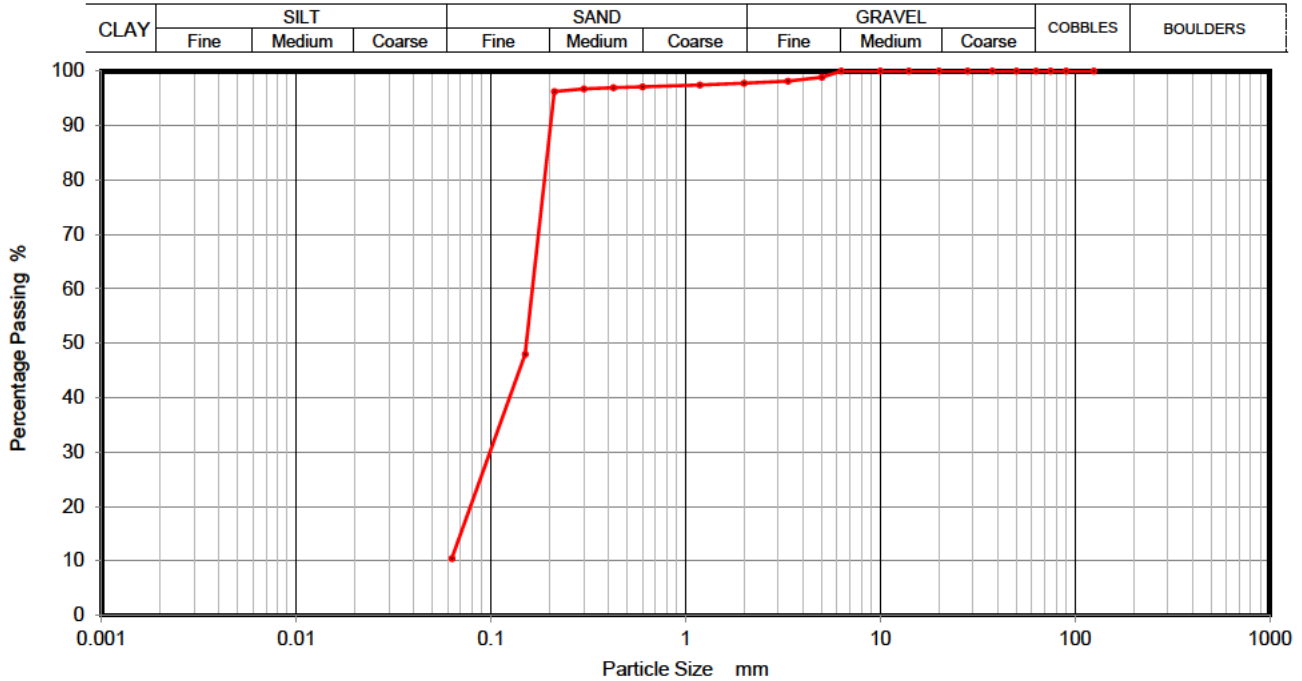
Soil Description Grey slightly fine gravelly silty/clayey fine to coarse SAND

Depth Top 11.00

Depth Base

Date Tested 21/05/2024

Sample Type D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	98		
1.18	97		
0.6	97		
0.425	97		
0.3	97		
0.212	96		
0.15	48		
0.063	10		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	88
Silt and Clay	10

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

Cameron Thomas

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 72540

Borehole/Pit No. BH01

Project Name Boorley Green, Hampshire

Sample No. 1

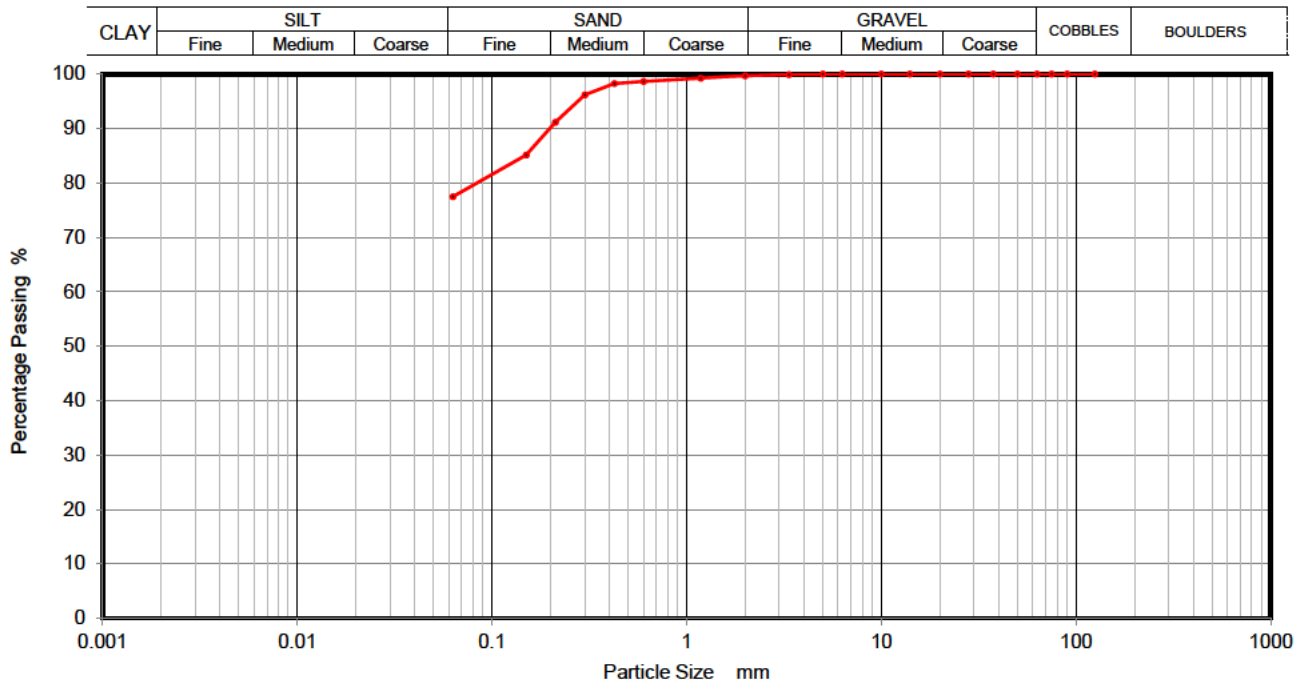
Soil Description Grey fine to coarse sandy SILT/CLAY

