



GEOENVIRONMENTAL GROUND INVESTIGATION

**M400 Heywood Distribution Park
Pilsworth Road
Heywood, Manchester**

Reference

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Author

AJS

5 John Charles Way
LEEDS
LS12 6QA

Tel: 0113 263 1155
admin@jpg.group
www.jpg.group





CONTENTS

Confidentiality Statement

Document History

1.0	Introduction	1
1.1	Introduction	1
1.2	Objectives	1
1.3	Scope of Works	1
1.4	Location	2
1.5	Site Description and Topography	2
1.6	Development Proposals	3
1.7	Previous Reports	3
1.8	Limitations	3
2.0	Fieldwork	4
2.1	Rationale	4
2.2	Fieldwork	4
2.3	Surveying	5
3.0	Laboratory Testing	6
3.1	Chemical Analysis	6
3.2	Geotechnical Testing	7
4.0	Ground and Groundwater Conditions	8
4.1	Introduction	8
4.2	Ground Conditions	8
4.3	Visual and Olfactory Evidence of Hydrocarbon Contamination	9
4.4	In-Situ Testing	9
4.5	Geotechnical Laboratory Testing	9
4.6	Groundwater	15
4.7	Ground Gas	16
5.0	Geotechnical and Engineering Assessment	18
5.1	Development Proposals	18
5.2	Mining & Quarrying	18
5.3	Earthworks	18
5.4	Foundations	19
5.5	Ground Floor Construction	20
5.6	Roads, Pavements and Hardstanding Surfaces	20
5.7	Excavations	20
5.8	Control of Groundwater	21
5.9	Obstructions	21
5.10	Chemical Attack on Buried Concrete	22
6.0	Environmental Risk Assessment	23
6.1	Introduction	23
6.2	Assessment Approach	24
6.3	Evaluation of Soils Analysis	25
6.4	Evaluation of Hazardous Ground Gases	29
6.5	Summary of Results	30
6.6	Requirements for Gas Protection Measures	30
6.7	Radon Risk	31
6.8	Summary of Potential Sources, Pathways and Receptors	31
6.9	Source – Pathway – Receptor Linkages	32



6.10	Conceptual Site Model & Risk Rating	33
6.11	Risk Classification	35
6.12	Mitigation Measures	35
6.13	Classification of Materials for Disposal Offsite	35

APPENDICES

Appendix A Figures and Drawings

Figure 1 - Site Location Plan
Figure 2 - Aerial Photograph
Figure 3 - SPT 'N' Value (corrected) v Depth (m bgl)
Figure 4 - Moisture Condition Value v Moisture Content

JPG. As Built Exploratory Hole Location Plan. Plot M400 Heywood Distribution Park. Drawing no. 5986-JPG-ZZ-ZZ-DR-G-1101 S4 P03, dated 27.04.22.

JPG. Site Constraints Plan. Plot M400, Heywood. Drawing no. 5986-JPG-ZZ-ZZ-DR-C-0001 S4 P03, dated 28.04.2022.

JPG. Bedrock Geology & Contours. Plot M400 Heywood Distribution Park. Drawing no. 5986-JPG-ZZ-ZZ-DR-C-0002 S4 P02, dated 28.04.2022.

AshtonSmith. Heywood Distribution Park – External Works. Proposed Site Plan, Drawing No. HDP1-ASA-30-EX.SI-D-A-3001_(S0. Dated 30 September 2021.

Appendix B Exploratory Hole Logs

Appendix C Geotechnical Testing Results

Appendix D Chemical Analysis Certificates and HazWasteOnline Waste Classification

Appendix E Gas and Groundwater Monitoring Results

Appendix F Notes on Limitations



CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Black Cat Building Consultancy Limited
The Lightwell
61-63 Brown Street
MANCHESTER
M2 2JG

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DOCUMENT HISTORY

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EXECUTIVE SUMMARY

Site Address	Plot M400 Heywood Distribution Park, Heywood, Manchester
Site Location	383819, 409515
Current Site Use & Proposed Development	The site has an area of approximately 11 hectares (ha) and comprises a roughly rectangular shaped parcel of land, measuring approximately 460m along its north – south axis and 310m along its east – west axis. The site currently comprises undeveloped land, predominantly used for the storage of container lorries, with an operational depot in the south-west. It is proposed to develop the site with a distribution centre, which will include two-storey offices, associated parking and ancillary infrastructure.
Fieldwork	Trial pits and window samples were excavated across the site to provide general coverage on the shallow ground conditions. Some trial pits and window samples were positioned on the raised scrubland in the north west. Other exploratory hole locations targeted former structures and tanks. Boreholes were advanced by dynamic sample and cable percussive techniques below the footprint of the proposed building to assess the strength of the underlying strata. In addition, the dynamic sample boreholes were extended into bedrock to obtain rock cores for logging and testing. Gas and groundwater monitoring wells were installed in two boreholes, seven window samples and four of the dynamic samples in order to assess the ground gas and groundwater regime.
Ground and Groundwater Conditions	Made ground was encountered at every location to depths of between 0.20m bgl to 2.88m bgl. The superficial deposits were found to consist of bands of cohesive and granular glacial till deposits. Where proven, the base of the glacial till was encountered at depths of between 2.40m bgl and 12.50m bgl. The glacial deposits were generally firm and becoming stiff and very stiff with depth. The underlying bedrock (Pennine Lower Coal Measures Formation) was found to comprise extremely weak to very weak mudstone and sandstone, proven to a maximum depth of 15.00m bgl. Generally perched groundwater was encountered locally in the made ground at shallow depth in some window sample boreholes and trial pits at depths of between 0.30m and 2.50m bgl. Occasional seepages were encountered in the cohesive glacial till. A groundwater strike was encountered in BH102 at 7.50m within the bedrock strata.
Geotechnical and Engineering Assessment	Mining & Quarrying – The Coal Authority Mining Report states that the site is not within a surface area that could be affected by past recorded underground coal workings. Based on the geological setting, the probability of shallow unrecorded coal workings is considered to be very low and not warranting further assessment. During the ground investigation a 0.55m to 0.90m thick coal seam was encountered at depths of 1.90m bgl and 2.00m bgl in the south-east. There was no evidence of coal workings to this coal seam. There are no recorded mine entries on the site or within 20m of the site boundary. The risk of unrecorded mine entries on the site is considered to be very low. Earthworks - It will be necessary to carry out cut and fill earthworks in order to create an appropriate development platform. An indicative cut and fill analysis has been carried out by JPG. This analysis suggests cutting up to approximately 3.00m generally in the western, north-western and eastern parts of the site and filling up to approximately 3.00m generally in the southern and northern areas. Topsoil should be stripped from the site surface and removed off site with the exception of the already landscaped areas in the north and north east that are to be retained. In addition, relict topsoil is to be removed from the west of the site as it poses a hazardous ground gas risk. Any earthworks should be carried out in accordance with the Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works, Series 600 Earthworks. Foundations and Ground Floor Construction – Following removal of topsoil, concrete slabs and made ground from below the footprint of the building, engineered fill is to be placed in accordance with the Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works, Series 600 Earthworks. Pad foundations are to extend through the engineered fill to bear onto the natural strata (glacial till) of appropriate allowable bearing pressure. An allowable bearing capacity 100kN/m² is considered appropriate for the firm, medium strength clay soils for total settlements of less than 25mm. Alternatively shallow foundations could bear onto the engineered fill of suitable bearing capacity. For higher loaded areas, e.g. column loads associated with two-story offices, consideration should be given to a piled foundation solution, bearing into/onto the underlying mudstone or sandstone bedrock. An allowable bearing pressure of 200kN/m² is considered appropriate for the extremely weak bedrock. In order to create the development platform, it is proposed to engineer site-won materials across the site. The proposed earthworks should be designed in order to accommodate a ground bearing floor slab. Control of Groundwater - Reference should be made to guidance given in the Manual of Contract Documents for Highway Works, Volume 1: Specification for Highway Works, Series 600 Earthworks. Roads, Pavements and Hardstanding Surfaces – Any earthworks/ground improvement works should be designed in order to provide a suitable CBR value for the proposed development. Variable CBR values have been achieved in the laboratory for the made ground and natural clay soils. It should



	be possible by appropriate selection of materials that a CBR of 3% can be achieved through the earthworks operation. Further testing of materials may be required to confirm suitability. Excavations - It is considered likely that if excavations were left unsupported then over time, some collapse would occur. Good working practice with respect to drainage of excavations and formations will be required to protect materials. Obstructions – Large parts of the site, in particular the east, have concrete handstanding at the surface. This will require breaking out and removal or incorporated into the earthworks following crushing and/or screening. Occasional boulders of sandstone were encountered in the site works. These could be broken down in order to be incorporated into the earthworks. Based on the previous usage of the site, some relict foundations and services should be anticipated. Chemical Attack on Buried Concrete - It is recommended that concrete should be designed to Aggressive Chemical Environment for Concrete (ACEC) Design Sulphate Class DS-1 and ACEC Class AC-2z, based on mobile groundwater conditions.
Environmental Risk Assessment & Gas Protection Measures	Based on the identified potential sources of contamination and available pathways and receptors, the following linkage assessments have been considered. This assessment is based on current site conditions and does not consider exposure pathways following any remediation of the site. Based on the above potential source, pathway and receptors, the following linkage assessments have been considered. • Risk to site development workers and end users if asbestos is present at concentrations greater than encountered during site investigation. • The underlying aquifers and inland river could become contaminated due to the leaching and migration of potential contaminants from the made ground. • Potential for development workers, future maintenance workers and future end users of the site to be exposed to hazardous ground gases. Mitigation Measures – In order to mitigate the risk posed by the potential contaminants which are present on the site, consideration should be given to the following mitigation measures. Based on the results of the above risk assessment, mitigation measures will be required with regard to hazardous ground gas. The ground gas risk assessment indicates CS2 conditions 'Low Hazard Potential', based on six visits. However, the CS should be confirmed on completion of the earthworks by a programme of continuous and spot monitoring to target the footprint of the proposed commercial development. The continuous monitoring should be carried out by a specialist contractor. During development of the site, all workers should remain vigilant to the possible risk of encountering areas of potentially contaminated material including gross asbestos contamination. Should potentially contaminated material be encountered, site management should be informed. Further testing may then be required to assess the risk to health and safety of the site workers and the environment. Although not exceeding GAC for a commercial end use, it is recommended that the hydrocarbon-impacted soils associated with a former fuel storage tank in the south of the site are removed. It is recommended that a sufficient thickness of topsoil and subsoil is placed in future landscaped areas. Any imported or site-sourced material will need to be tested to confirm its suitability for use. In addition, any topsoil and subsoil which is to be used on site should not contain any manmade debris, e.g. brick, concrete or metal. Based on the results of the chemical analysis, all of the samples can be classified as non-hazardous with the exception of WS107 at between 0.20m and 0.70m depth, which was classified as hazardous due to elevated (alkali) pH conditions.
This sheet is intended as a summary only of the assessment of the site in relation to ground condition. It does not provide a definitive engineering analysis.	



1.0 INTRODUCTION

1.1 Introduction

JPG (Leeds) Limited has been instructed by Black Cat Building Consultancy Limited to carry out a geoenvironmental ground investigation for a proposed commercial development at Plot M400, Heywood Distribution Park, Pilsworth Road, Heywood.

1.2 Objectives

The main objective of the geoenvironmental ground investigation was to identify potential geotechnical and environmental issues that may represent constraints to the proposed development of the site.

1.3 Scope of Works

The scope of works for the intrusive ground investigation comprised the following:

- Dynamic sample boreholes with rotary cored follow-on, complete with in-situ tests to provide geotechnical information in order to assess the nature of the made ground, superficial deposits and bedrock geology. These boreholes also facilitated the installation of gas and groundwater monitoring wells and allowed soil and rock samples to be obtained from depth.
- Cable percussive boreholes complete with in-situ tests to provide geotechnical information in order to assess the nature of the made ground, superficial deposits and bedrock geology. These boreholes also facilitated the installation of gas and groundwater monitoring wells and allowed soil samples to be obtained.
- Window sample boreholes to assess the shallow ground conditions at the site and confirm the composition, extent, depth and nature of the made ground. Samples were obtained and submitted for laboratory testing. These boreholes will also facilitate the installation of gas and groundwater monitoring wells where required.
- Trial pitting in order to assess the shallow ground conditions at the site and confirm the composition, extent, depth and nature of the underlying made ground. Samples will also be obtained to submit for laboratory testing.
- Chemical analysis of soil, leachate and water samples in order to determine the concentrations of potential contamination on the site.
- An assessment of the classification of materials for disposal off-site (not including WAC testing).
- Geotechnical testing to classify materials and inform foundation design and chemical testing to determine the Aggressive Chemical Environment for Concrete classification.
- An assessment of the suitability of the natural strata and made ground for re-use in earthworks.
- Monitoring of gas and groundwater wells for groundwater level and hazardous ground gases, including methane, carbon dioxide, oxygen and flow rate.



Comments on the likely requirements for any remedial measures which may be required, to address potential contamination or ground gas issues.

- Recommendations for further work (if required).

1.4 Location

The site is situated approximately 1.7km to the south-west of Heywood town centre and approximately 12km to the north of Manchester city centre. The approximate centre of the site is located at NGR 383819 409515.

A site location plan is provided as Figure 1 in Appendix A.

1.5 Site Description and Topography

The site has an area of approximately 11 hectares (ha) and comprises a roughly rectangular shaped parcel of land, measuring approximately 460m along its north to south axis and 310m along its east to west axis. The site can be accessed from the internal access road network associated with Heywood Distribution Park.

The site currently comprises undeveloped land, predominantly used for the storage of container lorries, with an office building/depot in the south-west. Steel palisade fencing bisects the site, separating the northern area from the southern area. Access roads extend approximately east to west along the southern boundary and east to west in the north.

The north of the site includes a concrete hardstanding area, which is used for car parking. The north-east of the site is primarily concrete surfaced with some areas of compacted gravel at the surface and utilised for storing refrigerator containers and lorries. There are peripheral areas of landscaping including some mature trees and shrubbery. The north-west of the site comprises an area of scrubland, which is raised above the surrounding landform and encompassed by concrete access roads. Headworks associated with recently installed monitoring wells are evident at ground level. The south-east comprises concrete hardstanding used for the storage of container lorries. The south-west also comprises concrete hardstanding used as a depot.

The landform is generally level and flat with the exception of the scrubland in the north-west, which is raised approximately 1m above the rest of the site.

The site's boundaries are formed by access roads along the two northern boundaries, steel post and mesh fencing along the western boundary, landscaping along the eastern boundary and an access road along the southern boundary. The south-east of the site is bordered by an industrial building.

Adjacent land use consists of commercial development associated with Heywood Distribution Park with small industrial buildings to the north and south of the site and large industrial units to the east and west.

An aerial photograph of the site is provided as Figure 2 in Appendix A.



1.6 Development Proposals

It is proposed to develop the site with a distribution centre, which will include two-storey offices, associated parking and ancillary infrastructure.

A proposed site layout plan has been provided. This is referenced below and included in Appendix A.

- Eireng. Ocado, Manchester. Site Gradient Information & Constraints. Drawing No. 202069-ECE-SW-XX-DR-C-0102 P4. Dated 25.08.21. Last revision dated 14.01.22.

1.7 Previous Reports

A desk study report for the site has been prepared by JPG, which is referenced below:

- JPG. Geoenvironmental Desk Study Report. M400 Heywood Distribution Park, Pilsworth Road, Heywood, Manchester. Report Ref. 5986-JPG-XX-XX-RP-G-0604-S2-P02. Dated January 2021. For Black Cat Building Consultancy Limited.

This report should be read in conjunction with the desk study report.

1.8 Limitations

The general limitations to the nature of the investigation are outlined in Appendix F.



2.0 FIELDWORK

2.1 Rationale

The intrusive investigation was designed to provide information on the general ground, groundwater and hazardous ground gas conditions across the site.

Trial pits and window samples were excavated across the site to provide general coverage on the shallow ground conditions. Some trial pits and window samples were positioned on the raised scrubland in the north west. Other exploratory hole locations targeted former structures and tanks.

Boreholes were advanced by dynamic sample and cable percussive techniques below the footprint of the proposed building to assess the strength of the underlying strata. In addition, the dynamic sample boreholes were extended into bedrock to obtain rock cores for logging and testing.

Gas and groundwater monitoring wells were installed in selected boreholes in order to assess the ground gas and groundwater regime beneath the site.

2.2 Fieldwork

The fieldwork was carried out between the 11 October 2021 and 16 November 2021. The works undertaken are summarised in Table 2.2 below.

Table 2.2 – Summary of Ground Investigation Works

Investigation Method	No. of Positions	Maximum Depth (m bgl)	Monitoring Wells	Monitoring
Trial Pits	14 (TP101, TP103 to TP112, TP115, TP118 to TP119)	3.20	-	-
Cable Percussive Boreholes	4 (BH101 to BH104)	9.95	2 x 50mm	GG, WL
Window Sample Boreholes	26 (WS101-WS119 and WS121-WS128)	6.00	7 x 50mm	GG, WL
Dynamic sample with Rotary Cored Follow-on Boreholes	7 (DS/RC101 to DS/RC106 and DS/RC108)	17.50	4 x 50mm	GG, WL

bgl – below ground level

GG – ground gas monitoring (methane, carbon dioxide, oxygen, hydrogen sulphide, gas flow and atmospheric pressure using a portable gas meter)

WL – standing groundwater level using an electric contact dip meter

The ground investigation was undertaken in general accordance with the techniques outlined in BS5930: 2015 Code of Practice for Site Investigations.

Exploratory hole positions are shown on the exploratory hole location plan contained in Appendix A. The exploratory hole records are contained in Appendix B. It should be noted that TP102, TP113, TP114, TP116, TP117, WS120 and DS/RC107 were not carried out due to access constraints and are therefore not shown on the as-built exploratory hole location plan.

The investigation was carried out under the supervision of an engineer from JPG.



2.3 Surveying

Exploratory locations were surveyed using Leica GPS equipment (accuracy +/- 10mm). The surveyed positions were then transferred onto the survey drawing.



3.0 LABORATORY TESTING

3.1 Chemical Analysis

The chemical analysis suite was designed to:

- Characterise near surface contamination levels to provide an assessment of the risks associated with direct contact with soils on site in its current state.
- Investigate the contamination status of the raised area in the north west of the site.
- Provide information on the solubility of contaminants and therefore the potential for impact on controlled waters; and,
- Assess the quality of groundwater beneath the site.

Chemical testing was carried out for the following determinands by Derwentside Environmental Testing Services Limited (DETS) in County Durham. Chemical analysis certificates are presented in Appendix D.

Soils – General

Selected samples of soil were analysed for the following potential contaminants on a total concentration basis:

Arsenic	Mercury	Copper
Cadmium	Lead	Nickel
Chromium	Zinc	Selenium
Cyanide (free)	Phenol	
Speciated Poly Aromatic Hydrocarbons (PAH)		
Sulphate (water soluble) and pH		
Asbestos Screen		
Soil Organic Matter		

In addition, selected samples were submitted for the following analysis:

- Calorific value, total chloride, total sulphate, total sulphide, ammoniacal nitrogen, hexavalent chromium and TPHCWG.

Soil Leachate and Groundwater

Selected samples of soil leachate and groundwater were analysed for the following contaminants:

Arsenic	Mercury	Copper
Cadmium	Lead	Nickel
Chromium	Zinc	Selenium
Cyanide (free)	Phenol	
Speciated Poly Aromatic Hydrocarbons (PAH)		
Sulphate and pH		



3.2 Geotechnical Testing

In-situ standard penetration tests (SPTs) were performed in all boreholes. The results are presented on the exploratory hole logs provided in Appendix B.

Laboratory geotechnical testing was carried out in order to determine the physical characteristics of the substrata and comprised the following:

- Moisture content and Atterberg Limits tests to classify the materials.
- Particle size distribution (PSD)/sedimentations to confirm the field descriptions of the soils encountered.
- Compaction testing (2.5kg and 4.5kg) and particle density to determine the compaction properties of the soils.
- California Bearing Ratio (CBR) test (2.5kg, unsoaked) to determine the bearing characteristics of the soils.
- Total organic carbon, pH, 2:1 water soluble sulphate, total sulphate, total sulphur and water-soluble chloride.
- Undrained shear strength in triaxial compression (without measurement of pore pressure).
- One dimensional consolidation testing to confirm settlement characteristics of the natural clay soils.
- Point load testing – axial and diametral on rock core samples, and
- Unconfined Compressive Strength (UCS) testing on rock core samples.

The geotechnical testing was carried out in accordance with BS1377:1990, "Methods of Test for Soils for Civil Engineering Purposes". The results of the geotechnical testing are provided in Appendix C.



4.0 GROUND AND GROUNDWATER CONDITIONS

4.1 Introduction

The ground and groundwater conditions encountered during the investigation were generally consistent with the anticipated sequence of strata indicated by the desk study.

An exploratory hole location plan is included in Appendix A. Exploratory hole logs are provided in Appendix B.

4.2 Ground Conditions

Reinforced concrete, typically 150mm to 300mm thick but locally less, and up to a maximum thickness of 450mm, is present across most of the site in the north, south and east with other areas, where made ground (compacted gravel) is present at the surface. In the north-west, grass over made ground was encountered in the raised area of scrubland. In the south-west, soft landscaped areas with topsoil at the surface are present.

Made ground was encountered at every location to depths of between 0.20m bgl and greater than 2.88m bgl. The made ground generally varied in thickness across the site but was typically shallowest in the north (WS102 and WS104) and thickest in the south (WS121) where the full thickness of made ground was not proven in this window sample borehole.

The majority of the made ground typically comprised cohesive, brown, sandy gravelly clay with occasional cobbles; the gravel and cobble component consisting of mainly sandstone and brick. Locally concrete boulders/fence posts and pieces of metal were noted.

In the area of scrubland in the north-west, further made ground comprising cohesive, grey, locally slightly organic clay (relict topsoil) was encountered, either immediately below the surface vegetation or below the cohesive made ground on the western margin of the site. It is likely that the cohesive made ground was brought onto the site from the land immediately to the west and placed over the landform resulting in buried topsoil being present in this area. The buried topsoil was identified in TP101 in the north-western corner, TP104 adjacent to the western boundary and DSRC105, WS113 and TP112.

In the south-east of the site, generally beneath the concrete hardstanding, granular made ground, comprising either sand and gravel of dark grey ash, reddish brown mudstone, burnt shale or sand, gravel and cobbles of sandstone, was encountered locally. It appears that the granular made ground of sandstone has been used to raise levels in the south-east.



Beneath the made ground, natural strata comprising glacial till was encountered. The glacial till was described as orange/brown, mottled light grey, slightly sandy slightly gravelly clay; the gravel component consisting mainly of subrounded to rounded sandstone, was encountered in most locations. Where proven, the base of the glacial till was encountered at depths of between 2.40m bgl and 12.50m bgl. The glacial deposits were generally firm and becoming stiff and very stiff with depth. However, some softer material was encountered within the upper 3m within the central site area.

The underlying bedrock (Pennine Lower Coal Measures Formation) was found to comprise extremely weak to very weak mudstone and sandstone, proven to a maximum depth of 15.00m bgl. The weathering of the mudstone was found to be highly variable, ranging between partially un-weathered to destructured residual soils.

In WS127 and WS128 only, in the south-east of the site, a 0.55m to 0.90m thick intact coal seam was encountered at depths of 1.90m bgl and 2.00m bgl respectively. It is possible that some coal was extracted from near the surface during previous development in this part of site and replaced with sandstone made ground.

4.3 Visual and Olfactory Evidence of Hydrocarbon Contamination

A hydrocarbon odour was noted in the granular made ground in WS126 from 0.35m to 0.90m bgl. A sample of this material was tested for hydrocarbons (TPHCWG) as part of the laboratory testing programme.

No visual or olfactory evidence of potential hydrocarbon contamination, i.e. sheens or odours, was encountered at any other exploratory location.

4.4 In-Situ Testing

The results of the in-situ penetration testing have been plotted against depth (m bgl). The results have been corrected in accordance with the energy ratio of the testing equipment.

The plot is presented as Figure 3 in Appendix A and the SPT data (uncorrected) is included on the exploratory hole logs contained in Appendix B.

The SPT data generally indicates increasing strength/density with depth with N values of greater than 10 recorded below 3.00m bgl with some lower N-values recorded in the upper 2.50m bgl. It should be noted that an anomalous N-value of 0 was recorded in WS109 at 3.00m bgl. This may be due to the presence of extremely soft soils or a void at this location.

4.5 Geotechnical Laboratory Testing

The testing suite was designed to classify the materials and assess the suitability of the materials for re-use in earthworks.



Moisture Content and Atterberg Limits

15 samples of natural cohesive glacial till, five samples of cohesive made ground and one sample of granular made ground were submitted for moisture content testing with 18 samples tested further for Atterberg Limit testing. All the results are summarised in Table 4.5.1 below.

Table 4.5.1 – Summary of Moisture Content and Atterberg Limit Testing

Material	Moisture Content (%)		Atterberg Limits Modified Plasticity Index (%)	
	No of samples	Range	No of samples	Range
Cohesive Made Ground	7	8.6 – 3	5	10.4 – 18.2
Cohesive Glacial Till	13	13 – 21	13	9.0 – 16.9

The Plasticity Indices reported have been modified based on the percentage of particles smaller than 425µm. The results indicate the cohesive made ground is of low and intermediate plasticity with low volume change potential and the natural glacial till is of low and intermediate plasticity with low volume change potential.

Particle Size Distribution

Particle size distribution/sedimentation testing was carried out on three soil samples of natural glacial till, three samples of cohesive made ground and 1 sample of granular made ground, obtained at depths of between 0.2m and 2.40bgl. The tests were carried out to confirm the field descriptions of the materials and inform the earthworks classification. The results are summarised in Table 4.5.2 below.

Table 4.5.2 – Summary of Particle Size Distribution/Sedimentation Testing

Trial Pit	Depth (m bgl)	Material	Cobbles & above (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
TP103	0.70 – 1.10	Stiff, sandy, slightly gravelly CLAY	0	1	44	31	24
TP106	0.80 – 1.30	Stiff, sandy, slightly gravelly CLAY	0	3	39	32	26
TP109	0.50 – 1.00	MADE GROUND: Stiff, slightly sandy, slightly gravelly CLAY	0	1	19	42	38
TP110	0.40 – 0.90	MADE GROUND: Sandy, slightly gravelly CLAY	0	3	42	30	25
TP112	0.20 – 0.70	MADE GROUND: Stiff, sandy, slightly gravelly CLAY	0	7	47	25	21
TP118	2.40 – 2.90	Stiff, sandy, slightly gravelly CLAY	0	8	42	28	22
TP119	2.00 – 2.50	MADE GROUND: Sandy GRAVEL; medium cobble content, low boulder content	15	41	37	7	



Compaction Testing

Three soil samples of cohesive made ground, one of granular made ground and three samples of natural cohesive glacial till were submitted for dry density/moisture content relationship testing. The compaction tests were carried out using both a 2.5kg and a 4.5kg rammer. The results are summarised in Table 4.5.3.

Table 4.5.3 - Summary of Compaction Test Results

Exp. Hole	Depth (m bgl)	Material	Particle Density (Mg/m ³)	Weight of Rammer	Natural Moisture Content (NMC)	Max. Dry Density (Mg/m ³)	Optimum Moisture Content (OMC)	Suitability for Compaction and Range of Acceptable Moisture Contents*
TP103	0.70 – 1.10	Stiff, sandy, slightly gravelly CLAY	2.67	2.5kg	17	1.85	14	Suitable 14% - 19%
				4.5kg		1.89	14	Suitable 13% - 18%
TP106	0.80 – 1.20	Stiff, sandy, slightly gravelly CLAY	2.68	2.5kg	17	1.85	14	Suitable 14% - 18.5%
				4.5kg		1.97	11	Unsuitable (too wet) 11% - 15.5%
TP109	0.50 – 1.00	MADE GROUND: Stiff, slightly sandy, slightly gravelly CLAY	2.58	2.5kg	23	1.63	20	Suitable 19.5% - 24%
				4.5kg		1.71	17	Unsuitable (too wet) 17% - 21%
TP110	0.40 – 0.90	MADE GROUND: Sandy, slightly gravelly CLAY	2.55	2.5kg	13	1.85	13	Suitable 12.5% - 17.5%
				4.5kg		1.94	10	Suitable 9.5% - 14.5%
TP112	0.20 – 0.70	MADE GROUND: Stiff, sandy, slightly gravelly CLAY	2.59	2.5kg	19	1.77	16	Suitable 15% - 19.5%
				4.5kg		1.87	13	Unsuitable (too wet) 12% - 17%
TP118	2.40 – 2.90	Stiff, sandy, slightly gravelly CLAY	2.68	2.5kg	17	1.87	14	Suitable 13.5% - 18%
				4.5kg		1.99	11	Unsuitable (too wet) 10.5% - 15.5%
TP119	2.00 – 2.50	MADE GROUND: Sandy GRAVEL; medium cobble content, low boulder content	2.60	2.5kg	8.6	1.90	13	Unsuitable (too dry) 10.5% - 15.5%
				4.5kg		1.96	11	Unsuitable (too dry) 10% - 14.5%

* To achieve >95% of Maximum Dry Density and <5% Air Voids

Suitability for compaction is defined as achieving >95% of the maximum dry density and less than 5% air voids.

The results indicate the natural clay and cohesive made ground may be appropriately compacted using conventional plant (light compaction as indicated by the results for the 2.5kg rammer). However, approximately 50% of the samples tested were too wet to achieve the compaction criteria using the 4.5kg rammer, representing heavier compaction effort.



Under both light and heavy compaction, the granular made ground is generally too dry to be compacted based on the one sample tested.

California Bearing Ratio Testing

Three soil samples of cohesive made ground, one of granular made ground and three samples of natural cohesive glacial till were submitted for California Bearing Ratio testing, the samples were compacted with a 2.5kg rammer. The results are summarised in Table 4.5.4 below.

Table 4.5.4 – Summary of California Bearing Ratio Testing

Sample Ref.	Depth (m bgl)	Material	Final Moisture Content (%) (Top/Base)	CBR Value Top (%)	CBR Value Base (%)	Report CBR Average (%) *
TP103	0.70 – 1.10	Stiff, sandy, slightly gravelly CLAY	17	5.4	5.9	5.65
TP106	0.80 – 1.20	Stiff, sandy, slightly gravelly CLAY	17	3.4	3.3	3.35
TP109	0.50 – 1.00	MADE GROUND: Stiff, slightly sandy, slightly gravelly CLAY	23	2.9	3.8	NA
TP110	0.40 – 0.90	MADE GROUND: Sandy, slightly gravelly CLAY	13	12.2	10.4	NA
TP112	0.20 – 0.70	MADE GROUND: Stiff, sandy, slightly gravelly CLAY	19	4.7	5.1	4.9
TP118	2.40 – 2.90	Stiff, sandy, slightly gravelly CLAY	17	2.1	2.6	NA
TP119	2.00 – 2.50	MADE GROUND: Sandy GRAVEL; medium cobble content, low boulder content	8.4 / 7.9	47.4	40.5	NA

* To report a CBR average, the results for the top and base must be within 10%.

The results indicate CBR values of between 2.1% and 5.9% can be achieved in the natural clay.

The results indicate CBR values of between 2.9% and 12.2% can be achieved in the cohesive made ground.

The results indicate CBR values of 47.4% and 40.5% can be achieved in the granular made ground (sandstone).



Undrained Triaxial Testing

Five samples of the natural ground, obtained at depths of between 1.20m and 8.45m bgl were submitted to determine the undrained shear strength in triaxial compression. The results returned undrained shear strength values ranging from 24kPa and 148kPa. The results are indicative of variable strength soils. The results are summarised in Table 4.5.5 below.

Table 4.5.5 – Summary of Quick Undrained Triaxial Tests

Exp. Hole	Depth (m bgl)	Material (Laboratory Description)	Cell Pressure (kPa)	Shear Strength	Mean Shear Strength
BH101	3.00 – 3.45	Stiff brown gravelly very sandy CLAY	40	108	126
			80	123	
			160	148	
BH102	3.00 – 3.45	Firm brown slightly gravelly very sandy CLAY	40	33	43
			80	44	
			160	52	
BH102	8.00 – 8.45	Soft brown slightly gravelly very sandy CLAY	90	26	35
			180	34	
			360	46	
BH103	5.00 – 5.45	Firm brown mottled grey slightly gravelly very sandy CLAY	60	51	61
			120	60	
			240	72	
BH104	1.20 – 1.65	Soft brown slightly gravelly very sandy CLAY	20	24	31
			40	31	
			80	37	



One-Dimensional Consolidation Testing

Seven one-dimensional consolidation tests were carried out thin-walled samples obtained from BH101 between 1.20m and 1.65m bgl, BH101 between 3.00m and 3.45m bgl, BH102 between 3.00m and 3.45m, BH102 between 8.00m and 8.45m, BH103 between 1.20m and 1.65m, BH103 between 5.00m and 5.45m, and BH104 between 1.20m and 1.65m bgl. The results are summarised in Table 4.5.6 below.

Table 4.5.6 – Summary of One-Dimensional Consolidation Tests

Exp. Hole	Depth (m bgl)	Material	Pressure Range (kPa)	Mv (m2/MN)	Cv (m2/yr)
BH101	1.20 – 1.65	Firm medium strength orange brown mottled grey sandy slightly gravelly CLAY.	0 – 20	0.664	0.752
			20 – 40	0.393	1.069
			40 – 80	0.253	1.680
			80 – 160	0.144	1.791
			160 – 80	0.019	13.039
BH101	3.00 – 3.45	Firm medium strength orange brown mottled grey sandy slightly gravelly CLAY.	0 – 40	0.490	0.830
			40 – 80	0.213	1.092
			80 – 160	0.136	1.707
			160 – 320	0.084	1.833
			320 – 160	0.010	17.560
BH102	3.00 – 3.45	Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY.	0 – 40	0.495	0.816
			40 – 80	0.215	1.072
			80 – 160	0.138	1.677
			160 – 320	0.085	1.799
			320 – 160	0.010	17.239
BH102	8.00 – 8.45	Extremely weak dark grey laminated MUDSTONE.	0 – 90	0.306	5.367
			90 – 180	0.141	3.705
			180 – 360	0.096	3.289
			360 – 720	0.057	3.475
			720 – 360	0.006	24.265
BH103	1.20 – 1.65	Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY.	0 – 20	0.465	2.976
			20 – 40	0.492	2.700
			40 – 80	0.326	1.640
			80 – 160	0.213	1.401
			160 – 80	0.028	17.024
BH103	5.00 – 5.45	Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY.	0 – 60	0.436	0.697
			60 – 120	0.189	0.660
			120 – 240	0.124	0.951
			240 – 480	0.076	0.945
			480 – 240	0.003	8.609
BH104	1.20 – 1.65	Soft grey sandy slightly gravelly CLAY.	0 – 20	0.850	0.490
			20 – 40	0.430	0.775
			40 – 80	0.269	1.151
			80 – 160	0.180	1.208
			160 – 80	0.001	8.831

The results indicate that the cohesive deposits are typically of medium and high compressibility.

Rock Strength Testing

Rock core samples of the bedrock were selected and scheduled for strength testing. This included irregular, axial and diametral point load tests and laboratory unconfined compression strength (UCS) tests.



A summary of the laboratory unconfined compression strength (UCS) tests is presented in Table 4.5.6 below.

Table 4.5.6 – Summary of Laboratory Unconfined Compression Strength (UCS) Tests

Exp. Hole	Depth (m bgl)	Rock Type	Unconfined Compressive Strength (MPa)	Strength Term*
DS/RC102	4.50 – 4.80	Grey sandstone	0.1	(Less than) extremely weak
DS/RC104	10.60 – 10.80	Grey sandstone	0.1	(Less than) extremely weak
DS/RC105	14.70 – 14.90	Grey mudstone	0.4	(Less than) extremely weak

* In accordance with BS EN ISO 14689 (table 5)

The results of the point load index (PLI) tests have been corrected in accordance with Broch & Franklin (1972). The Is50 value has been multiplied by a factor of 24 in order to obtain an approximate UCS. A summary of the equivalent unconfined compression strength (UCS) tests is presented in Table 4.5.7 below.

Table 4.5.7 – Summary of Equivalent Unconfined Compression Strength (UCS) Tests

Exp. Hole	Depth (m bgl)	Rock Type	IS50 (PLI)	Equivalent Unconfined Compressive Strength (MPa)	Strength Term*
DS/RC104	5.70	Sandstone	0.13	3.12	Very weak
DS/RC104	5.70	Sandstone	0.12	2.88	Very weak
DS/RC104	8.95	Sandstone	0.05	1.20	Very weak
DS/RC104	8.95	Sandstone	0.06	1.44	Very weak
DS/RC105	12.50	Mudstone	0.28	6.72	Weak
DS/RC105	12.50	Mudstone	0.19	4.56	Very weak
DS/RC105	14.20	Mudstone	0.09	2.16	Very weak
DS/RC105	14.20	Mudstone	0.14	3.36	Very weak

* In accordance with BS EN ISO 14689 (table 5)

The results for all the UCS tests including equivalent UCS tests based on PLIs have been plotted against depth (m bgl) and are presented as Figure 4 in Appendix A. The plot illustrates the variability in rock strength below the site including the very low rock strengths obtained from the laboratory UCS tests. It is considered that the latter results are not reflective of the actual rock strength, possibly due to disturbance during drilling and/or transportation.

4.6 Groundwater

No groundwater was noted during the drilling of the dynamic sample/rotary-cored follow-on boreholes. However, this could be due to the drilling technique employed, i.e. use of air mist during drilling.

Generally perched groundwater was encountered locally in the made ground at shallow depth in some window sample boreholes and trial pits at depths of between 0.30m and 2.50m bgl. Occasional seepages were encountered in the cohesive glacial till.

A groundwater strike was encountered in BH102 at 7.50m within the bedrock strata.



A summary of all groundwater encountered is presented in Table 4.6.1.

Table 4.6.1 – Summary of Recorded Groundwater Events.

Location	Groundwater Event	Depth (m bgl)	Stratum
BH102	Groundwater strike	7.50	Mudstone
WS107	Perched groundwater	0.30	Granular made ground
WS108	Perched groundwater	0.40	Granular made ground
WS109	Perched groundwater	0.80	Cohesive made ground
WS115	Perched groundwater	0.50	Cohesive made ground
WS123	Groundwater seepage	1.80	Cohesive glacial till
WS126	Perched groundwater (with hydrocarbon odour and staining)	0.50	Granular made ground
TP103	Slight groundwater seepage	1.80	Cohesive glacial till
TP104	Rapid inflow (possible broken drain – hydrogen sulphide odour)	1.85	Cohesive glacial till
TP106	Groundwater seepage	2.10	Cohesive glacial till
TP115	Rapid inflow	1.50	Granular made ground
TP118	Slight groundwater seepage	1.30	Bottom of Granular made ground
TP119	Groundwater seepage	2.50	Granular made ground

Gas and groundwater monitoring wells were installed in seven of the window sample boreholes, two of the cable percussive boreholes and four dynamic sample with rotary core follow-on boreholes. Groundwater monitoring has been carried out on six occasions between 18 November 2021 and 6 January 2022. A summary of the monitored groundwater levels is provided in Table 4.6.2 below.

Table 4.6.2 – Summary of Monitored Groundwater Levels

Location	Water level during monitoring (m bgl)					
	18/11/2021	25/11/2021	01/12/2021	9/12/2021	20/12/2021	6/01/2022
WS101	0.52	1.37	1.08	1.05	0.29	1.20
WS103	0.79	0.87	0.38	NR	0.63	0.61
WS109	0.72	0.68	0.53	0.49	0.67	0.57
WS110	0.00	0.53	0.38	0.29	0.31	0.20
WS111	1.02	1.29	NR	0.91	1.10	1.90
WS122	NR	NR	NR	NR	NR	NR
WS125	1.25	1.72	1.62	1.39	1.33	4.79
BH101	0.00	NR	NR	NR	NR	6.14
BH103	NR	NR	NR	NR	NR	NR
DSRC101	2.57	3.24	3.12	2.99	3.22	10.80
DSRC103	0.56	1.35	NR	NR	NR	8.84
DSRC105	2.83	10.16	8.05	6.62	5.48	14.63
DSRC108	NR	NR	NR	NR	NR	NR

NR – Not recorded (generally due to monitoring installation being flooded at the time of monitoring)

It should be noted that the groundwater conditions recorded are based on observations made at the time that site work and monitoring was carried out. Groundwater levels are likely to vary owing to seasonal and weather-related effects.

4.7 Ground Gas

Ground gas monitoring has been undertaken on six occasions. The works were carried out using a portable gas meter in accordance with the standard JPG methodology and included measurements of methane, carbon dioxide, oxygen, hydrogen sulphide, carbon monoxide, gas flows and atmospheric pressure.