Depth Top 20.50

Depth Base 21.00

Date Tested 21/05/2024

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	96		
0.212	91		
0.15	85		
0.063	77		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	23
Silt and Clay	77

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator

Cameron Thomas

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 72540

Borehole/Pit No. BH02

Project Name Boorley Green, Hampshire

Sample No. 1

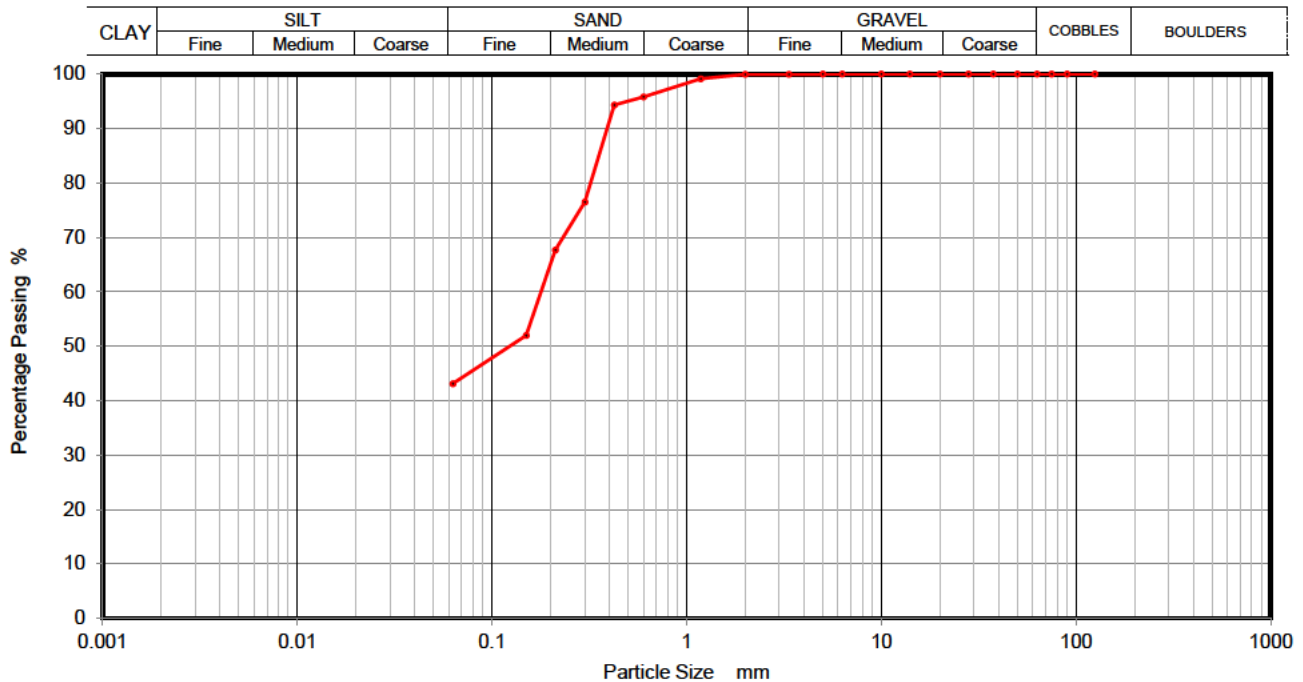
Soil Description Grey fine to coarse sandy SILT/CLAY

Depth Top 11.00

Depth Base

Date Tested 21/05/2024

Sample Type D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	96		
0.425	94		
0.3	76		
0.212	68		
0.15	52		
0.063	43		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	57
Silt and Clay	43

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

Cameron Thomas

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 72540

Borehole/Pit No. BH02

Project Name Boorley Green, Hampshire

Sample No. 1

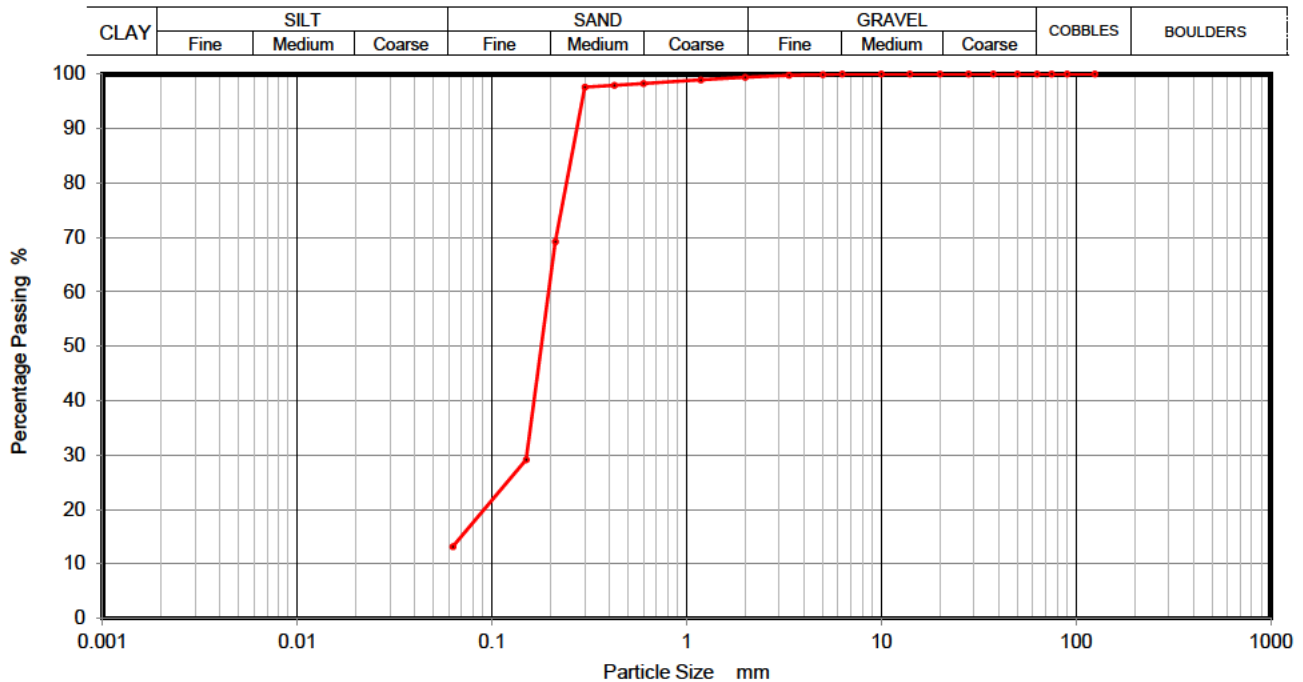
Soil Description Grey slightly fine gravelly silty/clayey fine to coarse SAND