The results of the gas monitoring are presented in Appendix E and are discussed in Section 6 of this report.



5.0 GEOTECHNICAL AND ENGINEERING ASSESSMENT

5.1 Development Proposals

It is proposed to develop the site with a distribution centre, which will include two-storey offices, associated parking and ancillary infrastructure.

A proposed site layout plan has been provided. This is referenced below and included in Appendix A.

- Ashton Smith. Heywood Distribution Park – External Works. Proposed Site Plan, Drawing No. HDP1-ASA-30-EX.SI-D-A-3001_(\$0. Dated 30 September 2021.

5.2 Mining & Quarrying

The Coal Authority Mining Report states that the site is not within a surface area that could be affected by past recorded underground coal workings. Based on the geological setting, the probability of shallow unrecorded coal workings is considered to be very low and not warranting further assessment.

During the ground investigation a 0.55m to 0.90m thick coal seam was encountered at depths of 1.90m bgl and 2.00m bgl in the south east. There was no evidence of coal workings to this coal seam.

There are no recorded mine entries on the site or within 20m of the site boundary. The risk of unrecorded mine entries on the site is considered to be very low. No further coal mining investigation is considered necessary.

Former sandstone and sand pits are present to the south of the site. However, there is no evidence of quarrying on the site.

5.3 Earthworks

There will be a requirement for earthworks in order to create a suitable development platform.

It will be necessary to carry out cut and fill earthworks in order to create an appropriate development platform. An indicative cut and fill analysis has been carried out by JPG. This analysis suggests cutting up to approximately 3.00m generally in the western, north-western and eastern parts of the site and filling up to approximately 3.00m generally in the southern and northern areas.

Topsoil should be stripped from the site surface and removed off site with the exception of the already landscaped areas in the north and north-east that are to be retained. In addition, relict topsoil is to be removed from the west of the site as it poses a hazardous ground gas risk.



Any earthworks should be carried out in accordance with the Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works, Series 600 Earthworks.

Suitability for compaction is defined as achieving >95% of the maximum dry density and less than 5% air voids.

The results of the laboratory testing indicate that suitable compaction of the natural clay and cohesive made ground is likely to be achievable without modification or treatment.

Proper selection and control will be required as part of the earthworks to use these materials. The materials should not be allowed to deteriorate, i.e. become wet, during excavation and compaction and must be sufficiently protected from traffic after placement.

Ponds were present historically on the site. The ground investigation targeted these ponds but no deep made ground was encountered. It is therefore assumed that these infilled features are only shallow. During the earthworks the features should be fully excavated and any soft and/or organic soils removed and replaced with engineered fill.

5.4 Foundations

Following removal of topsoil, concrete slabs and made ground from below the footprint of the building, engineered fill is to be placed in accordance with the Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works, Series 600 Earthworks.

Pad foundations (mass concrete) are to extend through the engineered fill to bear onto the natural strata (glacial till) of appropriate allowable bearing pressure. An allowable bearing capacity 100kN/m² is considered appropriate for the firm, medium strength clay soils for total settlements of no greater than 25mm. Alternatively shallow foundations could bear onto the engineered fill of suitable bearing capacity. Based on laboratory CBR testing, allowable bearing pressures of approximately 80kN/m² for the cohesive made ground and the natural cohesive strata if used as engineered fill are considered appropriate.

Preliminary consolidation assessment has been carried out for foundations bearing onto cohesive soils. The assessment has assumed a 1.5m square pad foundation with a design bearing pressure of 100kN/m² at a foundation depth of 117.00m AOD.

In the location of BH101 in the north-east, primary consolidation settlement of 26.8mm has been calculated. In the location of BH102, below the footprint of the proposed building in the north, primary consolidation settlement of 23.1mm has been calculated. In the location of BH103, below the footprint of the proposed building in the centre west, primary consolidation settlement of 25.7mm has been calculated. It can be seen from these results, that the predicted settlements in these locations are approximately 25mm.



In the location of WS(DPT)111 and DSRC106, softer soils are present below the assumed foundation depth of 117.00m AOD. Settlement in this area is calculated to be approximately 40mm. It will therefore be necessary to deepen and/or widen the foundation in order to limit settlements to tolerable limits or consider an alternative foundation solution.

For higher loaded areas, e.g. column loads associated with two-story offices, or where total potential settlement of less than 25mm is desired, consideration should be given to a piled foundation solution, bearing into/onto the underlying mudstone or sandstone bedrock. An allowable bearing pressure of 200kN/m² is considered appropriate for the extremely weak bedrock. Alternatively Constrained Modular Columns could be used.

Any earthworks or material improvement (where required) should be designed in order to provide the necessary acceptable allowable bearing capacity and tolerable settlements for the proposed foundation solution.

The allowable bearing capacity is a function of the foundation configuration, depth, and the ability of the structure to tolerate such movements and should therefore be validated during detailed design.

5.5 Ground Floor Construction

In order to create the development platform, it is proposed to engineer site-won materials across the site. The proposed cut and fill earthworks should be designed in order to accommodate a ground bearing floor slab.

It is understood that it is proposed to undertake ground improvement of the near surface materials in order to create a formation level of appropriate CBR value.

5.6 Roads, Pavements and Hardstanding Surfaces

Any earthworks/ground improvement works should be designed in order to provide a suitable CBR value for the proposed development. Variable CBR values have been achieved in the laboratory for the made ground and natural clay soils. It should be possible by appropriate selection of materials that a CBR of 3% is achievable through the earthworks operation. Further testing of materials may be required to confirm suitability.

Materials with high fines content will deteriorate rapidly due to water ingress and tracking by construction plant. Adequate protection of formation levels will be required to maintain the strength of the material.

5.7 Excavations

Based on the nature of the made ground and underlying natural strata, it is considered likely that if excavations were left unsupported, then over time collapse would occur, and this is likely to increase in the presence of perched groundwater.



Good working practice with respect to drainage of excavations and formations will be required to protect materials. Any excavation for structural foundations must be covered without delay with blinding concrete to prevent softening by water.

The requirement for temporary support of excavations should be assessed on an individual basis and in any case, excavations of greater than 1.20m depth requiring man entry will require temporary support in accordance with HSE guidance. Alternatively, the sides of the excavation will need to be battered back for the safety of operatives. Guidance on safe batter slopes can be obtained from CIRIA Report 97 Trenching Practice.

5.8 Control of Groundwater

During the recent JPG ground investigation, perched groundwater was generally encountered locally in the made ground at shallow depth in some window sample boreholes and trial pits at depths of between 0.30m and 2.50m bgl. Occasional seepages were encountered in the cohesive glacial till. A groundwater strike was encountered in BH102 at 7.50m within the bedrock strata.

Reference should be made to guidance given in the Manual of Contract Documents for Highway Works, Volume 1: Specification for Highway Works, Series 600 Earthworks. In particular the following recommendations are made with respect to the control of surface water and shallow groundwater.

The contractor shall keep earthworks free of water including:

- Arranging for the rapid removal of water which is shed on the earthworks or enter the earthworks from any source.
- Lowering and maintaining by appropriate measures, the water level in excavations sufficiently to enable the permanent works to be constructed.

In order to keep the site free of water the contractor shall do the following:

- Form and maintain cuttings, embankments and other areas of fill with appropriate falls, gradients and sealed surfaces.
- Provide where necessary temporary watercourses, drains, and pumping.
- Discharge accumulated water and groundwater into the permanent outfalls of the drainage system where practicable; and
- Provide adequate means for trapping silt on temporary systems discharging into permanent drainage systems.

5.9 Obstructions

Large parts of the site, in particular the east, have concrete handstanding at the surface. This will require breaking out and removal or incorporated into the earthworks following crushing and/or screening.



Occasional boulders of sandstone were encountered in the site works. These could be broken down in order to be incorporated into the earthworks.

Based on the previous usage of the site, some relict foundations and services should be anticipated.

5.10 Chemical Attack on Buried Concrete

Laboratory testing has been undertaken on samples of the made ground, natural strata, and water to determine the sulphate content and acidity and hence the concrete class required for buried concrete.

Laboratory testing of the made ground recorded water-soluble sulphate contents ranging between 11mg/l and 370mg/l and pH values of between 5.6 and 11.7.

Laboratory testing in the natural clay recorded water-soluble sulphate contents ranging between 16mg/l and 1934mg/l and pH values of between 5.7 and 8.6.

In the groundwater, a sulphate content of between 6.0mg/l and 21mg/l and pH values of between 6.5 and 7.6 were recorded.

The site has been assessed in accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground'. Based on the history of the site, it has been assessed in accordance with the requirements for brownfield ground locations.

Foundations are likely to come into contact with made ground, natural strata and the underlying groundwater. On this basis it is recommended that concrete should be designed to Aggressive Chemical Environment for Concrete (ACEC) Design Sulphate Class DS-1 and ACEC Class AC-2z, based on mobile groundwater conditions.



6.0 ENVIRONMENTAL RISK ASSESSMENT

6.1 Introduction

The statutory definition of contaminated land is given in the Environmental Protection Act, Part IIA, Section 78, 1990, which was introduced by the Environment Act, Section 57, Department of Environment, 1995 and is defined as:

Land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that:

- Significant harm is being caused or there is a significant possibility of such harm being caused (where harm is defined as harm to health of living organisms or other interference with the ecological systems of which they form a part and, in the case of man, includes harm to his property); and/or
- Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused (by the land).

The presence of contaminated materials on a site is generally only of concern if an actual or potentially unacceptable risk exists. The potential for harm to occur requires three conditions to be satisfied:

- **Sources** – The presence of substances (potential contaminants/pollutants), in or under the ground, that may cause harm or pollution.
- **Receptors** - The presence of a receptor which may be harmed, e.g. the water environment or humans, buildings, fauna and flora; and
- **Pathway** - The existence of a linkage between the Source and the Receptor.

In summary, the presence of measurable concentrations of contaminants within the ground and subsurface environment does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and an unacceptable risk of harm to available receptors.

The nature and importance of both pathways and receptors, which are relevant to a particular site, will vary according to the sensitivity of the intended end use of the site and the sites characteristics and environmental setting.



Legislation and guidance on the assessment of contaminated sites acknowledges the need for a tiered risk-based approach. This is set out in the Environment Agency's manual *Land contamination: risk management* (published in October 2020 and last updated on 19 April 2021) and comprises the following stages of risk assessment:

- | | |
|---|---|
| Tier 1: Preliminary risk assessment (PRA) | As part of this assessment, the overall site objectives are defined. Current and historical information about the site and the potential contaminants expected to be present are assessed and an outline conceptual model (CM) is developed. The risks are assessed qualitatively, and the findings reported in the PRA (or desk study). The report recommends what further works would be required in order to assess whether the site is suitable for its proposed use. |
| Tier 2: Generic quantitative risk assessment (GQRA) | The GQRA uses Generic Assessment Criteria and a standard set of generic assumptions based on specific end uses in order to assess the risks to receptors. It includes the collection of more detailed information including laboratory analysis of soil and water samples in order to inform and assess the risks. |
| Tier 3: Detailed quantitative risk assessment (DQRA) | If pollutant linkages are confirmed as part of the GQRA, these are known as relevant pollutant linkages (RPLs) and further detailed assessment is required. At this tier, detailed site-specific information is collected to estimate the risk or to develop site-specific assessment criteria (SSAC). This may include collecting information about the receptor. |

A Tier 1 Assessment has been prepared for the site by JPG and reported in the Geoenvironmental Desk Study Report, referenced 5986-JPG-XX-XX-RP-G-0601-S2-P01 and dated November 2021.

This environmental risk assessment undertaken by JPG constitutes a Tier 2 Generic Quantitative Risk Assessment (GQRA) and has been carried out in accordance with the Environment Agency's *Land contamination: risk management guidance*.

6.2 Assessment Approach

The results of the chemical analysis for each determinand will be assessed against their respective GAC.

Human Health include the LQM/CIEH Suitable 4 Use Levels (S4UL) and Category 4 Screening Levels (C4SL) which were developed using the UK Contaminated Land Exposure Assessment (CLEA) Framework Documents and Software.



The CLEA model uses generic assumptions about the fate and transport of chemicals in the environment and a generic conceptual model (referred to as generic land use scenarios) for site conditions and human behaviour, to estimate child and adult exposures to soil contaminants for those living, working and/or playing on contaminated sites over long time periods.

The S4UL and C4SL screening levels have been derived for a variety of land uses including residential, allotments, commercial and public open space.

In the absence of S4UL and C4SL for potential contaminants, appropriate alternative GAC will be used.

Controlled Waters

Based on the environmental setting of the site, the leachate chemical test results have been compared against Generic Assessment Criteria (GAC) threshold values based on Drinking Water Standards and/or Environmental Quality Standards (EQS).

An exceedance of a threshold value does not directly imply there is an unacceptable risk, however, it indicates that the exceedance should be further assessed via the qualitative source-pathway-receptor (S-P-R) approach.

6.3 Evaluation of Soils Analysis

Initially, the results of the chemical analysis for each potential contaminant will be compared directly with their respective GAC. Based on the current development proposals for the site, i.e. commercial, the results of the chemical analysis for the soil samples have been assessed against GAC for a commercial end use.

If any significant exceedances of the GAC are noted, then the results will be subject to statistical analysis if appropriate. An outline of the methodology of the statistical analysis is presented in Appendix D.

In total, 21 samples of made ground were submitted for chemical analysis. A summary of the results is provided below.

Human Health - Soils

The results have been compared directly with their respective GAC and are summarised in Table 6.3.1.



Table 6.3.1 – Summary of Chemical Analysis for Soil Samples – Made Ground

Determinand	GAC for Commercial End Use (mg/kg)	Sample Mean (mg/kg)	Range of Results (mg/kg)	Do any samples exceed the GAC?
Arsenic	640 ⁽¹⁾	9.25	1.4 – 24	No
Cadmium	190 ⁽¹⁾	0.23	0.1 – 0.5	No
Chromium	8600 ⁽¹⁾	18.27	5 – 35	No
Hexavalent Chromium	33 ⁽¹⁾		<1.0	No
Copper	68,000 ⁽¹⁾	30.96	8.2 – 71	No
Lead	2,330 ⁽²⁾	48.87	4.9 – 220	No
Mercury (Inorganic)	1,100 ⁽¹⁾	0.13	0.05 – 0.37	No
Nickel	980 ⁽¹⁾	16.38	4.4 – 27	No
Selenium	12,000 ⁽¹⁾	0.65	0.6 – 0.7	No
Zinc	730,000 ⁽¹⁾	53.29	15 – 110	No
Cyanide (free)	20 ⁽²⁾	0.25	0.1 – 0.4	No
Total Phenols	440 ^{*(1)}	0.57	0.4 – 0.9	No
Naphthalene	190 ^{*(1)}	0.61	0.22 – 1.5	No
Acenaphthylene	83,000 ^{*(1)}	0.61	0.03 – 0.14	No
Acenaphthene	84,000 ^{*(1)}	0.07	0.03 – 5.00	No
Fluorene	63,000 ^{*(1)}	1.75	0.62 – 2.50	No
Phenanthrene	22,000 ^{*(1)}	1.41	0.04 – 18.0	No
Anthracene	520,000 ^{*(1)}	1.79	0.03 – 5.60	No
Fluoranthene	23,000 ^{*(1)}	0.76	0.03 – 27.0	No
Pyrene	54,000 ^{*(1)}	2.17	0.03 – 24.0	No
Benz(a)anthracene	170 ^{*(1)}	1.96	0.03 – 7.70	No
Chrysene	350 ^{*(1)}	0.90	0.04 – 5.80	No
Benzo(b)fluoranthene	44 ^{*(1)}	0.83	0.03 – 4.20	No
Benzo(k)fluoranthene	1,200 ^{*(1)}	0.61	0.03 – 2.00	No
Benzo(a)pyrene	35 ^{*(1)}	0.38	<0.03 – 3.90	No
Indeno(123-cd) pyrene	500 ^{*(1)}	0.60	<0.03 – 1.40	No
Dibenzo(ah)anthracene	3.5 ^{*(1)}	0.36	<0.03 – 0.42	No
Benzo(ghi)perylene	3,900 ^{*(1)}	0.14	0.06 – 1.70	No

S4UL * BASED ON 1% SOM, (2) C4SL

None of the determinands were detected at concentrations in excess of their respective GAC.

Speciated TPH(CWG)(aliphatic : aromatic split) testing was carried out on the sample of granular made ground obtained from WS126 at 0.35m bgl that displayed a hydrocarbon odour. The results were compared to S4ULs for a commercial end use. No TPH fraction was found to exceed the GAC.

Asbestos, described as a 'bundle of chrysotile fibres' was recorded in TP109 in a sample obtained between ground level and 0.50m depth. Asbestos, described as a 'chrysotile present as fibre bundles' was recorded in WS107 in a sample obtained between 0.20m and 0.70m depth. Asbestos quantification was subsequently carried out on the samples. The total mass of asbestos was recorded as <0.001% w/w for both samples. At this concentration the material is not considered hazardous to human health. In addition, the made ground in these locations would not be classified as hazardous waste based on the concentration of asbestos recorded.

Evaluation of Controlled Waters Analysis

In total, 14 samples of made ground were submitted for leachability analysis. The results for each determinand were compared directly with their respective GAC, the results are summarised in Tables 6.3.2a and 6.3.2b.



Table 6.3.2a – Summary of Leachability Results (1)

Determinand	GAC (µg/l)	TP118 0.55m	TP115 0.50m	TP103 0.35- 0.70m	TP111 0.50- 0.10m	TP112 0.70- 0.10m	TP104 0.10- 0.60m
Arsenic	10 (1)	3.2	0.58	1.3	0.77	0.81	0.78
Cadmium	5 (1)	< 0.03	< 0.03	< 0.03	0.21	< 0.03	< 0.03
Chromium	50 (1)	< 0.25	< 0.25	< 0.25	1.9	< 0.25	< 0.25
Copper	2000 (1)	2.1	1.1	1.4	2.7	0.6	1.1
Lead	10 (1)	0.74	0.27	0.88	2.8	0.43	1.4
Mercury	1 (1)	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01
Nickel	20 (1)	< 0.5	< 0.5	< 0.5	1.7	< 0.5	< 0.5
Selenium	10 (1)	0.69	0.28	0.25	0.91	< 0.25	< 0.25
Zinc	5000 (1)*	2.4	7.5	3.3	7.6	4.9	5
pH	6.5-9.5	7.4	7.2	7.6	7.1	7.3	7.1
Cyanide Free	50 (1)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
Sulphate	250	3.5	2	3	1.2	1.3	3.1
Naphthalene	4.24 (2)	0.12	0.06	0.07	< 0.05	0.06	0.06
Anthracene	0.193 (2)	0.02	0.03	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	0.0122 (2)	0.03	0.05	0.07	< 0.01	< 0.01	< 0.01
Benzo (a) pyrene	0.1 (1)	< 0.01	0.01	0.02	< 0.01	< 0.01	< 0.01
Sum of: Benzo (b) fluoranthene, Benzo (k) fluoranthene, Indeno (1,2,3- c,d) pyrene, and; Benzo (g,h,i) perylene	0.1 (1)	<0.04	0.03	0.11	<0.04	<0.04	<0.04
Phenol	14.9 (2)	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

(1) Water Supply (Water Quality) Regulations 2000.

*Historical 1989 Threshold Value.

(2) Water Framework Directive 2015, Surface Water, Maximum Threshold Value.



Table 6.3.2b – Summary of Leachability Results (2)

Determinand	GAC (µg/l)	WS101 0.25	WS103 0.20-0.50m	WS106 0.50m	WS113 0.80-1.15m	WS109 0.10-0.20m	WS121 0.10-0.20m	WS126 0.35m	WS107 0.20-0.70m
Arsenic	10 (1)	0.46	0.67	0.49	0.73	0.3	0.57	0.74	1.3
Cadmium	5 (1)	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chromium	50 (1)	< 0.25	0.29	< 0.25	0.28	< 0.25	0.28	< 0.25	0.48
Copper	2000 (1)	1.1	1.2	0.5	1.1	1.9	1.3	1.4	1.7
Lead	10 (1)	1.7	1.8	0.89	2.4	2.8	2.9	0.35	2.5
Mercury	1 (1)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nickel	20 (1)	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Selenium	10 (1)	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Zinc	5000 (1)*	16	8.7	1.7	1.9	6.2	4.2	< 1.3	1.3
pH	6.5-9.5	7	6.9	6.8	6.8	6.8	6.2	11.1	9.4
Cyanide Free	50 (1)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Sulphate	250	0.88	1.1	2.5	0.63	1.1	0.85	3.7	13
Naphthalene	4.24 (2)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.65	0.52
Anthracene	0.193 (2)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.11	0.04
Fluoranthene	0.0122 (2)	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01	0.27	0.08
Benzo (a) pyrene	0.1 (1)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sum of: Benzo (b) fluoranthene, Benzo (k) fluoranthene, Indeno (1,2,3-c,d) pyrene, and; Benzo (g,h,i) perylene.	0.1 (1)	<0.04	<0.04	<0.04	<0.04	0.01	<0.04	0.01	0.05
Phenol	14.9 (2)	-	-	-	-	-	-	< 0.50	0.52

(1) Water Supply (Water Quality) Regulations 2000.