Depth Top 14.50

Depth Base 15.00

Date Tested 21/05/2024

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	98		
0.3	98		
0.212	69		
0.15	29		
0.063	13		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	86
Silt and Clay	13

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator

Cameron Thomas

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 72540

Borehole/Pit No. BH03

Project Name Boorley Green, Hampshire

Sample No. 1

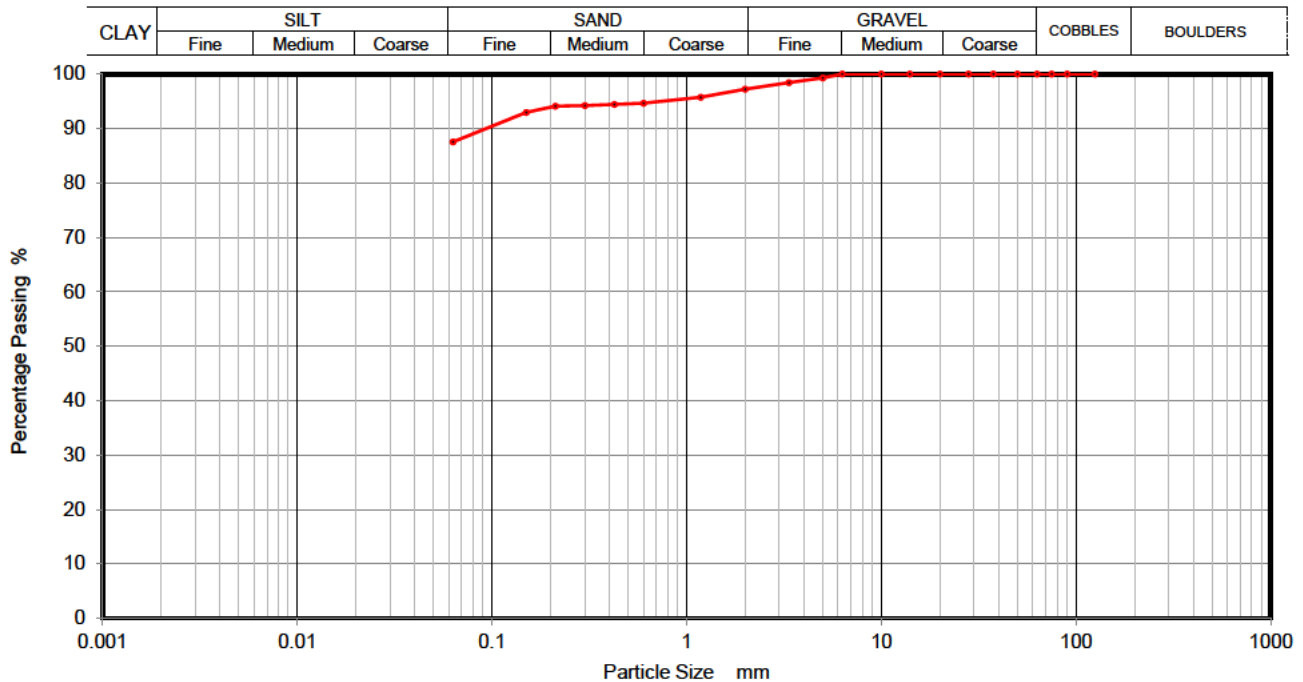
Soil Description Grey slightly fine gravelly fine to coarse sandy SILT/CLAY

Depth Top 13.50

Depth Base 14.00

Date Tested 21/05/2024

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	94		
0.212	94		
0.15	93		
0.063	88		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	9
Silt and Clay	88

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

Cameron Thomas

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 72540

Borehole/Pit No. BH03

Project Name Boorley Green, Hampshire

Sample No. 1

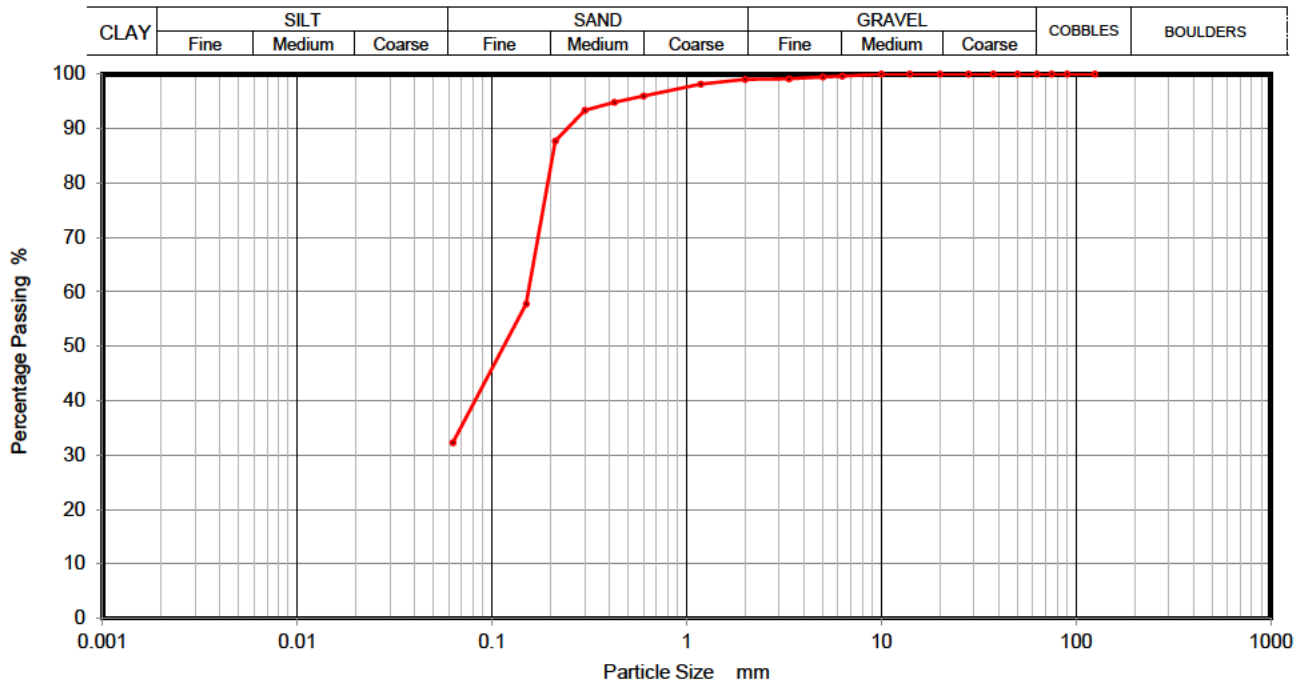
Soil Description Grey slightly fine to medium gravelly silty/clayey fine to coarse SAND