*Historical 1989 Threshold Value.

(2) Water Framework Directive 2015, Surface Water, Maximum Threshold Value.



Three elevated concentrations of leachable fluoranthene were recorded in TP103, TP115 and TP118 with concentrations of 0.03µg/l, 0.0503µg/l and 0.07µg/l respectively. The samples were of granular colliery spoil. In addition, the sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene and benzo(g,h,i)perylene was found to be slightly above the threshold of 0.1µg/l in the sample obtained from TP103 at 0.30m – 0.70m with a recorded concentration of 0.1µg/l.

Four samples of groundwater, obtained from wells sealed within the natural ground, were submitted for chemical analysis. The results for each determinand were compared directly with their respective GAC. The results are summarised in Table 6.3.3.

Table 6.3.3 – Summary of Groundwater Results

Determinand	GAC (µg/l)	WS109 1.00m	WS125 1.50m	DS/RC101 3.00m	DS/RC105 5.00m
pH	6.5-9.5(1)	7.2	6.5	6.9	7.6
Arsenic	50(1)	0.97	0.29	0.73	1.6
Cadmium	5(1)	<0.02	0.16	0.04	<0.02
Chromium (total)	50(1)	0.62	<0.25	0.53	0.61
Copper	2000(1)	3.0	0.6	0.5	1.9
Lead	10(1)	0.18	<0.09	0.26	<0.09
Mercury	1(1)	<0.01	<0.01	0.12	0.72
Nickel	20(1)	3.0	14	1.7	4.2
Selenium	10(1)	0.37	1.2	0.57	0.29
Zinc	5000(1)	12	8.7	9.3	4.4
Cyanide (Free)	50(1)	<0.1	<0.1	<0.1	<0.1
Phenol	14.9(2)	<0.50	<0.50	<0.50	<0.50
Naphthalene	4.24(2)	0.1	0.06	<0.05	<0.05
Anthracene	0.193(2)	<0.01	<0.01	<0.01	<0.01
Fluoranthene	0.0122(2)	<0.01	<0.01	0.01	0.02
Benzo(a)pyrene	0.01(1)	<0.01	<0.01	<0.01	<0.01
Sum of: Benzo (b) fluoranthene, Benzo (k) fluoranthene, Indeno (1,2,3-c,d) pyrene, and; Benzo (g,h,i) perylene.	0.1 (1)	0.03	0.04	0.03	0.03
Sulphate as SO4	250(1)	6	21	19	14

(1) Water Supply (Water Quality) Regulations 2000.

*Historical 1989 Threshold Value.

(2) Water Framework Directive 2015, Surface Water, Maximum Threshold Value.

A slightly elevated concentration of fluoranthene was detected in the groundwater obtained from DS/RC105 with a recorded concentration of 0.02µg/l.

6.4 Evaluation of Hazardous Ground Gases

Based on the desk study information and ground conditions encountered, it is considered unlikely that there is the potential for the presence of significant concentrations of hazardous ground gases on the site.



In order to assess the potential risks posed to the proposed development from hazardous ground gases, groundwater and ground gas monitoring wells were installed in seven window sample boreholes, two cable percussive sample boreholes and four dynamic sample with rotary cored follow-on boreholes. Response zones were designed to target each natural strata as well as the varying types of made ground.

Ground Gas Monitoring

Ground gas monitoring has been undertaken on six occasions. The works were carried out using a portable infrared gas meter in accordance with the standard JPG methodology and included the measurement of methane, carbon dioxide, oxygen, hydrogen sulphide, carbon monoxide, gas flows and atmospheric pressure.

6.5 Summary of Results

The results following the six rounds of gas monitoring are presented on the site visit record sheets in Appendix E and are summarised below:

- Methane has been recorded at peak concentrations of 70.9% v/v with a maximum steady concentration of 70.9% v/v in WS110. In addition, a peak concentration of 49.2% v/v combined with a steady concentration of 18.2% v/v was recorded in WS103. It should be noted that groundwater levels in these wells were very shallow at the time of monitoring. Methane was also recorded in WS111 and DSRC105 at peak concentrations of 2.2% v/v and 1.5% v/v.
- Carbon dioxide was recorded at peak and steady concentrations of 23.3% v/v and 18.1% v/v respectively in WS103.
- Depleted oxygen concentrations as low as 0.4% was recorded in WS103 on the third visit. Reduced oxygen concentrations (i.e. <16% v/v) was not recorded in any other installation.
- A maximum peak positive flow rate of 11.5 l/hr was recorded in WS125 on the third visit and a maximum positive steady flow of 7.0 l/hr was recorded in WS125 also on the third visit.
- No significant concentrations of hydrogen sulphide or carbon monoxide were recorded.

One of the monitoring visits was carried out during a period of regionally falling atmospheric pressure and two during periods of rising atmospheric pressure. Barometric pressures during the monitoring period ranged between 982mB and 1015mB.

6.6 Requirements for Gas Protection Measures

The results of the gas monitoring have been assessed in accordance with the following:

- BS8485:2015+A1:2019, 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.



It is understood that the made ground topsoil, both buried and at the surface, is to be removed from the north west as part of the earthworks. Based on the response zones, it is considered that the source of the highest concentrations of ground gas is the made ground topsoil located in the north-west of the site, where the elevated concentrations have been observed. On this basis the monitoring results for WS103 or WS110 have not been included in the ground gas assessment below as they are not reflective of the typical ground gas concentrations present on the site.

In addition, it is apparent that the flow rates observed in DSRC105 are the result of groundwater rebound following purging of the well on the first visit with the groundwater gradually recharging over the subsequent monitoring visits. Prior to purging there was no flow rate recorded in this monitoring well. On this basis the ground gas flow rates recorded in DSRC105 have been discounted from the ground gas risk assessment.

Based on a maximum peak methane concentration of 2.2% v/v (WS111) and maximum peak flow rate of 11.5 l/hr (WS125), a gas screening value (GSV) of 0.25 l/hr for methane can be calculated. Based on a maximum steady carbon dioxide concentration of 9.2% v/v (WS111) and maximum steady flow rate of 7 l/hr, a gas screening value (GSV) of 0.64 l/hr for carbon dioxide can be calculated.

Based on the calculated GSVs, the Characteristic Situation (CS) will be CS2 in accordance with BS8485:2015+A1:2019.

The CS should be confirmed following the earthworks operation by installing shallow wells below the building footprint and carrying out a programme of continuous and spot monitoring over a two-week period.

6.7 Radon Risk

The site is not in a radon affected area as defined by Public Health England with less than 1% of properties above the action level. In accordance with the Building Research Establishment (BRE) publication BR211, no radon protective measures are required for new properties constructed on the site.

6.8 Summary of Potential Sources, Pathways and Receptors

Potential Sources

Although asbestos quantification testing indicates the samples tested are not hazardous to human health based on the percentage asbestos in the sample, there is the potential that soils with greater amounts of asbestos may be present on the site. Therefore, asbestos is still considered a potential source of contamination.

Based on the results of the analysis carried out, the following potential source of contamination is considered to be present on the site:

- Asbestos fibres in made ground.
- Slightly elevated concentrations of potentially leachable PAH species within the made ground and groundwater.



- Elevated hazardous ground gases - carbon dioxide and methane.

Potential Pathways

Based on the available information and the proposed redevelopment of the site for a commercial end use, the following potential exposure pathways will require consideration, both during the redevelopment works and on completion of the construction:

- Inhalation of asbestos fibres.
- Leaching/migration of potential contaminants into groundwater and surface water via surface and groundwater flow.
- Migration of ground gas.

Potential Receptors

The potential receptors are considered to be:

- Development workers and future maintenance workers involved in excavations, e.g., foundations or where services are being installed or repaired following development.
- Future site end users, e.g. employees, visitors.
- Groundwater in the underlying Secondary Undifferentiated (glacial deposits) and Secondary A (superficial deposits in the north and bedrock geology).
- Surface water feature – Whittle Brook / Brightley Brook.
- Built environment.

6.9 Source – Pathway – Receptor Linkages

Based on the above potential source, pathway and receptors, the following linkage assessments have been considered.

- Risk to site development workers and end users if asbestos is present at concentrations greater than encountered during site investigation.
- The underlying aquifers and inland river could become contaminated due to the leaching and migration of potential contaminants from the made ground.
- Potential for development workers, future maintenance workers and future end users of the site to be exposed to hazardous ground gases.

This assessment is based on current site conditions (unless stated) and does not consider exposure pathways following any further works on the site.

The Underlying Aquifers and Surface Watercourses

Slightly elevated concentrations of potentially leachable PAH species were recorded within the made ground.



An assessment of risk to controlled waters should also consider the environmental setting of the site, which is summarised below:

- The adoption of the assessment criteria is considered to be conservative when applied to an assessment of risks to controlled waters.
- The proposed development will comprise new industrial unit, service area, parking area with limited soft landscaping. The buildings will be impermeable, thereby reducing infiltration and limiting the potential for the generation of leachate and mobilisation of potential contaminants. In addition, surface water run-off will be routed via an interceptor tank into the existing sewer network.
- The superficial deposits comprise glacial till, generally beds of both cohesive and locally granular material. This may provide a barrier to the downward migration of potential contaminants to the Secondary Aquifer.
- The inland river is likely to be partially or fully culverted.
- There are no active groundwater abstraction licences with 1km of the site.
- There are no active potable water abstraction licences within 2km of the site.
- The site does not lie within an Environment Agency Groundwater Source Protection Zone.

Based on the above factors, it is concluded that there are no plausible linkages to controlled water receptors. Therefore, the risk to controlled waters is considered to be negligible.

6.10 Conceptual Site Model & Risk Rating

The preliminary conceptual site model (CSM) has been revised following completion of this ground investigation, the chemical analysis results and the ground gas risk assessment presented above.

The revised CSM has been developed for a future commercial end-use. This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors, and attributes a risk rating for each pollutant linkage identified.

The updated conceptual model is summarised in Table 6.10.



Table 6.10 Conceptual Model

Source	Pathway	Receptor	Risk Rating	Comments
Asbestos fibres Made ground (concentrations encountered to-date are at levels not deemed hazardous to human health.	Inhalation If asbestos within made ground is disturbed.	Site Development Workers - Ground workers. - Construction workers. Adjacent Site Users. - Workers. - Visitors. Future Site Users - Future employees/ visitors. - Maintenance workers.	Low/Moderate	Trace asbestos fibres have been recorded at concentrations not hazardous to human health. If asbestos is noted during the enabling/earthworks, monitoring of asbestos fibres will be required. Appropriate health and safety procedures to be in place during the construction phase of the development.
Hazardous Ground Gases/Soil Vapours - Made ground below the site and adjacent to the site. - Two landfill sites located approximately 283m to the SW and 380m to the W. - Natural soils underlying and adjacent to the site.	Ground Gas Migration - Migration through permeable soils/ fractured rock. - Inhalation.	Future Site Users - Future employees/ visitors. - Maintenance workers.	Moderate	Based on the calculated GSVs, the Characteristic Situation (CS) will be CS2 in accordance with BS8485:2015+A1:2019. However, the CS should be confirmed on completion of the earthworks by continuous and spot monitoring. Ground gas protection will therefore be required in new buildings.
		Built Environment - Buildings. - Infrastructure.	Moderate	Based on the calculated GSVs, the Characteristic Situation (CS) will be CS2 in accordance with BS8485:2015+A1:2019 (based on three visits). However, the CS should be confirmed on completion of the earthworks by continuous and spot monitoring. Ground gas protection will therefore be required in new buildings.
		Users During Development Development Workers.	Low/Moderate	Appropriate health and safety procedures to be in place during the construction phase of the development.



6.11 Risk Classification

Based on the updated conceptual site model, the site should be considered to be a **low to moderate risk** with respect to ground gas and soil and groundwater contamination.

6.12 Mitigation Measures

Based on the results of the above risk assessment, mitigation measures will be required with regard to hazardous ground gas. The ground gas risk assessment indicates CS2 conditions 'Low Hazard Potential', based on six visits. However, the CS should be confirmed on completion of the earthworks by a programme of continuous and spot monitoring to target the footprint of the proposed commercial development. The continuous monitoring should be carried out by a specialist contractor.

During development of the site, all workers should remain vigilant to the possible risk of encountering areas of potentially contaminated material including gross asbestos contamination. Should potentially contaminated material be encountered, site management should be informed. Further testing may then be required to assess the risk to health and safety of the site workers and the environment.

Although not exceeding GAC for a commercial end use, it is recommended that the hydrocarbon-impacted soils associated with a former fuel storage tank in the south of the site are removed.

It is recommended that a sufficient thickness of topsoil and subsoil is placed in future landscaped areas. Any imported or site-sourced material will need to be tested to confirm its suitability for use. In addition, any topsoil and subsoil which is to be used on site should not contain any manmade debris, e.g. brick, concrete or metal.

6.13 Classification of Materials for Disposal Offsite

In total, 21 samples of made ground were assessed using HazWasteOnline™ in order to determine the classification of the materials for disposal off-site.

Based on the results of the chemical analysis, all of the samples can be classified as non-hazardous with the exception of WS107 at between 0.20m and 0.70m depth, which was classified as hazardous due to elevated (alkali) pH conditions. The made ground at this depth range was described as clayey, gravelly sand containing sandstone, limestone and brick.

Details of the classification generated by HazWasteOnline™ are provided in Appendix D.

The results of the chemical analysis and the waste classification should be forwarded to the landfill operator to confirm this assessment and provide a price for disposal.



Appendix A Figures and Drawings

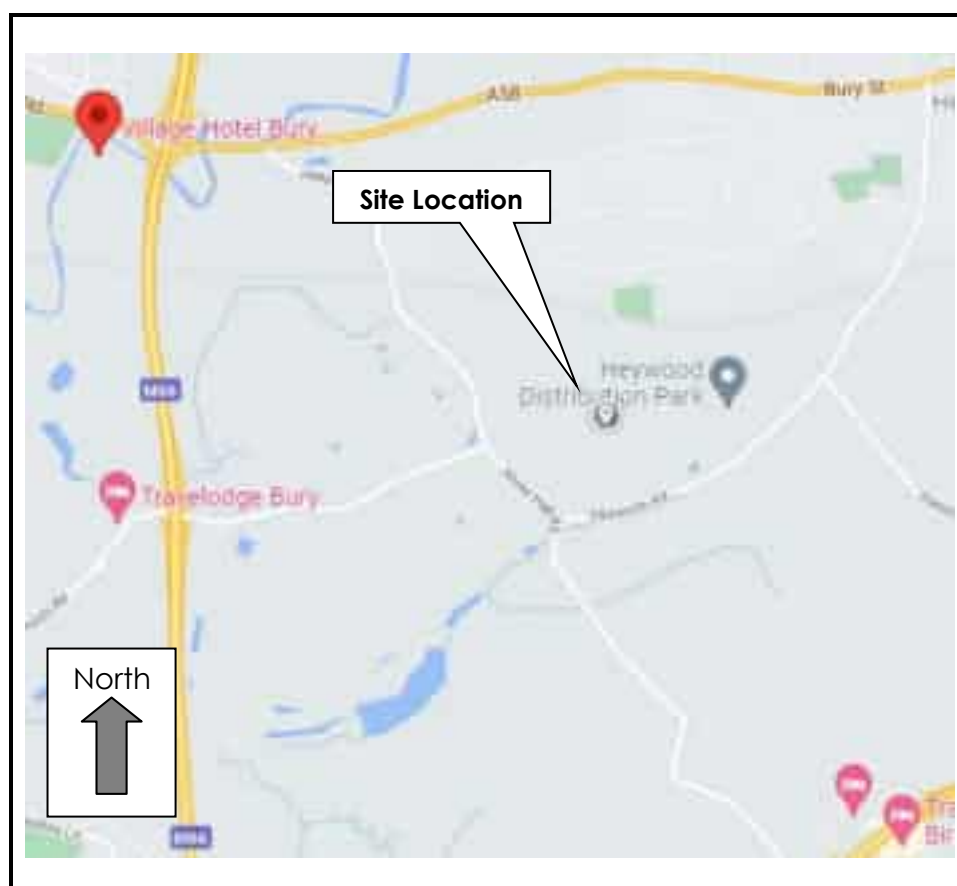


Figure 1 – Site Location Plan

Site	M400 Heywood Distribution Park
Client	Black Cat Building Consultancy Limited
Job Number	5986
Scale	NTS



Figure 2 – Aerial Photograph	
Site	M400 Heywood Distribution Park
Client	Black Cat Building Consultancy Limited
Job Number	5986
Scale	NTS

Figure 3: SPT N Value vs Depth (m bgl)