Depth Top 23.00

Depth Base

Date Tested 21/05/2024

Sample Type D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	96		
0.425	95		
0.3	93		
0.212	88		
0.15	58		
0.063	32		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	67
Silt and Clay	32

Remarks

Preparation and testing in accordance with BS1377 unless noted below

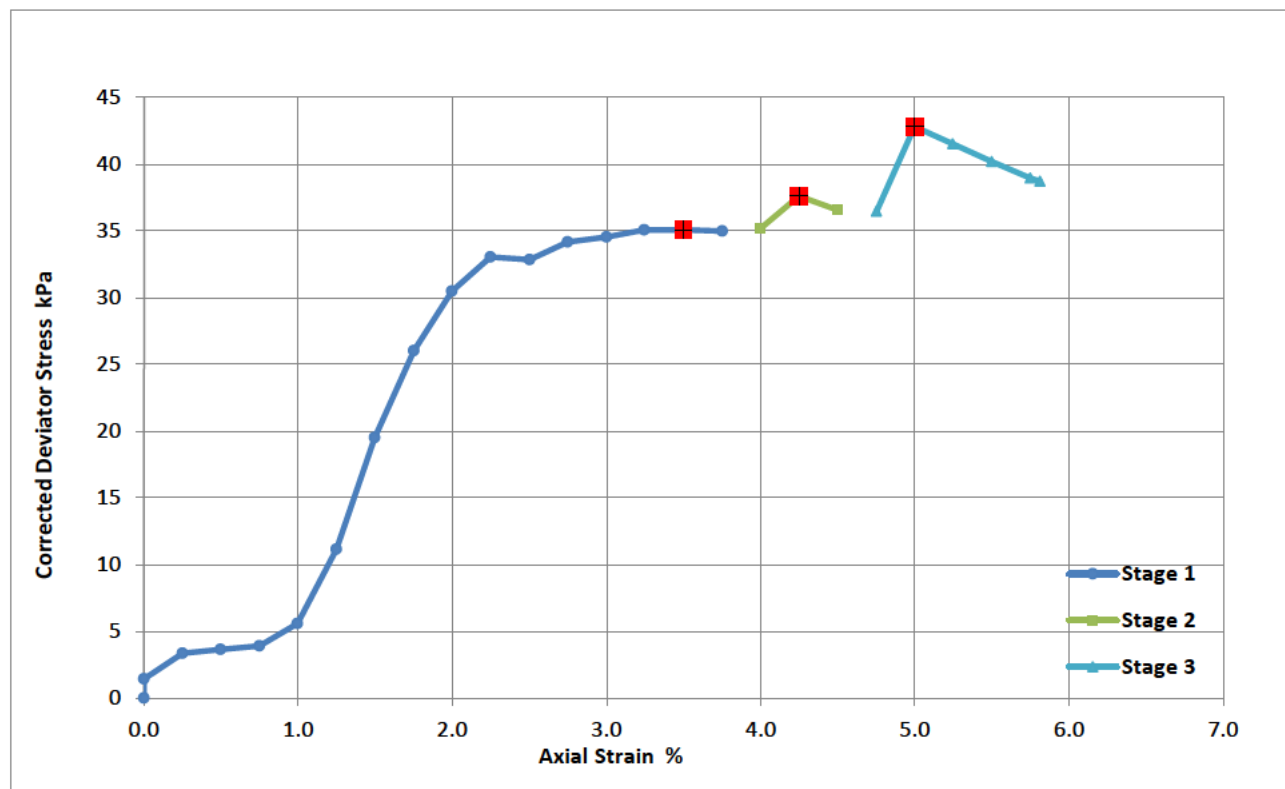
Operator

Cameron Thomas

Multi Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 9

Contract Number	72540
Borehole/Pit No.	BH02
Sample No.	1
Depth Top	12.00
Depth Base	12.45
Sample Type	U
Operator	David E

Project Name	Boorley Green, Hampshire
Soil Description	Greyish brown silty CLAY
Date Tested	22/05/2024



Moisture Content (%)	27		
Bulk Density (Mg/m ³)	1.77		
Dry Density (Mg/m ³)	1.39		
Specimen Length (mm)	173.9		
Specimen Diameter (mm)	101.2		
Stage Number	1	2	3
Cell Pressures (kPa)	124	249	498
Deviator Stress (kPa)	35	38	43
Undrained Shear Strength (kPa)	18	19	21
Failure Strain (%)	3.5	4.2	5.0
Mode Of Failure	Compound		
Membrane Used/Thickness	Rubber/0.4mm		
Rate of Strain (%/min)	3.00		

Notes.



Failure Sketch.