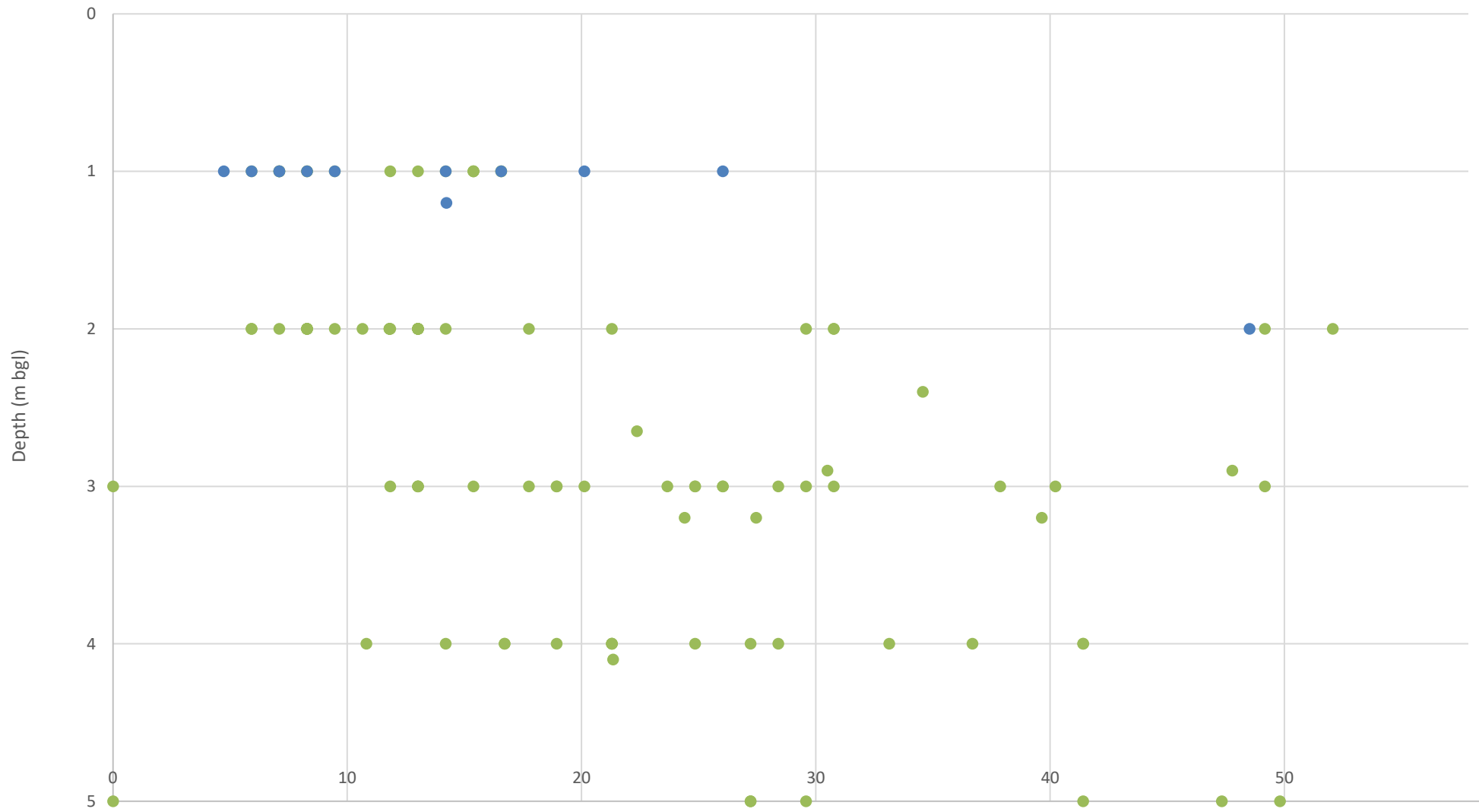
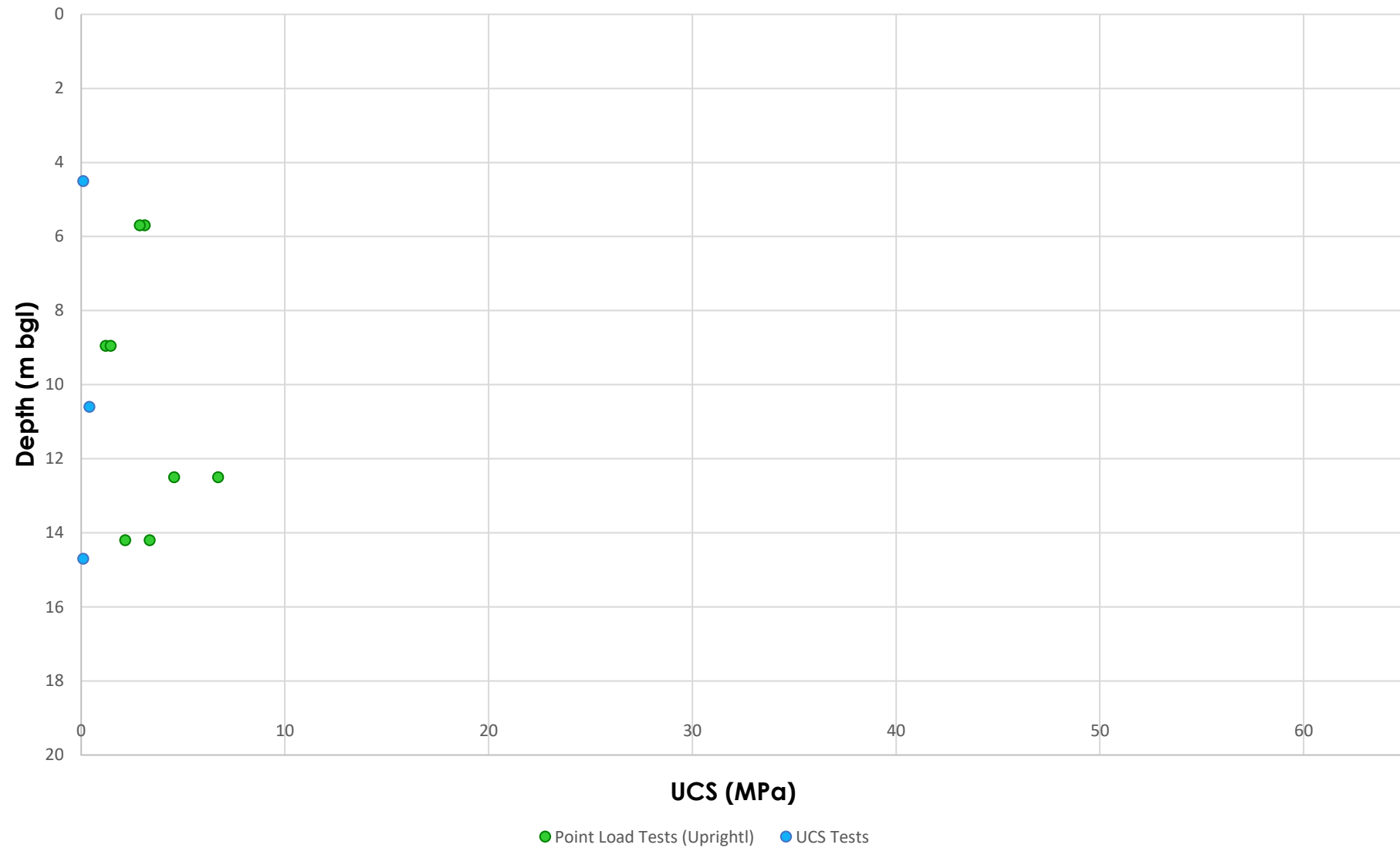
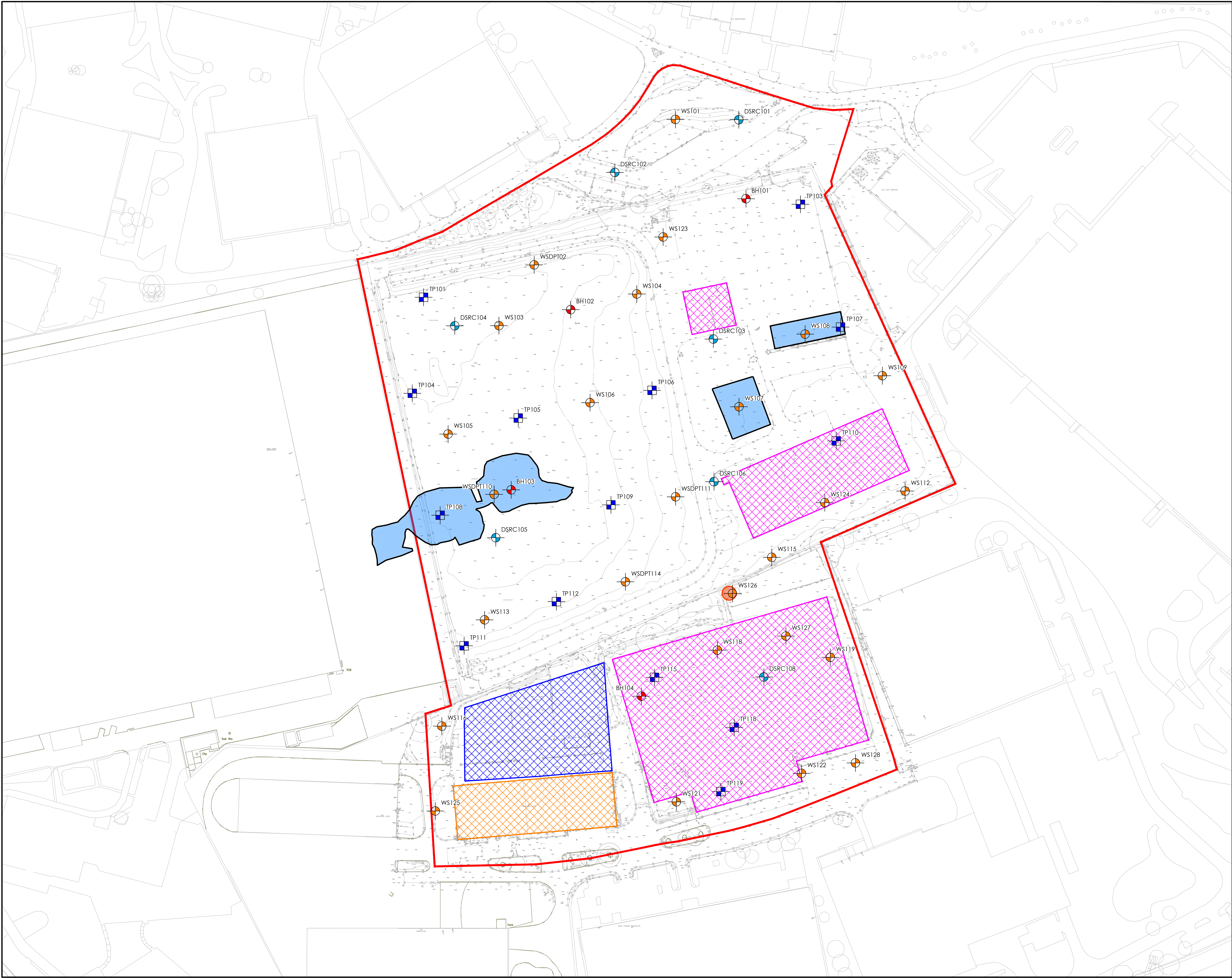


Figure 4 - Unconfined Compressive Strength (UCS) vs. Depth





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NOTES

JPG SITE INVESTIGATION
NOVEMBER 2021

TP101

TRAIL PIT

BH101

CABLE PERCUSSIVE BOREHOLE

WS101

WINDOW SAMPLE BOREHOLE

DS/RC101

DYNAMIC SAMPLE BOREHOLE WITH
ROTARY CORED FOLLOW ON

WS/DPT102

WINDOW SAMPLE BOREHOLE WITH
DYNAMIC PENETRATION TEST

HISTORICAL PONDS

FORMER BUILDINGS

EXISTING BUILDINGS

AREA WITH RESTRICTED ACCESS

0m25m50m

SCALE 1:1000

P03	UPDATED PROJECT REFERENCE.	28/04/22	JBW	AJB
P02	GENERAL UPDATES.	09/12/21	JBW	AJB
P01	FIRST ISSUE.	25.11.21	JBW	LSG
REV	DESCRIPTION	DATE	CHK	BY

Project
PLOT M400
HEYWOOD
DISTRIBUTION PARK

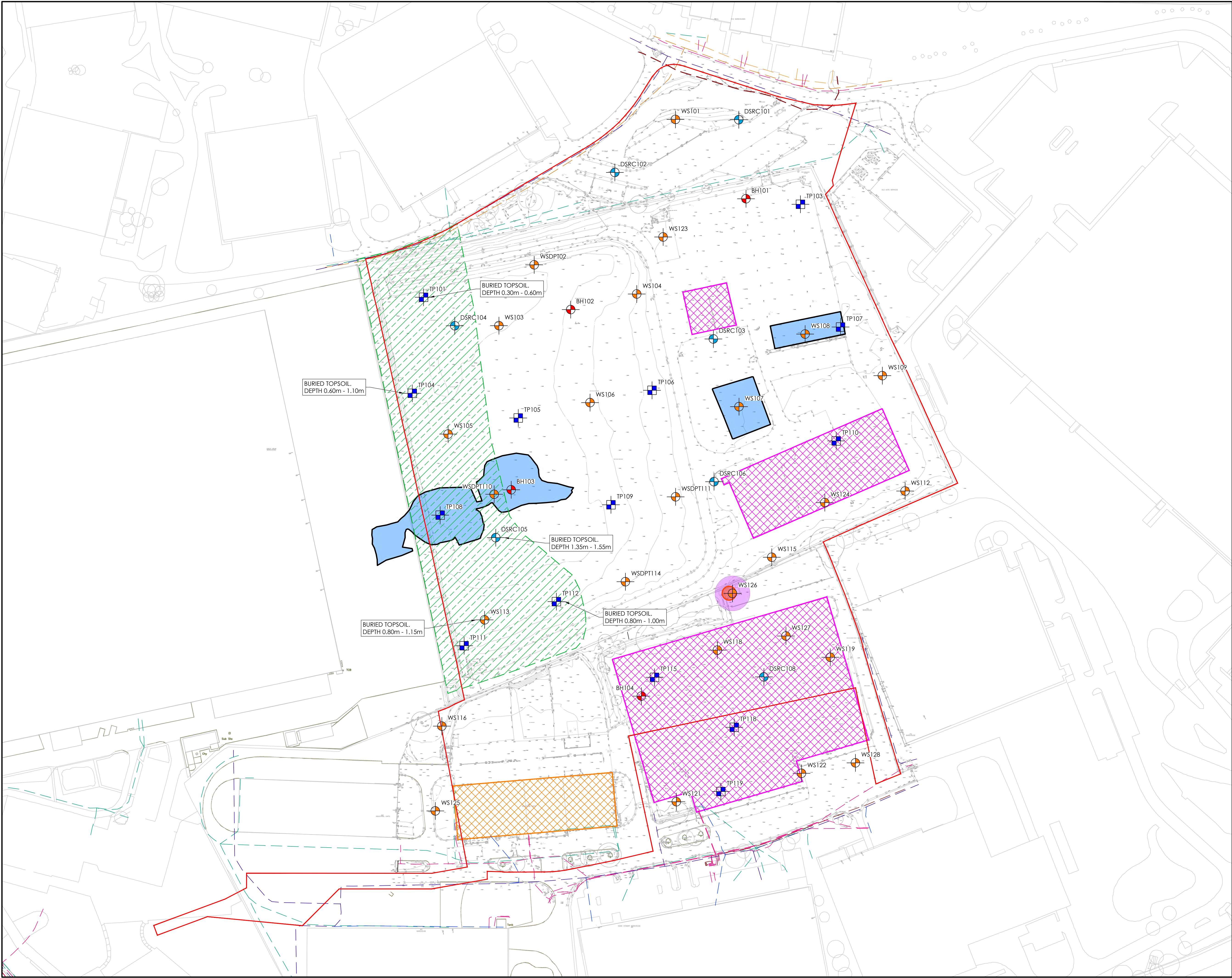
Drawing Title
AS BUILT EXPLORATORY HOLE LOCATION
PLAN

PLANNING

JPG

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NOTES

LEGEND

HISTORICAL BUILDING
APPROXIMATE LOCATION OF HISTORICAL BUILDING TAKEN FROM CENTREMAPS REPORT: CMAPS-JPG-989525-62914-090921HIS

EXISTING BUILDING
APPROXIMATE LOCATION OF EXISTING BUILDING AS PER TOPOGRAPHICAL SURVEY CARRIED OUT BY GREENHATCH GROUP DRAWING NO. 15345 OGL

HISTORICAL POND
APPROXIMATE LOCATION OF HISTORICAL POND TAKEN FROM CENTREMAPS REPORT: CMAPS-JPG-989525-62914-090921HIS

HISTORICAL TANK
APPROXIMATE LOCATION OF HISTORICAL TANK TAKEN FROM GROUNDSURE REPORT CMAPS-JPG-989325-62914-090921-EDRGE0

EXISTING SERVICES

EXISTING COMMS BT OPENREACH

EXISTING COMMS LUMEN

EXISTING COMMS VIRGIN MEDIA

EXISTING COMMS VODAPHONE

EXISTING ELECTRIC 4KV

EXISTING ELECTRIC 11KV

EXISTING ELECTRIC 22KV

EXISTING ELECTRIC LV

EXISTING GAS

EXISTING GAS MP

EXISTING WATER DISTRIBUTION UNITED UTILITIES

EXISTING WATER DISTRIBUTION PRIVATE

ILLUSTRATIVE SITE BOUNDARY (TBC)

JPG SITE INVESTIGATION
NOVEMBER 2021

TP101
TRAIL PIT

BH101
CABLE PERCUSSIVE BOREHOLE

WS101
WINDOW SAMPLE BOREHOLE

DS/RC101
DYNAMIC SAMPLE BOREHOLE WITH ROTARY CORED FOLLOW ON

WS/DPT102
WINDOW SAMPLE BOREHOLE WITH DYNAMIC PENETRATION TEST

BURIED TOPSOIL
APPROXIMATE LOCATION OF BURIED TOPSOIL TAKEN FROM SITE INVESTIGATION FINDINGS.

HYDROCARBON IMPACTED SOILS
APPROXIMATE LOCATION OF HYDROCARBON IMPACTED SOILS ASSOCIATED WITH FORMER TANK TO BE REMOVED FROM SITE. TAKEN FROM SITE INVESTIGATION FINDINGS.

P03	UPDATED PROJECT REFERENCE.	28.04.22	JBW	AJB
P02	JPG SITE AS BUILT INVESTIGATION ADDED. BURIED TOPSOIL LOCATION ALSO INCLUDED.	12.01.22	JBW	LSG
P01	FIRST ISSUE.	06.10.21	LSG	AJB
REV	DESCRIPTION	DATE	CHK	BY

Project
PLOT M400
HEYWOOD

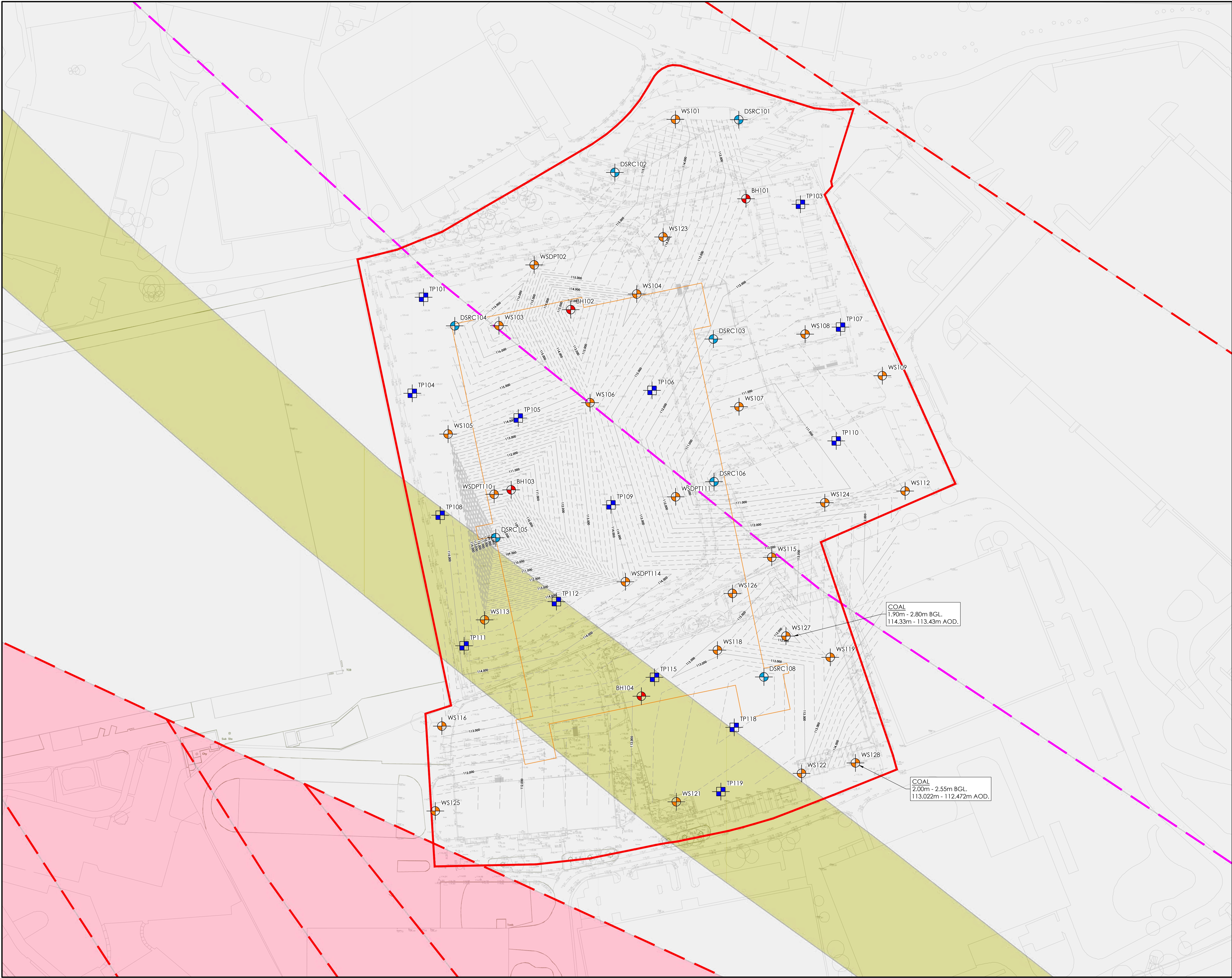
Drawing Title
SITE CONSTRAINTS PLAN

PLANNING

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5986-JPG-ZZ-ZZ-DR-C-0001 | S4 | P03



DO NOT SCALE (A1)

NOTES

LEGEND

LEGEND

JPG SITE INVESTIGATION

JPG SITE INVESTIGATION

BGS BEDROCK GEOLOGY & LINEAR

BGS BEDROCK GEOLOGY & LINEAR

1.000

0.200

ABOVE BEDROCK CONTOURS PROJECTED FROM JPG

2021 SITE INVESTIGATION DATA.

PROPOSED BUILDING OUTLINE

SITE BOUNDARY

TP101

TRAIL PIT

BH101

CABLE PERCUSSIVE BOREHOLE

WS101

WINDOW SAMPLE BOREHOLE

DS/RC101

DYNAMIC SAMPLE BOREHOLE WITH

ROTARY CORED FOLLOW ON

WS/DPT102

WINDOW SAMPLE BOREHOLE WITH

DYNAMIC PENETRATION TEST

PENNINE LOWER COAL MEASURES

ROUGH ROCK FORMATION

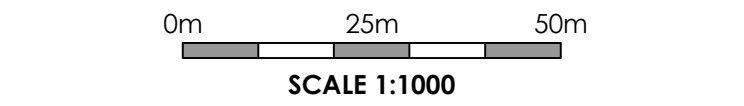
MARINE BAND

FAULT OUTCROP

ABOVE BEDROCK GEOLOGY & LINEAR FEATURES ARE

INDICATIVE ONLY. THEY ARE TAKEN FROM BGS

GEOINDEX 1:50K GEOLOGICAL MAPPING.



P01	FIRST ISSUE.	12.01.22	JBW	LSG
REV	DESCRIPTION	DATE	CHK	BY

Project
PLOT H4
HEYWOOD
DISTRIBUTION PARK

Drawing Title
BEDROCK GEOLOGY & CONTOURS

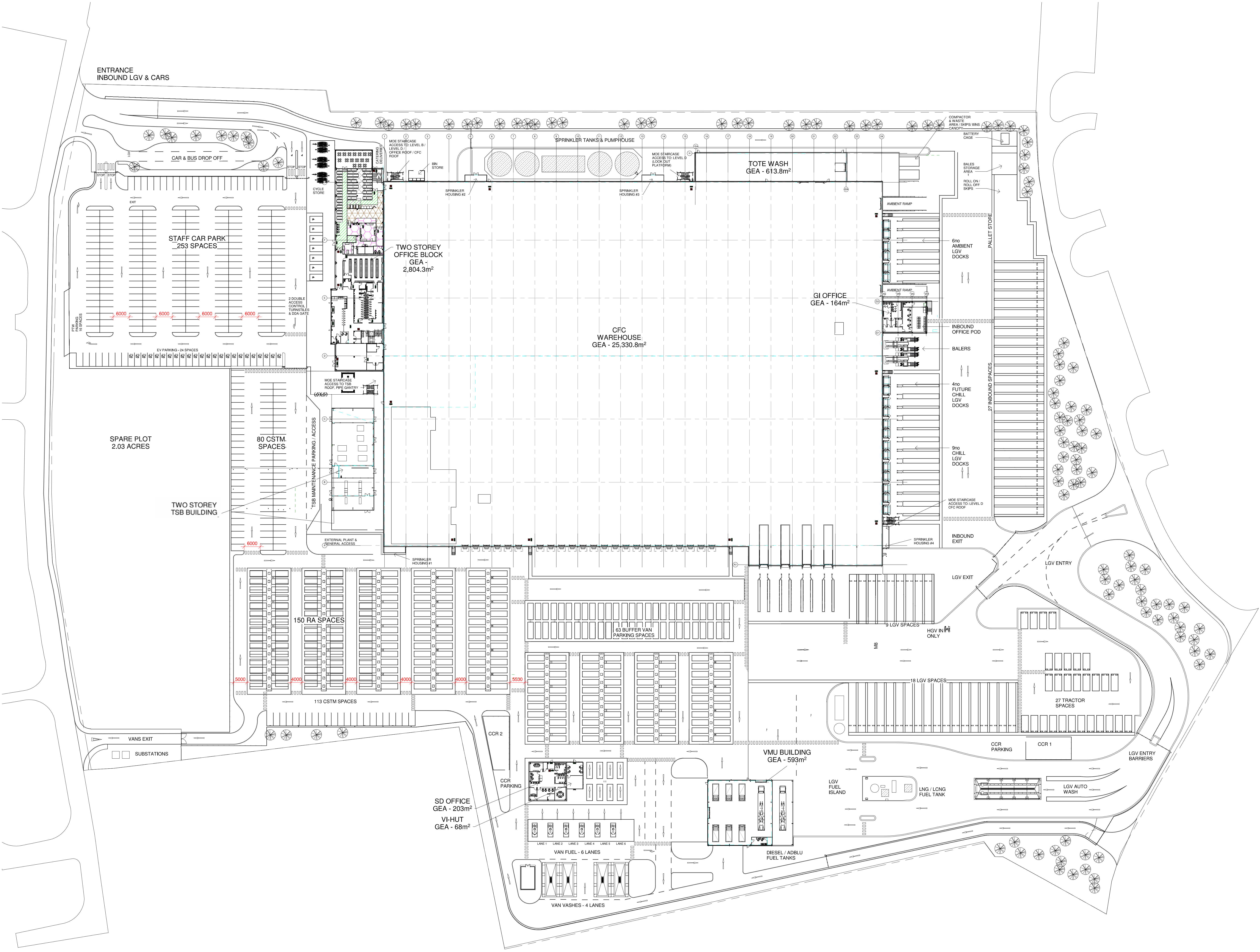
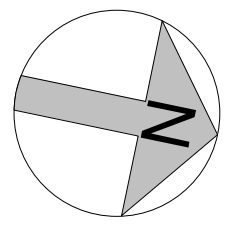
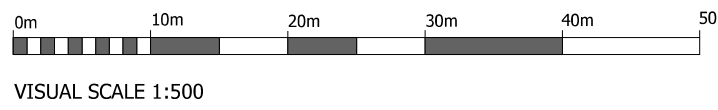
INFORMATION ISSUE

JPG

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OSCADO HEYWOOD DISTRIBUTION PARK (H400) OPTION 7 - 26.4 ACRES

SITE AREA	99,690 m ² / 9.87 HA / 24.3 ACRES	
SPARE PLOT	2.03 ACRES	
SITE DENSITY	31%	

	GROSS EXTERNAL AREA (GEA)	GROSS INTERNAL AREA (GIA)
WAREHOUSE AREA	25330.8 m ² - (272658 sqft)	25061.4 m ² - (269758 sqft)
TOTE WASH & WASTE ROOM	613.8 m ² - (6659 sqft)	504.9 m ² - (5451 sqft)
LGV, SD & DD OUTBOUND LEAN TO	358.1 m ² - (3854 sqft)	353.3 m ² - (3803 sqft)

WAREHOUSE TOTAL AREA	26302.7 m ² - (283119 sqft)	25019.5 m ² - (269071 sqft)
TWO STOREY OFFICE AREA	2804.3 m ² - (30165 sqft)	2560.0 m ² - (27632 sqft)
INBOUND OFFICE AREA	164.0 m ² - (1765 sqft)	152.0 m ² - (1638 sqft)
TSB BUILDING	1200 m ² - (13017 sqft)	1175 m ² - (12648 sqft)
VMU BUILDING	593 m ² - (6382 sqft)	550 m ² - (5928 sqft)
VI-HUT BUILDING	68.0 m ² - (732 sqft)	63.0 m ² - (678 sqft)
SD OFFICE	203.0 m ² - (2186 sqft)	196.0 m ² - (2120 sqft)
TOTAL AREA	31,334 m ² - (337,287 sqft)	30,635 m ² - (331,916 sqft)

INBOUND LGV PARKING	27
OUTBOUND LGV PARKING	27
TRACTOR PARKING	27
VAN BUFFER PARKING	48
VAN OVERFLOW PARKING	238 (193 CTSM Parking Spaces)
CAR PARKING	253 (Including 7 Disabled & 2HEV Parking)
CYCLE PARKING	30 (200 Shifters)
PTM PARKING	18
VAN DOCKS OUTBOUND	17 @ 4m c/c - (4No Future Van Docks)
SD OFFICE OUTBOUND	4
AMBIENT HEV DOCKS INBOUND	6
CHILL HEV DOCKS INBOUND	9 (4No Future CHD Docks)

1 Site Plan
1 : 500

Do not scale this drawing
all dimensions to be verified at construction in figured dimensions
any dimensions not shown are to be taken from the relevant
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For other information refer to the latest revision of any cross referenced drawing



LOCATION PLAN:

NOTES:

REV	DATE	DESCRIPTION	DRAWN BY	CHECK BY

PROJECT DATA			
Heywood Distribution Park - External Works			
DRAWING TITLE			
Proposed Site Plan			
REV	DATE	STATUS	BY
3	PRE TENDER	NIB	RB

CURT

Aulton-Smith
Infrastructure Services
Aulton Smith, Balderny House, 2 Victoria Avenue, Hemmings, North Yorkshire, YO1 1EL
Tel: 01454 512000 Fax: 01454 512001
www.aulton-smith.co.uk



Appendix B Exploratory Hole Logs



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Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 04/11/2021 - 05/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383835.45 N409766.02
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC101	Hole Type CP+RC	Level 119.28m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 1 of 2
------------------------------------	--------------------	----------------------	------------------	---------------	-----------------------------

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (%)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		0.20						0.20	119.08		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)	
		1.20						1.20	118.08		MADE GROUND: Firm brown slightly sandy gravelly CLAY. Gravel is angular of sandstone, mudstone and brick.	1
		3.00	W				(27)				Soft orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	2
											... becoming stiff, high strength.	3
											... becoming very high strength.	4
							(52)					5
												6
												7
		7.35 - 8.85	NI	100	0	0		7.35	111.93		Thinly laminated grey MUDSTONE.	8
		8.85 - 9.30	D				50 (25 for 0mm/5 0 for 0mm)	8.60	110.68		Grey fine to coarse grained SANDSTONE.	9
		8.85 - 10.35	10	47	0	0					At 8.85m: Very weak Discontinuities are medium spaced, horizontal (5-10 degrees), planar, smooth and clean.	10
							50 (25 for 0mm/5 0 for 0mm)	10.35	108.93		Very weak, thinly laminated grey	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.



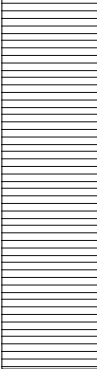


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Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 04/11/2021 - 05/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383835.45 N409766.02
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC101	Hole Type CP+RC	Level 119.28m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 2 of 2
------------------------------------	--------------------	----------------------	------------------	---------------	-----------------------------

Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		10.35 - 11.85	NI	100	9	7	13.35	105.93		Very weak, thinly laminated grey MUDSTONE.	11
		11.85 - 13.35		87	0	0					12
		12.85 - 13.00	D								13
										End of Borehole at 13.35m	14
											15
											16
											17
											18
											19
											20
											21

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.



Rotary Core Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 08/11/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383764.03 N409735.62

Project No. : 5986

Crew Name: Ace Drilling

Drilling Equipment: Dynamic sample and rotary core

[illegible][illegible]

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.

		5 John Charles Leeds LS12 6QA		Rotary Core Log													
Project Name: H4 Heywood						Client: Black Cat Building Consultancy Limited						Date: 08/11/2021					
Location: Heywood, Manchester						Contractor:						Co-ords: E383764.03 N409735.62					
Project No. : 5986						Crew Name: Ace Drilling						Drilling Equipment: Dynamic sample and rotary core					
Borehole Number DS/RC102			Hole Type CP+RC			Level 120.22m AoD			Logged By AJS			Scale 1:55			Page Number Sheet 2 of 2		
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (%)	Depth (m)	Level (m)	Legend	Stratum Description						
				TCR	SCR	RQD											
		10.20 = 11.70	2 D NI	93	0	0		11.70	108.52		Very weak thinly laminated grey MUDSTONE.						11
											End of Borehole at 11.70m						12
																	13
																	14
																	15
																	16
																	17
																	18
																	19
																	20
																	21
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
Remarks																	
No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.																	
																	



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Rotary Core Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 11/11/2021 - 12/11/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383820.82 N409639.67

Project No. : 5986

Crew Name: Ace Drilling

Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC103		Hole Type CP+RC		Level 117.71m AoD		Logged By AJS		Scale 1:55	Page Number Sheet 1 of 2	
Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description
				TCR	SCR	RQD				
							0.20	117.51		MADE GROUND: Grey angular fine to coarse GRAVEL of limestone. MADE GROUND: Grey brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick.
							1.25	116.46		Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]
										becoming stiff, high strength.
							5.90	111.81		Extremely weak thinly laminated light grey clayey fine grained SANDSTONE. Recovered as angular cobbles of sandstone.
		6.90 - 7.25 6.35 - 7.85 7.55 - 7.85	D NI C	100	20	20				
		7.85 - 9.35		83						
		9.35 - 10.85	21	87	47	47	9.20	108.51		Very weak thinly laminated grey MUDSTONE. Discontinuities are sub-horizontal (10-45 degrees), very closely spaced planar rough, tight and undulating.

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.





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Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 11/11/2021 - 12/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383820.82 N409639.67
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC103	Hole Type CP+RC	Level 117.71m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 2 of 2
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Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (%)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		10.85 - 12.35		77	50	50		12.35	105.36		Very weak thinly laminated grey MUDSTONE.	11
											End of Borehole at 12.35m	12
												13
												14
												15
												16
												17
												18
												19
												20
												21

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.





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Rotary Core Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 03/11/2021 - 04/11/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383671.81 N409647.30

Project No. : 5986

Crew Name: Ace Drilling

Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC104		Hole Type CP+RC		Level 120.20m AoD		Logged By AJS		Scale 1:55	Page Number Sheet 1 of 2	
Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description
				TCR	SCR	RQD				
							0.20	120.00		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)
							0.65	119.55		MADE GROUND: Soft dark grey slightly sandy CLAY.
										Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]
										becoming stiff, very high strength.
							4.65	115.55		Very weak grey fine to coarse grained SANDSTONE.
		5.45 - 6.95	NI							
			5	100	0	0				
			NI							
			12							
		6.95 - 8.45	NI							
			13	98	5	0				
			NI							
		8.45 - 9.95	24	85	0	0				Discontinuities are closely spaced, sub-horizontal (10-30 degrees), rough, undulating and partly open.
		10.60 - 10.80	C							

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered drilling. No visual or olfactory evidence of hydrocarbons.





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Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 03/11/2021 - 04/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383671.81 N409647.30
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC104	Hole Type CP+RC	Level 120.20m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 2 of 2
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Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (%)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.95 - 11.45	20	85	15	11		11.45	108.75		Very weak grey fine to coarse grained SANDSTONE.	11
											End of Borehole at 11.45m	12
												13
												14
												15
												16
												17
												18
												19
												20
												21

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
No groundwater encountered drilling. No visual or olfactory evidence of hydrocarbons.



Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 01/11/2021 - 03/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383695.41 N409525.24
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

[illegible][illegible]

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.



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Rotary Core Log

Project Name: H4 Heywood			Client: Black Cat Building Consultancy Limited			Date: 01/11/2021 - 03/11/2021		
Location: Heywood, Manchester			Contractor:			Co-ords: E383695.41 N409525.24		
Project No. : 5986			Crew Name: Ace Drilling			Drilling Equipment: Dynamic sample and rotary core		
Borehole Number DS/RC105		Hole Type CP+RC		Level 119.64m AoD		Logged By AJS		Page Number Sheet 2 of 2

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (%)	Depth (m)	Level (m)	Legend	Stratum Description					
				TCR	SCR	RQD										
		10.70 - 11.20	NI	100	40	20	50 (25 for 0mm/5 0 for 0mm)	12.50 12.90 15.00	107.14 106.74 104.64		Very stiff very high strength grey slightly sandy slightly gravelly CLAY. Gravel is angular fine to medium of mudstone. [Lower Pennine Coal Measures]	11				
		11.20 - 12.50		77	8	8						Thinly laminated light grey SILTSTONE with interlaminations of grey mudstone.	12			
		12.50 - 14.00		100	0	0							Extremely thinly laminated grey MUDSTONE distinctly weathered to destructured.	13		
		14.20 14.00 - 15.00 14.70 - 14.90	B 4 C	100	90	89							... becoming very weak. Discontinuities: sub-horizontal (5-30 degrees) medium spaced undulating rough partly open.	14		
														End of Borehole at 15.00m	15	
																16
																17
																18
																19
																20
																21

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.





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Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 09/11/2021 - 11/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383821.21 N409557.49
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC106	Hole Type CP+RC	Level 117.40m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 1 of 2
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Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (%)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								0.20	117.20		MADE GROUND: Grey angular fine to coarse GRAVEL of limestone. MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick.	1
							(34)	2.40	115.00		Very stiff, very high strength orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	2
							50 (8.7/50 for 0mm)					3
												4
												5
												6
												7
							50 (25 for 0mm/50 for 0mm)	7.40	110.00		Very weak grey fine to coarse grained SANDSTONE.	8
		8.90 - 10.40		30	0	0						9
			NI				50 (25 for 0mm)					10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered drilling. No visual or olfactory evidence of hydrocarbons.





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Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 09/11/2021 - 11/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383821.21 N409557.49
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC106	Hole Type CP+RC	Level 117.40m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 2 of 2
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Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		11.00 - 11.50	D				11.70 12.00 16.50 17.50	105.70 105.40 100.90 99.90		Very weak grey fine to coarse grained SANDSTONE.	11
		11.00 - 12.00	3	100	0	0				Discontinuities are medium spaced oblique (65 degrees), planar, rough and clean.	12
			NI							Extremely thinly laminated grey MUDSTONE distinctly weathered to destructured.	
		12.00 - 13.50	NI							Very weak thinly laminated light grey clayey fine grained SANDSTONE destructured. Recovered as angular cobbles of sandstone.	
			3	90	0	0				Discontinuities are medium spaced sub-horizontal (10-20 degrees), planar, rough and clean.	13
			NI								14
		13.50 - 15.00	11							From 13.85m: Grey SANDSTONE.	
			4	100	4	0				From 14.10m: Very weak thinly laminated light grey clayey fine grained SANDSTONE destructured. Recovered as angular cobbles of sandstone.	
			NI							From 14.35m: Grey SANDSTONE.	
		15.00 - 16.50	35							Discontinuities are medium spaced horizontal (5-10 degrees), planar, smooth and clean.	15
		16.00 - 16.50	D	100	3	0				Discontinuities are medium spaced sub-horizontal (10-20 degrees) and sub-vertical (50-65), planar, smooth and clean.	
		16.50 - 17.50	NI	80	0	0				Very weak thinly laminated light grey clayey fine grained SANDSTONE destructured. Recovered as angular cobbles of sandstone.	17
										End of Borehole at 17.50m	18
											19
											20
											21

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered drilling. No visual or olfactory evidence of hydrocarbons.





5 John Charles
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LS12 6QA

Rotary Core Log

Project Name: H4 Heywood	Client: Black Cat Building Consultancy Limited	Date: 15/11/2021
Location: Heywood, Manchester	Contractor:	Co-ords: E383849.92 N409445.02
Project No. : 5986	Crew Name: Ace Drilling	Drilling Equipment: Dynamic sample and rotary core

Borehole Number DS/RC108	Hole Type CP+RC	Level 116.21m AoD	Logged By AJS	Scale 1:55	Page Number Sheet 1 of 1
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Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
										MADE GROUND: Reinforced concrete.	
							0.60	115.61		MADE GROUND: Brown sandy slightly gravelly CLAY. Gravel is angular to subangular of sandstone. Low subangular cobble content of sandstone.	1
										Firm becoming stiff orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	2
							2.40	113.81		Extremely weak thinly laminated grey MUDSTONE distinctly weathered to destructured.	3
		4.00 - 4.40	D								4
		4.40 - 5.90	NI	100	0	0					5
		5.90 - 7.40	29	100	0	0	5.90	110.31		Very weak thinly laminated grey MUDSTONE.	6
		7.30 - 7.70	NI D							Discontinuities are very closely spaced, sub-vertical (60-75 degrees), planar smooth, tight and clean.	7
		7.40 - 8.40	9	100	0	0	7.90	108.31		Discontinuities are closely spaced, sub-horizontal (5-15 degrees), tight, planar, and clean.	8
		8.40 - 8.90	NI	100	0	0				Extremely thinly laminated grey MUDSTONE distinctly weathered to destructured.	8
							8.90	107.31		End of Borehole at 8.90m	9
											10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

No groundwater encountered during drilling. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
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Cable Percussion Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 10/11/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383839.60 N409720.47

Project No. : 5986

Crew Name: Geotron

Drilling Equipment: Cable percussive rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH101	CP	117.89m AoD	AJS	1:55	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	117.59		MADE GROUND: Reinforced concrete.	
					0.70	117.19		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick.	
		1.20	UT					Firm medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	1
		2.00	SPT	N=12 (2,2/3,3,3,3)					2
		3.00	UT						3
		4.00	SPT	N=17 (2,3/4,4,4,5)					4
								At 4.00m: Stiff, high strength.	5
		5.45				112.44		Extremely weak dark grey thinly laminated MUDSTONE. [Lower Pennine Coal Measures]	6
		6.50	SPT	N=50 (10,15/50 for 250mm)					7
		7.50			7.50	110.39		Very weak dark grey MUDSTONE. [Lower Pennine Coal Measures]	
		7.70	SPT	50 (25 for 100mm/50 for 50mm)	7.85	110.04		End of Borehole at 7.85m	8
									9
									10
									11

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

Refusal at 7.85m. No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Cable Percussion Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 15/11/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383738.59 N409656.61

Project No. : 5986

Crew Name: Geotron

Drilling Equipment: Cable percussive rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH102	CP	119.27m AoD	AJS	1:55	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15	119.12		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone and brick. (topsoil)	
								MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick. Low to medium angular cobble content of sandstone and brick.	1
		2.00	SPT	N=12 (1,2/3,3,3,3)	2.00	117.27		Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded to rounded of sandstone. Low subrounded cobble content of sandstone. Rare coal fragments. [Glacial Till]	2
		3.00	UT						3
		4.00	SPT	N=17 (3,3/4,4,4,5)				At 4.00m: Stiff, high strength.	4
									5
		6.50	SPT	N=22 (3,4/4,5,6,7)					6
					7.05	112.22		Extremely weak dark grey laminated MUDSTONE. [Lower Pennine Coal Measures]	7
		8.00	UT						8
		9.00	SPT	50 (10,15/50 for 150mm)	9.00	110.27		Very weak grey MUDSTONE. [Lower Pennine Coal Measures]	9
		9.50	SPT	50 (25 for 100mm/50 for 100mm)	9.70	109.57		End of Borehole at 9.70m	10
									11

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

Water strike at 7.5m. Refusal at 9.30m due to contact with bedrock. Chiselled for 30 minutes followed by another refusal at 9.50m No visual or olfactory evidence of hydrocarbons.