2788

Multi Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 9

Contract Number 72540

Borehole/Pit No. BH02

Project Name Boorley Green, Hampshire

Sample No. 1

Soil Description Greyish brown silty CLAY

Depth Top 12.00

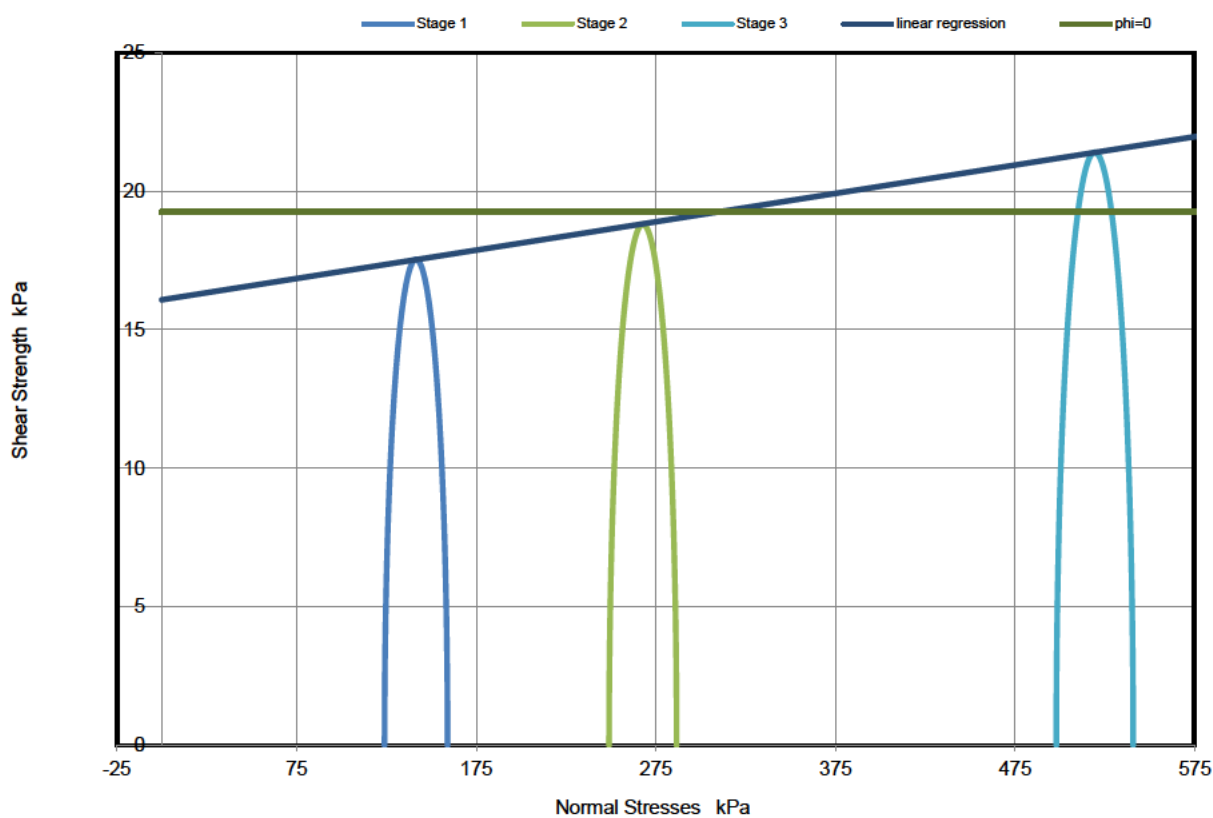
Depth Base 12.45

Date Tested 22/05/2024

Sample Type U

Technician David E

Mohr Circles



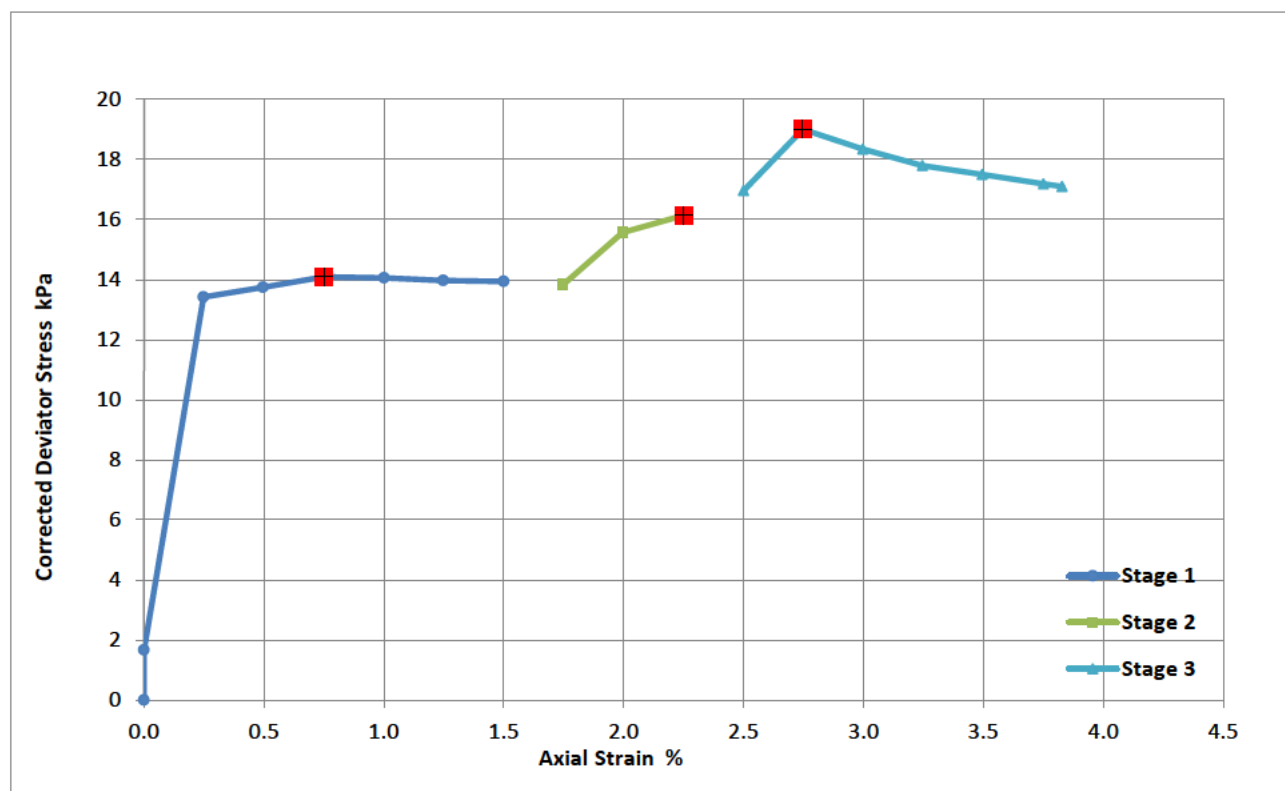
$\phi_u = 0$		Linear Regression	
Average c_u	19 kPa	ϕ_u	0.6 °
		c_u	16 kPa

Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Multi Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 9

Contract Number	72540
Borehole/Pit No.	BH02
Sample No.	1
Depth Top	7.50
Depth Base	7.95
Sample Type	U
Operator	David E

Project Name	Boorley Green, Hampshire
Soil Description	Greyish brown silty CLAY
Date Tested	22/05/2024



Moisture Content (%)	48		
Bulk Density (Mg/m ³)	1.60		
Dry Density (Mg/m ³)	1.08		
Specimen Length (mm)	210.5		
Specimen Diameter (mm)	102.4		
Stage Number	1	2	3
Cell Pressures (kPa)	75	150	300
Deviator Stress (kPa)	14	16	19
Undrained Shear Strength (kPa)	7.0	8.1	9.5
Failure Strain (%)	0.75	2.3	2.7
Mode Of Failure	Compound		
Membrane Used/Thickness	Rubber/0.4mm		
Rate of Strain (%/min)	3.00		

Notes.