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Cable Percussion Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 11/11/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383704.29 N409552.81

Project No. : 5986

Crew Name: Geotron

Drilling Equipment: Cable percussive rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH103	CP	119.86m AoD	AJS	1:55	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	119.66		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone and brick. (topsoil)	
		1.20	UT		1.20	118.66		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick. Low to medium angular cobble content of sandstone and brick.	1
		2.00	SPT	N=12 (1,2/3,3,3,3)	2.00	117.86		MADE GROUND: Dark grey sandy slightly gravelly CLAY. Gravel is sub angular fine to medium of sandstone.	2
								Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	
								... becoming brown.	3
		4.00	SPT	N=11 (2,2/3,2,3,3)					4
		5.00	UT						5
		6.50	SPT	N=15 (2,3/3,4,4,4)					6
		8.00	SPT	N=28 (3,3/5,6,7,10)				Below 8.00m: Stiff, high strength.	7
		9.50	SPT	N=36 (4,5/6,10,10,10)				Below 9.50m: Very stiff, very high strength.	8
					9.95	109.91		End of Borehole at 9.95m	9
									10
									11

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Cable Percussion Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 10/11/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383779.31 N409433.93	
Project No. : 5986		Crew Name: Geotron		Drilling Equipment: Cable percussive rig	
Borehole Number BH104	Hole Type CP	Level 116.23m AoD		Logged By AJS	Scale 1:55
				Page Number Sheet 1 of 1	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.12			0.12	116.11		MADE GROUND: Reinforced concrete.	1
		0.75			0.75	115.48		MADE GROUND: Brown sandy slightly gravelly CLAY. Gravel is angular to subangular of sandstone. Low subangular cobble content of sandstone.	
		1.20	UT					Soft grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone. Rare coal fragments. [Glacial Till]	
		2.00	SPT	N=50 (3,3/3,2,20,25)				At 2.00m: Very high strength.	
		2.45			2.45	113.78		Very weak light brown grey coarse grained SANDSTONE. [Helpet Edge Rock]	
		3.00	SPT	50 (25 for 25mm/50 for 125mm)	3.15	113.08		End of Borehole at 3.15m	3
									4
									5
									6
									7
									8
									9
									10
									11

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
Refusal at 3.15m. No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 18/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383798.95 N409766.19

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS101	WS	119.85m AoD	AJS	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.25	ES		0.30	119.55		MADE GROUND: Firm brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)	
								MADE GROUND: Soft brown slightly sandy gravelly CLAY. Gravel is angular of sandstone, mudstone and brick.	
		1.00	SPT	N=6 (1,1/1,1,2,2)	1.20	118.65		... becoming firm, medium strength.	1
		2.00	SPT	N=10 (2,2/2,2,3,3)				... becoming stiff, high strength.	2
		3.00	SPT	N=15 (2,2/3,4,3,5)				... becoming stiff and gravelly of sub angular and sub rounded sandstone and mudstone.	3
		4.00	SPT	N=16 (3,2/3,4,4,5)				Very stiff/very high strength (possible bedrock).	4
									5

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 18/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383798.95 N409766.19	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS101	Hole Type WS	Level 119.85m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	N=54 (12,11/9,14,17,14)				Firm, medium strength brown mottled grey slightly sandy gravelly CLAY. Gravel is subrounded to subangular of sandstone. [Glacial Till]	
					5.45	114.40		End of Borehole at 5.45m	
									6
									7
									8
									9
									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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 18/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383717.55 N409682.39	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS102	Hole Type WS	Level 120.15m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	119.95		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)	
		1.00	SPT	N=10 (2,2/3,2,2,3)				Firm becoming stiff, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]	1
		1.25	D					... becoming stiff.	
		2.00	SPT	N=18 (2,3/3,5,5,5)					2
		3.00	SPT	N=21 (3,3/4,5,6,6)					3
		4.00	SPT	50 (4,5/50 for 190mm)				... becoming very high strength.	4
					4.45	115.70		End of Borehole at 4.45m	5

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 18/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383697.23 N409647.35

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number WS103	Hole Type WS	Level 120.15m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.50	ES		0.25	119.90		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)	1
								MADE GROUND: Dark grey sandy angular fine to coarse GRAVEL of ash and clinker.	
					0.60	119.55		Soft, low strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]	
		1.00	SPT	N=6 (1,1/1,1,2,2)					
		2.00	SPT	N=5 (0,0/1,1,1,2)				becoming high strength.	2
		3.00	SPT	N=20 (3,4/4,5,5,6)					3
		3.45				116.70		End of Borehole at 3.45m	4
									5

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 19/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383776.67 N409665.61	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS104	Hole Type WS	Level 118.61m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20	118.41		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone. Low angular cobble content of sandstone.	
		0.40	D					Firm, low strength brown and mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]	
		1.00	SPT	N=7 (2,1/2,1,2,2)					1
		2.00	SPT	N=5 (0,0/0,1,2,2)				... becoming brown.	2
		3.00	SPT	N=11 (1,2/2,2,3,4)				... becoming firm.	3
		4.00	SPT	N=18 (2,4/4,4,5,5)				... becoming firm, medium strength.	4
									5

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





Window Sampler Log

Date: 19/10/2021

Co-ords: E383776.67 N409665.61

Drilling Equipment: Window sample rig

Page Number
Sheet 2 of 2[illegible]

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 19/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383667.93 N409584.91

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number WS105	Hole Type WS	Level 119.79m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 2
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.70	119.09		MADE GROUND: Soft grey slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and brick. Medium angular cobble content of sandstone.	1
		1.00	SPT	N=6 (1,1/1,1,2,2)				Soft, low strength orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of sandstone and mudstone. Rare coal fragments. [Glacial Till]	
		2.00	SPT	N=7 (1,1/1,1,2,3)					
		3.00	SPT	N=16 (3,3/3,4,4,5)				... becoming grey brown.	
		4.00	SPT	N=24 (4,6/6,6,6,6)				... becoming medium strength.	
								Firm.	4
									5

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





Window Sampler Log

Date: 19/10/2021

Co-ords: E383667.93 N409584.91

Drilling Equipment: Window sample rig

Page Number
Sheet 2 of 2[illegible]

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 19/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383749.75 N409603.02	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS106	Hole Type WS	Level 119.08m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.25			0.25	118.83		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)	1
		0.50	ES					MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick. Low to medium angular cobble content of sandstone and brick.	
		1.00	SPT	N=7 (1,0/1,2,2,2)					
		1.40			1.40	117.68		Soft brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till].	
		2.00	SPT	N=7 (2,1/1,2,2,2)					2
		3.00	SPT	N=8 (1,1/2,2,2,2)				... becoming brown.	3
		4.00	SPT	N=21 (3,4/5,5,6,5)				... becoming very stiff.	4
									5

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 No groundwater encountered. No visual or olfactory evidence of hydrocarbons.											
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LS12 6QA

Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 19/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383749.75 N409603.02

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS106	WS	119.08m AoD	AJS	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	N=21 (3,4/5,5,6,5)				Soft brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till].	
					5.45	113.63		End of Borehole at 5.45m	
									6
									7
									8
									9
									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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
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LS12 6QA

Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 12/11/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383835.57 N409600.70	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS107	Hole Type WS	Level 117.56m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.20	117.36		MADE GROUND: Light grey sandy angular fine to coarse GRAVEL of limestone.	1
								MADE GROUND: Dark brown grey slightly clayey gravelly SAND. Gravel is angular to subangular of sandstone, limestone and brick. Low angular cobble content of sandstone.	
		1.00	SPT	N=11 (4,6/3,3,3,2)	0.70	116.86		Firm, medium strength orange brown mottled light grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone. Rare mudstone. [Glacial Till]	
		2.00	SPT	N=11 (1,2/3,3,2,3)				... becoming stiff.	
		3.00	SPT	N=32 (2,5/8,8,8,8)				... becoming high strength.	
		4.00	SPT	N=18 (1,3/3,4,5,6)				... becoming medium strength.	4
					4.45	113.11		End of Borehole at 4.45m	5

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
Standing groundwater at 0.3m bgl. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
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LS12 6QA

Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 21/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383873.69 N409642.52	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS108	Hole Type WS	Level 117.50m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.35	117.15		MADE GROUND: Concrete	
								MADE GROUND: Loose orange brown subangular fine to coarse GRAVEL of limestone.	1
		1.00	SPT	N=8 (1,1/2,2,2,2)					
					1.65	115.85		Soft, low strength orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular of sandstone. [Glacial Till]	2
		2.00	SPT	N=7 (1,1/1,2,2,2)					
								Soft.	
		3.00	SPT	N=16 (2,3/3,4,4,5)				... becoming stiff, high strength.	3
					3.40	114.10		Firm to soft red brown sandy slightly gravelly CLAY. Gravel is subangular of sandstone. [Glacial Till]	
								... becoming very stiff, very high strength. Wet (possible groundwater strike).	4
		4.00	SPT	N=35 (4,7/8,8,10,9)				Stiff.	5

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

Groundwater encountered at 0.40m bgl. No visual or olfactory evidence of hydrocarbons.

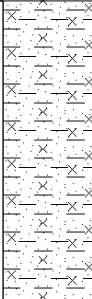




5 John Charles Way
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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 21/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383873.69 N409642.52	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS108	Hole Type WS	Level 117.50m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	N=40 (6,8/8,11,11,10)				Firm to soft red brown sandy slightly gravelly CLAY. Gravel is subangular of sandstone. [Glacial Till] Very stiff.	
					6.00	111.50		End of Borehole at 6.00m	6
									7
									8
									9
									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

Groundwater encountered at 0.40m bgl. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 21/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383918.18 N409618.56

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS109	WS	117.50m AoD	AJS	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.20	ES		0.30	117.20		MADE GROUND: Dark brown sandy CLAY with rootlets. (Topsoil)	
		1.00 1.00	W SPT	N=4 (1,0/1,2,1,0)				MADE GROUND: Very soft, very low strength brown slightly sandy slightly gravelly CLAY. Gravel is subangular and subrounded of sandstone, brick and limestone.	1
		1.90 - 2.00 2.00	ES SPT	N=7 (2,1/2,1,2,2)	1.90	115.60		Soft, low strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subangular and subrounded of sandstone and limestone. Rare coal fragments. [Glacial Till].	2
		3.00	SPT	N=0 (0,0/0,0,0,0)				At 3.00m: Extremely soft/possible void.	3
		4.00	SPT	N=31 (4,6/8,8,7,8)	3.60	113.90		High strength stiff red brown angular slightly sandy gravelly CLAY. Gravel is subrounded and subangular fine to medium of sandstone and limestone. [Glacial Till].	4
									5

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

Groundwater encountered at 0.8m bgl. No visual or olfactory evidence of hydrocarbons.





Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 21/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383918.18 N409618.56

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number
WS109

Hole Type	WS
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Level
117.50m AoD

Logged By
AJS

Scale
1:25

Page Number
Sheet 2 of 2[illegible][illegible]

Remarks

Groundwater encountered at 0.8m bgl. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 19/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383694.49 N409550.23	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS110	Hole Type WS	Level 119.87m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.00	SPT	N=5 (1,2/1,1,1,2)				MADE GROUND: Soft, low strength brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone. Low to medium angular cobble content of brick.	1
		1.50	D		1.50	118.37		Very organic dark grey with rootlets.	
		2.00	SPT	N=12 (1,2/2,4,3,3)				Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	2
		3.00	SPT	N=11 (2,2/2,3,3,3)				Very silty.	3
		4.00	SPT	N=12 (2,2/2,3,3,4)					4
									5

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 19/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383694.49 N409550.23

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number WS110	Hole Type WS	Level 119.87m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 2 of 2
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	N=35 (7,8/10,9,9,7)				Firm, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till] ... becoming high strength.	
					5.45	114.42		End of Borehole at 5.45m	
									6
									7
									8
									9
									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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 19/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383799.05 N409548.77

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS111	WS	118.29m AoD	AJS	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	118.09		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular fine of sandstone. (topsoil)	
					0.85	117.44		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick. Low to medium angular cobble content of sandstone and brick.	
		1.00	SPT	N=6 (1,2/1,1,2,2)				Soft becoming firm low strength brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone. [Glacial Till].	1
		1.30	D					From 1.30m: Very stiff.	
		2.00	SPT	N=7 (1,1/1,2,2,2)				... becoming medium strength.	2
		3.00	SPT	N=11 (1,2/2,3,3,3)				... becoming medium strength.	3
		4.00	SPT	N=18 (2,3/3,4,5,6)				... becoming medium strength.	4
								... becoming medium strength.	5

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.

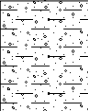




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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 19/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383799.05 N409548.77	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS111	Hole Type WS	Level 118.29m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	50 (11,13/50 for 225mm)	5.38	112.92		Soft becoming firm low strength brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone. [Glacial Till]. ... becoming high strength.	6 <

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 20/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383931.31 N409552.11	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS112	Hole Type WS	Level 116.85m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.60			0.60	116.25		MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and brick. Low angular cobble content of brick.	
		0.90	D						
		1.00	SPT	N=13 (1,2/2,3,4,4)				Stiff, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and red sandstone. Rare coal fragments. [Glacial Till]	1
		2.00	SPT	N=11 (2,2/2,3,3,3)				... becoming dark grey brown and very stiff. ... becoming firm.	2
		3.00	SPT	N=13 (1,1/1,3,4,5)				... becoming brown.	3
		4.00	SPT	N=23 (3,4/4,5,7,7)				... becoming red brown sandy CLAY. ... becoming dark brown and very stiff. ... becoming soft brown clayey gravelly SAND. Gravel is angular sandstone.	4
									5

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 20/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383931.31 N409552.11

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number WS112	Hole Type WS	Level 116.85m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 2 of 2
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	N=23 (5,5/5,5,6,7)				Stiff, medium strength orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and red sandstone. Rare coal fragments. [Glacial Till]	
					5.45	111.40		End of Borehole at 5.45m	
									6
									7
									8
									9
									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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 19/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383688.99 N409477.89

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number WS113	Hole Type WS	Level 119.25m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.80	ES		0.80	118.45		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and brick. Low angular cobble content of sandstone and brick.	1
		1.00	SPT	N=6 (0,0/0,2,2,2)	1.15	118.10		MADE GROUND: Soft brown grey slightly organic slightly sandy CLAY with rootlets. (Relict Topsoil)	
					1.60	117.65		Soft to firm brown mottled grey sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	
		2.00	SPT	N=11 (2,2/2,3,3,3)				Medium strength firm to soft orange brown mottled light grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded of sandstone. [Glacial Till]	2
								... becoming grey brown.	
		3.00	SPT	N=10 (2,2/2,2,3,3)				... becoming very sandy.	3
					3.60	115.65		Dense brown slightly gravelly fine to coarse SAND. Gravel is subrounded of sandstone.	
		4.00	SPT	N=50 (6,9/9,13,14,14)				... becoming very dense.	4
					4.45	114.80		End of Borehole at 4.45m	
									5

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
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 20/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383770.14 N409499.84

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS114	WS	118.58m AoD	AJS	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.50	118.08		MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and brick. Low angular cobble content of brick.	1
		1.00	SPT	N=14 (2,2/3,3,4,4)	1.20	117.38		MADE GROUD: Dark brown grey slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick.	
		2.00	SPT	N=11 (2,2/2,3,3,3)				Firm, medium strength brown orange mottled grey slightly sandy gravelly CLAY. Gravel is subangular to subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till].	2
		3.00	SPT	N=22 (5,6/6,5,5,6)					3
		4.00	SPT	50 (10,10/50 for 160mm)	4.31	114.27		... becoming high strength.	4
								End of Borehole at 4.31m	5

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

Refusal at 4m. No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 20/10/2021

Location: Heywood, Manchester

Contractor:

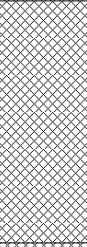
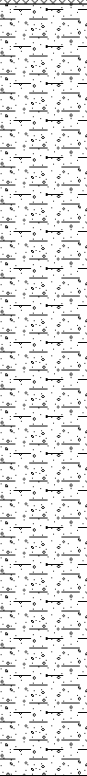
Co-ords: E383854.48 N409513.94

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS115	WS	116.86m AoD	AJS	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.00	SPT	N=14 (1,1/2,3,5,4)	0.80	116.06		MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and brick. Low angular cobble content of brick. Low angular boulder content of brick (200mmx200mmx100mm).	1
					0.90	115.96		MADE GROUD: Dark brown grey slightly sandy gravelly CLAY. Gravel is angular of sandstone. Firm, medium strength brown orange mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded of sandstone. Rare coal fragments. [Glacial Till].	
		2.00	SPT	N=11 (1,2/2,2,3,4)					2
		2.80	D					... becoming soft and brown.	
		3.00	SPT	N=50 (8,8/10,12,14,14)				... becoming high strength.	3
					3.45	113.41		End of Borehole at 3.45m	4
									5

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

Refusal at 3m. Groundwater encountered at 0.5m bgl. No visual or olfactory evidence of hydrocarbons.