Failure Sketch.



2788

Multi Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 9

Contract Number 72540

Borehole/Pit No. BH02

Project Name Boorley Green, Hampshire

Sample No. 1

Soil Description Greyish brown silty CLAY

Depth Top 7.50

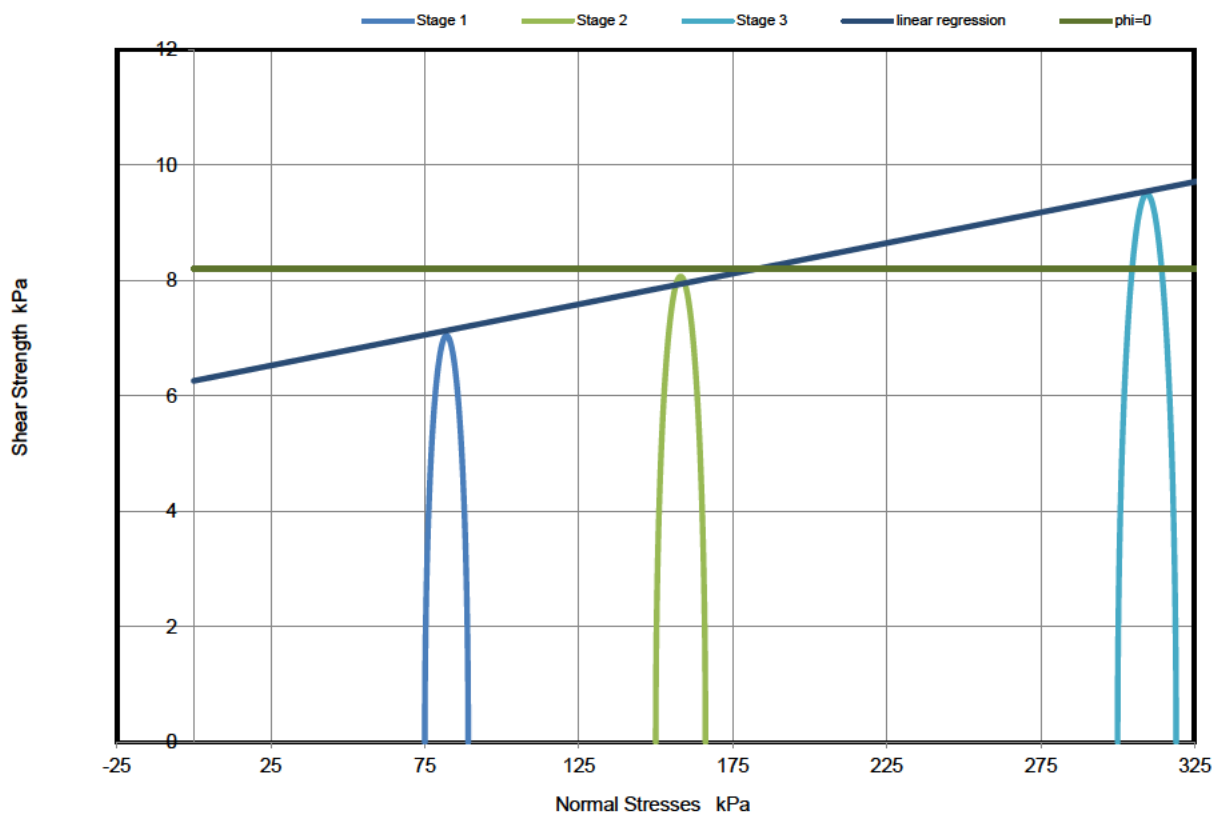
Depth Base 7.95

Date Tested 22/05/2024

Sample Type U

Technician David E

Mohr Circles



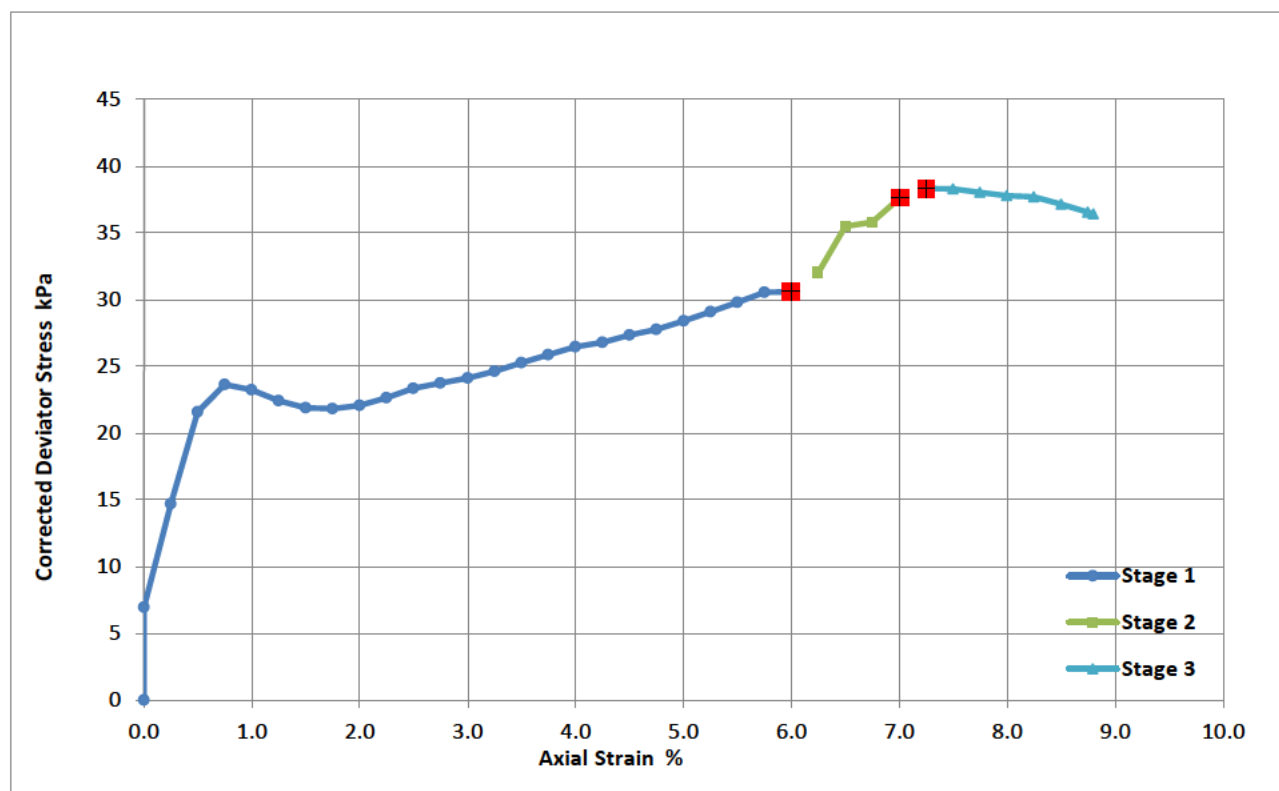
$\phi_u = 0$		Linear Regression	
Average c_u	8 kPa	ϕ_u	0.6 °
		c_u	6 kPa

Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Multi Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 9

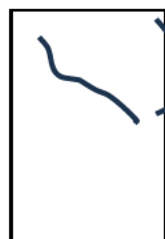
Contract Number	72540
Borehole/Pit No.	BH03
Sample No.	1
Depth Top	9.00
Depth Base	9.45
Sample Type	U
Operator	David E

Project Name	Boorley Green, Hampshire
Soil Description	Brownish grey silty CLAY
Date Tested	22/05/2024



Moisture Content (%)	38		
Bulk Density (Mg/m ³)	1.83		
Dry Density (Mg/m ³)	1.33		
Specimen Length (mm)	210.6		
Specimen Diameter (mm)	103.5		
Stage Number	1	2	3
Cell Pressures (kPa)	90	180	360
Deviator Stress (kPa)	31	38	38
Undrained Shear Strength (kPa)	15	19	19
Failure Strain (%)	6.0	7.0	7.2
Mode Of Failure	Compound		
Membrane Used/Thickness	Rubber/0.4mm		
Rate of Strain (%/min)	3.00		

Notes.



Failure Sketch.

Multi Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 9

Contract Number 72540

Borehole/Pit No. BH03

Project Name Boorley Green, Hampshire

Sample No. 1

Soil Description Brownish grey silty CLAY

Depth Top 9.00

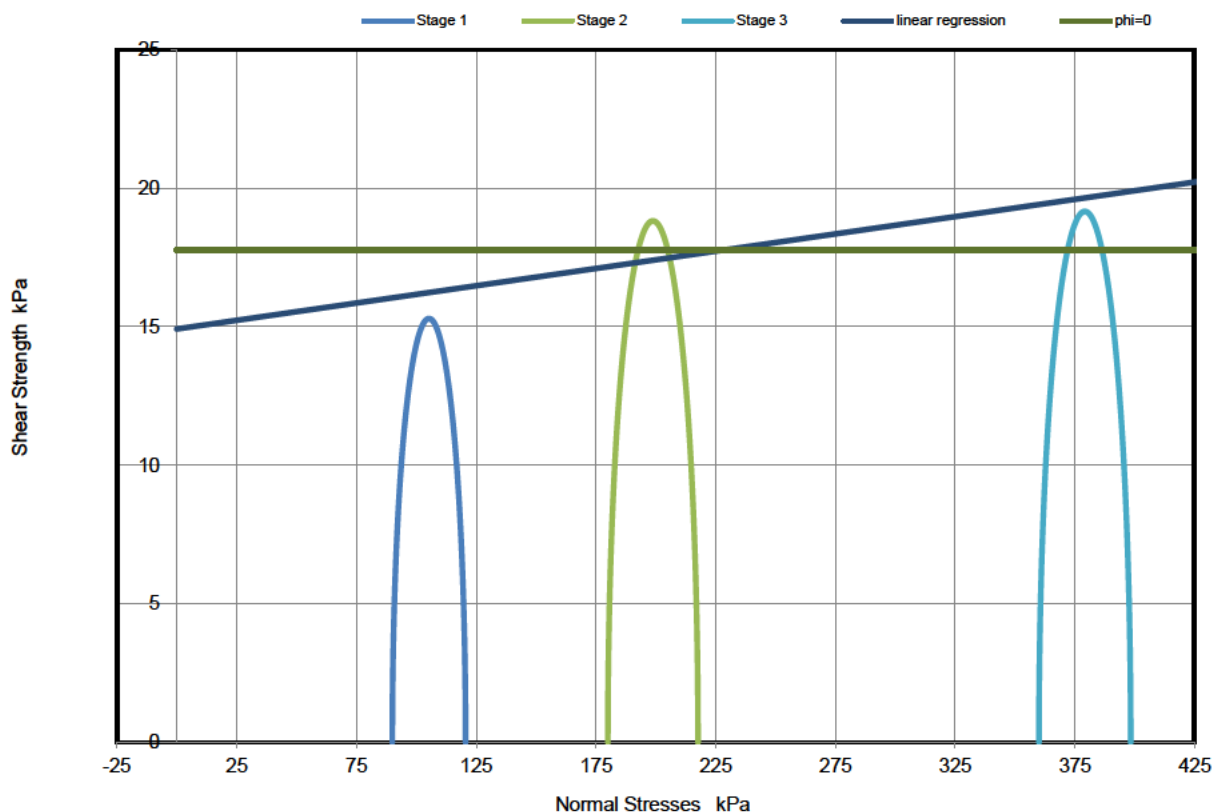
Depth Base 9.45

Date Tested 22/05/2024

Sample Type U

Technician David E

Mohr Circles



$\phi_u = 0$		Linear Regression	
Average c_u	18 kPa	ϕ_u	0.7 °
		c_u	15 kPa

Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.



7 - 11 Harding Street
Leicester
LE1 4DH

GSTL

Unit 3-4 Heol Aur
Dafen Ind Estate
Dafen
SA14 8QN

Analytical Test Report: L24/04128/GSL - 24-44988

Your Project Reference:	72540 Boorley Green Hampshire 5024854		
Your Order Number:	72540	Samples Received / Instructed:	09/05/2024 / 09/05/2024
Report Issue Number:	1	Sample Tested:	09/05 to 17/05/2024
Samples Analysed:	21 soil samples	Report issued:	17/05/2024

James Gane
Analytical Services Manager
CTS Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 13.05.2024

Issued by: J. Gane

Issue No: 4

Rev No: 9



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7 - 11 Harding Street
Leicester
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L24/04128/GSL - 24-44988

Project Reference - 72540 Boorley Green Hampshire
5024854

Analytical Test Results - Chemical Analysis

Lab Reference			362619	362620	362621	362622	362623	362624
Client Sample ID			-	-	-	-	-	-
Client Sample Location			BH01	BH01	BH01	BH01	BH01	BH01
Client Sample Type			D	D	D	D	D	D
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			3.00	4.00	7.00	8.00	16.00	20.00
Depth - Bottom (m)			3.00	4.00	7.00	8.00	16.00	20.00
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay	Sand	Sand
Determinant	Units	Accreditation						
Water soluble sulphate (as SO ₄)	(mg/l)	u	550	710	430	410	160	120
Acid Soluble Sulphate	(%)	u	-	0.19	-	0.14	-	-
Total Sulphur	(%)	UKAS	-	1.07	-	0.85	-	-
pH Value	pH Units	MCERTS	4.8	4.8	6.6	6.9	8.3	8.5



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Analytical Test Results - Chemical Analysis

Lab Reference			362625	362626	362627	362628	362629	362630
Client Sample ID			-	-	-	-	-	-
Client Sample Location			BH01	BH02	BH02	BH02	BH02	BH02
Client Sample Type			D	B	B	D	D	D
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			25.00	3.50	4.50	8.00	14.00	17.00
Depth - Bottom (m)			25.00	4.00	5.00	8.00	14.00	17.00
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Sand	Clay	Clay	Clay	Clay	Clay
Determinant	Units	Accreditation						
Water soluble sulphate (as SO ₄)	(mg/l)	u	270	2000	2100	470	400	560
Acid Soluble Sulphate	(%)	u	-	-	0.13	-	-	0.83
Total Sulphur	(%)	UKAS	-	-	5.32	-	-	0.45
pH Value	pH Units	MCERTS	7.5	4.6	4.7	6.5	7.0	7.2



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Analytical Test Results - Chemical Analysis

Lab Reference			362631	362632	362633	362634	362635	362636
Client Sample ID			-	-	-	-	-	-
Client Sample Location			BH02	BH02	BH03	BH03	BH03	BH03
Client Sample Type			D	D	SPT	D	D	D
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			19.00	22.00	4.50	8.00	9.50	11.00
Depth - Bottom (m)			19.00	22.00	4.95	8.00	9.50	11.00
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay	Loam	Clay
Determinant	Units	Accreditation						
Water soluble sulphate (as SO ₄)	(mg/l)	u	450	420	550	510	240	550
Acid Soluble Sulphate	(%)	u	-	-	-	-	0.08	-
Total Sulphur	(%)	UKAS	-	-	-	-	0.82	-
pH Value	pH Units	MCERTS	7.3	7.1	5.1	6.9	7.0	7.0



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Analytical Test Results - Chemical Analysis

Lab Reference			362637	362638	362639
Client Sample ID			-	-	-
Client Sample Location			BH03	BH03	BH03
Client Sample Type			D	D	D
Client Sample Number			-	-	-
Depth - Top (m)			16.00	20.00	25.00
Depth - Bottom (m)			16.00	20.00	25.00
Date of Sampling			-	-	-
Time of Sampling			-	-	-
Sample Matrix			Sand	Sand	Sand
Determinant	Units	Accreditation			
Water soluble sulphate (as SO ₄)	(mg/l)	u	44	180	150
Acid Soluble Sulphate	(%)	u	-	-	0.05
Total Sulphur	(%)	UKAS	-	-	0.19
pH Value	pH Units	MCERTS	7.0	7.7	7.5



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Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
362619	-	BH01	D	-	Brownish brown slightly sandy silty clay	-	-	100
362620	-	BH01	D	-	Brown slightly sandy silty clay	-	-	100
362621	-	BH01	D	-	Brown silty clay	-	-	100
362622	-	BH01	D	-	Brown silty clay	-	-	100
362623	-	BH01	D	-	Grey fine silty sand	-	-	100
362624	-	BH01	D	-	Grey fine silty sand	-	-	100
362625	-	BH01	D	-	Grey fine silty sand	-	-	100
362626	-	BH02	B	-	Brown silty clay	-	-	100
362627	-	BH02	B	-	Brown silty clay	-	-	100
362628	-	BH02	D	-	Brown silty clay	-	-	100
362629	-	BH02	D	-	Grey slightly sandy silty clay	-	-	100
362630	-	BH02	D	-	Grey slightly sandy silty clay	-	-	100
362631	-	BH02	D	-	Grey slightly sandy silty clay	-	-	100
362632	-	BH02	D	-	Grey slightly sandy silty clay	-	-	100
362633	-	BH03	SPT	-	Brown slightly sandy silty clay	-	-	100
362634	-	BH03	D	-	Brown silty clay	-	-	100
362635	-	BH03	D	-	Brown sandy loam	-	-	100
362636	-	BH03	D	-	Grey sandy silty clay	-	-	100
362637	-	BH03	D	-	Grey fine silty sand	-	-	100
362638	-	BH03	D	-	Grey slightly clayey fine silty sand	-	-	100
362639	-	BH03	D	-	Grey slightly clayey fine silty sand	-	-	100



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Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
362619	-	BH01	D	-	
362620	-	BH01	D	-	
362621	-	BH01	D	-	
362622	-	BH01	D	-	
362623	-	BH01	D	-	
362624	-	BH01	D	-	
362625	-	BH01	D	-	
362626	-	BH02	B	-	
362627	-	BH02	B	-	
362628	-	BH02	D	-	
362629	-	BH02	D	-	
362630	-	BH02	D	-	
362631	-	BH02	D	-	
362632	-	BH02	D	-	
362633	-	BH03	SPT	-	
362634	-	BH03	D	-	
362635	-	BH03	D	-	
362636	-	BH03	D	-	
362637	-	BH03	D	-	
362638	-	BH03	D	-	
362639	-	BH03	D	-	



L24/04128/GSL - 24-44988

Project Reference - 72540 Boorley Green Hampshire 5024854

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)



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Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
362619	-	BH01	D	-		A
362620	-	BH01	D	-		A
362621	-	BH01	D	-		A
362622	-	BH01	D	-		A
362623	-	BH01	D	-		A
362624	-	BH01	D	-		A
362625	-	BH01	D	-		A
362626	-	BH02	B	-		A
362627	-	BH02	B	-		A
362628	-	BH02	D	-		A
362629	-	BH02	D	-		A
362630	-	BH02	D	-		A
362631	-	BH02	D	-		A
362632	-	BH02	D	-		A
362633	-	BH03	SPT	-		A
362634	-	BH03	D	-		A
362635	-	BH03	D	-		A
362636	-	BH03	D	-		A
362637	-	BH03	D	-		A
362638	-	BH03	D	-		A
362639	-	BH03	D	-		A



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