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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 22/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383664.37 N409416.69	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS116	Hole Type WS	Level 117.71m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15			0.15	117.56		MADE GROUND: Brown slightly sandy slightly gravelly CLAY with rootlets. Gravel is angular and subangular of sandstone. (Topsoil)	
		0.40	D					MADE GROUND: Stiff brown sandy slightly gravelly CLAY. Gravel is angular to subangular of sandstone and brick. Low angular cobble content of brick.	
		1.00	SPT	N=8 (1,1/2,2,2,2)	1.10	116.61		Soft and firm, low strength, orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of sandstone and mudstone. Low subrounded cobble content of sandstone. Rare mudstone and coal fragments. [Glacial Till]	1
		2.00	SPT	N=7 (1,1/1,2,2,2)				Interbed of brown and mottled grey slightly clayey slightly gravelly SAND. Gravel is sub rounded fine to medium sandstone and mudstone.	2
		3.00	SPT	N=22 (3,4/5,5,6,6)				At 3.00m: becoming stiff, high strength.	3
		4.00	SPT	N=50 (6,6/12,12,13,13)					4
		4.45			4.45	113.26		End of Borehole at 4.45m	5

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





Window Sampler Log

Client: Black Cat Building Consultancy Limited

Date: 22/10/2021

Contractor:

Co-ords: E383823.16 N409460.46

Crew Name: Geospek

Drilling Equipment: Window sample rig

Hole Type	WS
1	1
2	2
3	3
4	4
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100	100

Logged By
AJS

Scale
1:25

Page Number
Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=6 (7,2/2,1,2,1)	1.60	114.64		MADE GROUND: Soft brown slightly sandy gravelly CLAY. Gravel is angular to subangular of sandstone and brick. Low angular boulder content of brick (250mmx200mmx100mm).
		2.00 2.00	D SPT	N=25 (3,5/6,6,6,7)	2.80	113.44		Very stiff, high strength grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of mudstone. [Glacial Till]
		2.90	SPT	N=51 (9,10/10,10,15,16)	3.35	112.88		Extremely weak grey thinly laminated clayey MUDSTONE arising as clayey angular fine to coarse GRAVEL of mudstone. [Lower Pennine Coal Measures]
		End of Borehole at 3.35m						

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

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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LS12 6QA

Window Sampler Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 28/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383888.18 N409456.34

Project No. : 5986

Crew Name: Geospek

Drilling Equipment: Window sample rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS119	WS	116.24m AoD	AJS	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15	116.09		MADE GROUND: Reinforced concrete.	1
					0.30	115.94		MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and mudstone.	
								MADE GROUND: Yellow Brown sandy angular fine to coarse GRAVEL of sandstone and mudstone. Low angular cobble content of sandstone.	
		1.00	SPT	N=12 (2,3/3,4,3,2)					2
					1.55	114.69		Medium strength brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone. [Glacial Till].	
		2.00	SPT	N=15 (2,3/3,4,4,4)					
		2.80	D					... becoming firm and dark grey.	
		3.00	SPT	N=24 (6,5/5,4,6,9)					
		3.50	SPT	50 (14,16/50 for 125mm)				... becoming high strength.	
					3.78	112.47		End of Borehole at 3.78m	4
									5

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

Refusal at 3.5m due to potential boulder of sandstone. Potential clay pipe at 1.8m bgl. No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





Window Sampler Log

Client: Black Cat Building Consultancy Limited

Date: 21/10/2021

Contractor:

Co-ords: E383799.47 N409373.10

Crew Name: Geospek

Drilling Equipment: Window sample rig

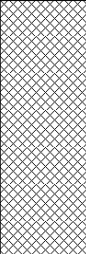
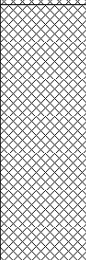
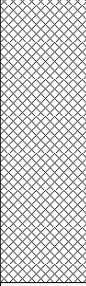
Hole Type	WS
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98	98
99	99
100	100

Level
116.30m AoD

Logged By
AJS

Scale
1:25

Page Number
Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.10 - 0.20	ES		0.25	116.05		MADE GROUND: Firm dark brown sandy CLAY with rootlets. (Topsoil)	1	
								MADE GROUND: Brown clayey sandy subangular fine to coarse GRAVEL of limestone and brick. Low angular cobble content of brick.		
		1.00	SPT	N=22 (2,4/5,6,6,5)	1.10	115.20		MADE GROUND: Medium dense light brown sandy subangular and angular fine to coarse GRAVEL of sandstone,		2
								At 2.00m: Dense.		
		2.00	SPT	N=41 (3,7/8,11,11,11)				... becoming very dense.		
2.50	SPT	52 (15,9/52 for 225mm)					4			
				2.88	113.42			End of Borehole at 2.88m	5	

[illegible]

Refusal at 2.50m bal. Groundwater seepage at 2.00m bal. No visual or olfactory evidence of hydrocarbons.

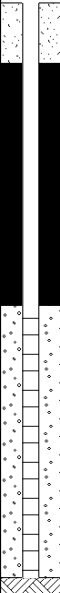
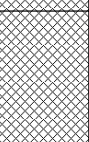
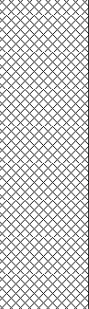




5 John Charles Way
Leeds
LS12 6QA

Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 28/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383871.62 N409389.50	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS122	Hole Type WS	Level 115.04m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	114.84		MADE GROUND: Concrete.	
					0.50	114.54		MADE GROUND: Red brown gravelly fine to coarse SAND. Gravel is angular of sandstone and brick.	
		1.00	SPT	N=17 (1,2/2,4,4,7)				MADE GROUND: Medium dense orange brown sandy angular fine to coarse GRAVEL of sandstone.	1
		1.60 1.60	ES SPT	50 (10,12/50 for 215mm)				... becoming very dense.	
					1.97	113.07		End of Borehole at 1.97m	2
									3
									4
									5

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

Refusal at 1.6m bgl. No groundwater encountered. No visual or olfactory evidence of hydrocarbons.

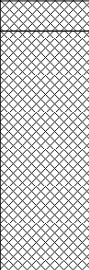
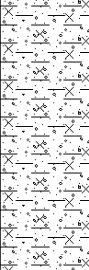
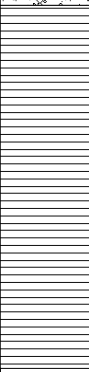




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Window Sampler Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 18/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383791.84 N409698.46	
Project No. : 5986		Crew Name: Geospek		Drilling Equipment: Window sample rig	
Borehole Number WS123	Hole Type WS	Level 117.96m AoD	Logged By AJS	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.10	117.86		MADE GROUND: Grey angular fine to coarse GRAVEL of limestone. MADE GROUND: Slightly sandy gravelly CLAY. Gravel is angular of sandstone, brick and timber.	1
		1.00	SPT	N=12 (2,2/3,3,3,3)	0.90 1.10	117.06 116.86		MADE GROUND: Grey brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone and brick. Very stiff brown mottled grey slightly sandy gravelly CLAY. Gravel is subrounded to rounded of sandstone. [Glacial Till]	
		2.00	SPT	N=26 (4,6/6,6,6,8)				At 2.00m: High strength.	
		3.00	SPT	N=34 (7,7/7,7,10,10)					3
		3.80	SPT	N=50 (10,12/12,13,14,11)	3.80	114.16		Extremely weak dark grey thinly laminated MUDSTONE. [Lower Pennine Coal Measures]	4
					5.00	112.96		End of Borehole at 5.00m	5

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 Groundwater encountered at 1.80m bgl. No visual or olfactory evidence of hydrocarbons.										
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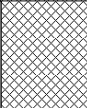
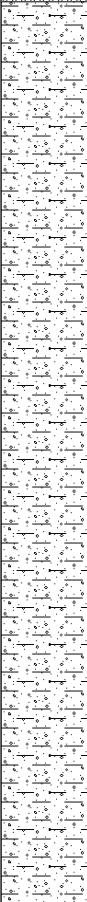
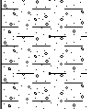
Trial Pit Log

Date: 15/10/2021

Co-ords: E383653.80 N409663.74

Equipment: JCB 3XC

Page Number
Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	120.05		MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone. Low angular cobble content of brick.	
							MADE GROUND: Soft dark grey slightly sandy CLAY.		
					0.60	119.75		Firm orange brown and mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded of sandstone. Low angular cobble content of subrounded sandstone. [Glacial Till]	1
				3.00	117.35		Dark grey slightly sandy subrounded fine to coarse GRAVEL of sandstone. Low subrounded cobble content of sandstone.	3	
							End of Trial Pit at 3.00m	4	

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks





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Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 15/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383870.99 N409717.30	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3XC	
Location Number TP103	Location Type TP	Level 117.91m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.35	ES		0.35	117.56		MADE GROUND: Reinforced CONCRETE.	
		0.70	B		0.70	117.21		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is angular of sandstone and brick. Low angular cobble content of brick.	
		0.70	D					Stiff orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	
		1.00		HSV=118	1.10	116.81		Soft grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]	1
		1.70		HSV=28					2
					3.00	114.91		End of Trial Pit at 3.00m	3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks

Slight seepage of groundwater at 1.8m bgl. No visual or olfactory evidence of hydrocarbons.





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Trial Pit Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 15/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383647.31 N409608.41

Project No. : 5986

Crew Name: SB Tippers

Equipment: JCB 3XC

Location Number TP104		Location Type TP		Level 120.02m AoD		Logged By AJS		Scale 1:20		Page Number Sheet 1 of 1	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.10	D					MADE GROUND: Stiff brown sandy slightly gravelly CLAY. Gravel is angular of sandstone. Low angular cobble content of brick.			
		0.10	ES					MADE GROUND: Soft dark grey slightly sandy CLAY.			
					0.60	119.42			1		
					1.10	118.92		Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone. Rare mudstone and coal fragments. [Glacial Till]			
					2.50	117.52		End of Trial Pit at 2.50m			
									2		
									3		
									4		

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
Rapid water flow and hydrogen sulphide odour at 1.85m bgl- possible pipe.



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Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 25/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383708.36 N409594.18	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3XC	
Location Number TP105	Location Type TP	Level 119.82m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	D					MADE GROUND: Brown grey slightly sandy gravelly CLAY. Gravel is subangular of sandstone and brick. Low angular cobble content of sandstone. Rare concrete, fence posts and steel fragments.	1
					1.50	118.32		Firm orange brown mottled light grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded of sandstone. Rare timber and coal fragments. [Glacial Till]	2
								... becoming brown.	3
					3.10	116.72		End of Trial Pit at 3.10m	4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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Trial Pit Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 25/10/2021

Location: Heywood, Manchester

Contractor:

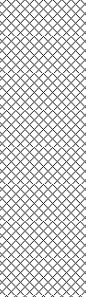
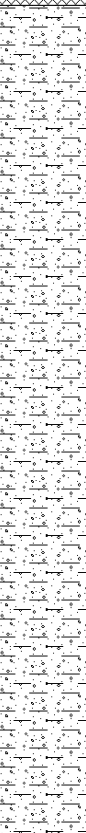
Co-ords: E383785.45 N409610.12

Project No. : 5986

Crew Name: SB Tippers

Equipment: JCB 3XC

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP106	TP	118.41m AoD	AJS	1:20	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.80	B		0.80	117.61		MADE GROUND: Brown grey slightly sandy gravelly CLAY. Gravel is subangular of sandstone and brick. Low angular cobble content of sandstone. Low subangular boulder content of sandstone (200mmx200mmx200mm). Rare fence posts and steel fragments.	
								Firm orange brown mottled light grey sandy slightly gravelly CLAY. Gravel is subrounded to rounded of sandstone. [Glacial Till]	1
									2
					3.00	115.41		End of Trial Pit at 3.00m	3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks

Seepage of groundwater at 2.1m bgl. No visual or olfactory evidence of hydrocarbons.





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Trial Pit Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 15/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383894.10 N409646.57

Project No. : 5986

Crew Name: SB Tippers

Equipment: JCB 3XC

Location Number
TP107

Location Type
TP

Level
117.82m AoD

Logged By
AJS

Scale
1:20

Page Number
Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	117.62		MADE GROUND: Reinforced CONCRETE.	
								End of Trial Pit at 0.20m	
									1
									2
									3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks

Terminated at 0.20m on concrete obstruction. No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





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LS12 6QA

Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 15/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383663.38 N409538.21	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3XC	
Location Number TP108	Location Type TP	Level 119.64m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone. Low to medium angular cobble content of sandstone and brick. Rare timber.	1
		2.00	D		1.90	117.74		Very stiff orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone. Rare mudstone and coal fragments. [Glacial Till]	2
		2.70		HSV=72				Low rounded cobble content of sandstone.	
					3.00	116.64		End of Trial Pit at 3.00m	3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
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LS12 6QA

Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 15/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383761.80 N409544.18	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3XC	
Location Number TP109	Location Type TP	Level 119.27m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00	ES					MADE GROUND: Stiff brown sandy slightly gravelly CLAY. Gravel is angular of sandstone, mudstone and clay pipe fragments. Low angular cobble content of sandstone.	
		0.50	B						1
		2.00		HSV=77	1.75	117.52		Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till] At 2.00m: High strength.	2
		2.40		HSV=81				... becoming grey.	3
					3.10	116.17		End of Trial Pit at 3.10m	4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
Leeds
LS12 6QA

Trial Pit Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 15/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E383891.59 N409580.98

Project No. : 5986

Crew Name: SB Tippers

Equipment: JCB 3XC

Location Number TP110	Location Type TP	Level 117.42m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15 0.25				117.27 117.17		MADE GROUND: Reinforced CONCRETE. MADE GROUND: Orange brown fine to coarse SAND. MADE GROUND: Stiff dark grey brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular of sandstone and mudstone. Low angular cobble content of brick and subrounded sandstone.	1
		0.40 0.40	B ES						
		1.70	D		1.70	115.72		Stiff orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]	2
					3.10	114.32		End of Trial Pit at 3.10m	3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
Leeds
LS12 6QA

Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 15/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383677.19 N409462.97	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3XC	
Location Number TP111	Location Type TP	Level 118.84m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES					MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular of sandstone, mudstone and clay pipe fragments. Low angular cobble content of sandstone.	1
		1.50 1.50	D	HSV=95	1.20	117.64		Stiff orange brown and mottled grey sandy slightly gravelly CLAY. Gravel is sub rounded sandstone and mudstone. Rare coal. [Glacial Till]	2
								Low to medium rounded cobble content of sandstone.	3
								... becoming silty.	4
					3.20	115.64		End of Trial Pit at 3.20m	

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks

No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
Leeds
LS12 6QA

Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 15/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383730.33 N409488.40	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3XC	
Location Number TP112	Location Type TP	Level 119.15m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	B					MADE GROUND: Stiff brown sandy slightly gravelly CLAY. Gravel is angular of sandstone and mudstone. Low cobble content of sandstone.	
		0.70	ES		0.80	118.35		MADE GROUND: Soft dark grey slightly organic slightly sandy SILT with rootlets. [Relict Topsoil]	
					1.00	118.15		Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. Rare coal fragments. [Glacial Till]	1
		1.50		HSV=101				At 1.50m: High strength.	
		2.40		HSV=72				... becoming grey and moist.	2
		3.00		HSV=49	3.10	116.05		End of Trial Pit at 3.10m	3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks
No groundwater encountered. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
Leeds
LS12 6QA

Trial Pit Log

Project Name: H4 Heywood		Client: Black Cat Building Consultancy Limited		Date: 14/10/2021	
Location: Heywood, Manchester		Contractor:		Co-ords: E383786.89 N409444.80	
Project No. : 5986		Crew Name: SB Tippers		Equipment: JCB 3CX	
Location Number TP115	Location Type TP	Level 116.26m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15			0.15	116.11		MADE GROUND: Reinforced CONCRETE.	
		0.20			0.20	116.06		MADE GROUND: Orange brown fine to coarse SAND.	
		0.50	ES		0.70	115.56		MADE GROUND: Brown sandy gravelly CLAY. Gravel is subangular and angular of sandstone. Low subangular cobble content of sandstone. Medium angular boulder content of sandstone (250mmx250mmx350mm) and (400mmx400mmx400mm).	
		1.20			1.30	114.96		MADE GROUND: Stiff grey sandy slightly gravelly CLAY. Gravel is subrounded and subangular of sandstone. Rare coal fragments.	1
		1.20	D	HSV=58				At 1.20m: Medium strength.	
					1.75	114.51		MADE GROUND: Yellow brown to light grey slightly clayey slightly sandy subangular fine to coarse GRAVEL of sandstone.	
								End of Trial Pit at 1.75m	2
									3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks

Terminated due to risk to a potential services. Rapid flow of groundwater at 1.5m bgl. No visual or olfactory evidence of hydrocarbons.





5 John Charles Way
Leeds
LS12 6QA

Trial Pit Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 14/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E491369.51 N409332.61

Project No. : 5986

Crew Name: SB Tippers

Equipment: JCB 3XC

Location Number TP118		Location Type TP		Level 116.25m AoD		Logged By AJS		Scale 1:20		Page Number Sheet 1 of 1	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.55	ES		0.25	116.00		MADE GROUND: Reinforced CONCRETE.		1	
					0.35	115.90		MADE GROUND: Dark grey fine to coarse SAND and angular fine to coarse GRAVEL of ash and clinker.			
								MADE GROUND: Grey red brown interbedded fine to coarse SAND and angular fine to coarse GRAVEL of ash, clinker and red tabular mudstone.			
					0.70	115.55		MADE GROUND: Grey brown sandy angular fine to coarse GRAVEL of brick and red shale. Low angular cobble content of brick and sandstone.			
					1.30	114.95		Firm becoming stiff, medium strength, orange brown mottled grey sandy slightly gravelly CLAY. Gravel is subrounded of sandstone and mudstone. [Glacial Till]			
		1.50	D	HSV=74	1.50			At 1.50m: High strength.		2	
					1.65						
					2.00						
					2.40	B		At 2.40m: Stiff			
					2.90	113.35		End of Trial Pit at 2.90m			

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
Slight seepage of groundwater at 1.3m bgl. No visual or olfactory evidence of hydrocarbons.



5 John Charles Way
Leeds
LS12 6QA

Trial Pit Log

Project Name: H4 Heywood

Client: Black Cat Building Consultancy Limited

Date: 14/10/2021

Location: Heywood, Manchester

Contractor:

Co-ords: E491385.82 N409344.87

Project No. : 5986

Crew Name: SB Tippers

Equipment: JCB 3XC

Location Number TP119	Location Type TP	Level 116.26m AoD	Logged By AJS	Scale 1:20	Page Number Sheet 1 of 1
---------------------------------	---------------------	----------------------	------------------	---------------	-----------------------------

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	115.96		MADE GROUND: Reinforced CONCRETE.	
					0.50	115.76		MADE GROUND: Red dark grey fine to coarse SAND and angular fine to coarse GRAVEL of tabular mudstone and ash.	
		0.70	ES					MADE GROUND: Yellow brown slightly clayey sandy subangular to angular fine to coarse GRAVEL of sandstone. Medium to high subangular to angular cobble content of sandstone. Low subangular boulder content of sandstone (350mmx250mmx150mm).	1
		2.00	B						2
					2.75	113.51		End of Trial Pit at 2.75m	3
									4

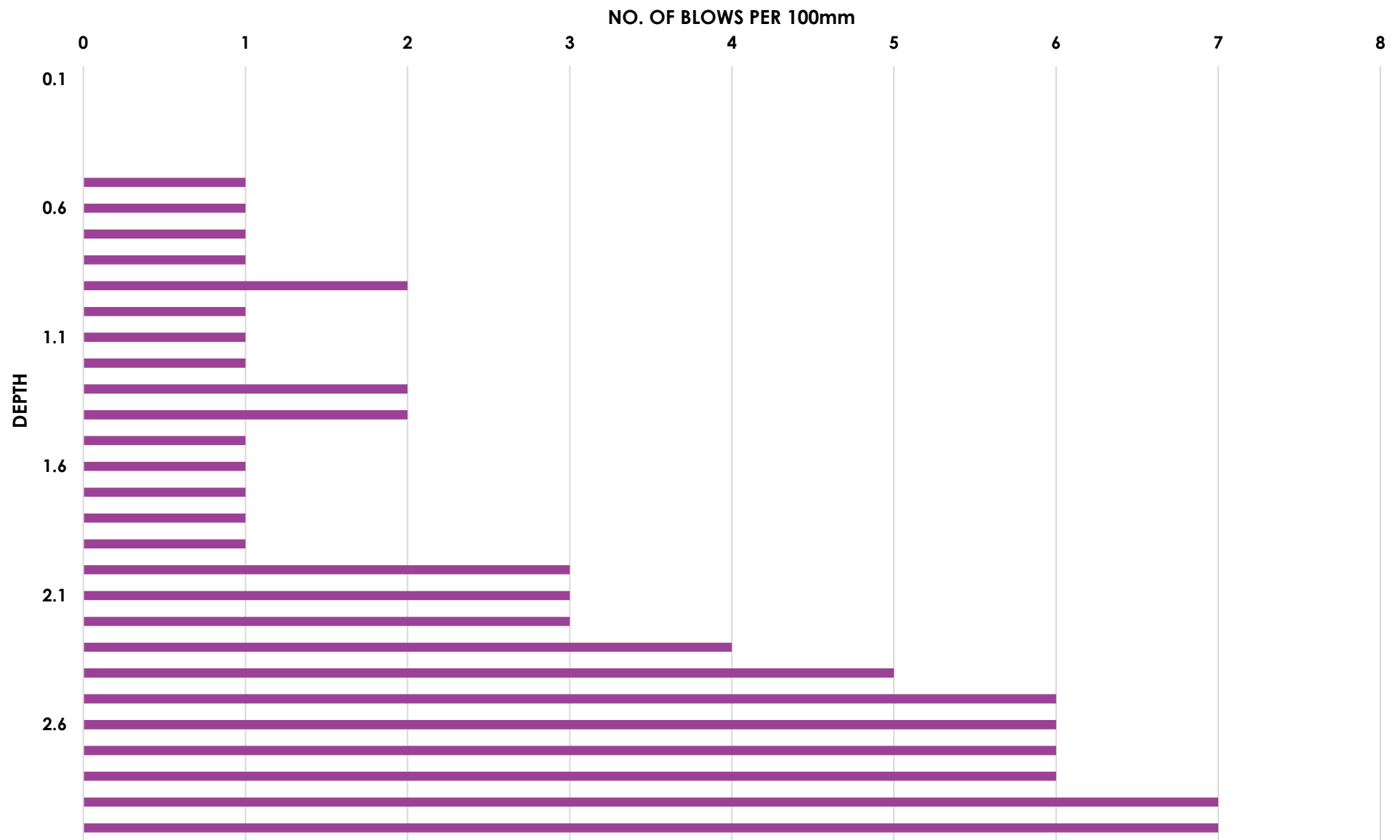
Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks

Remarks

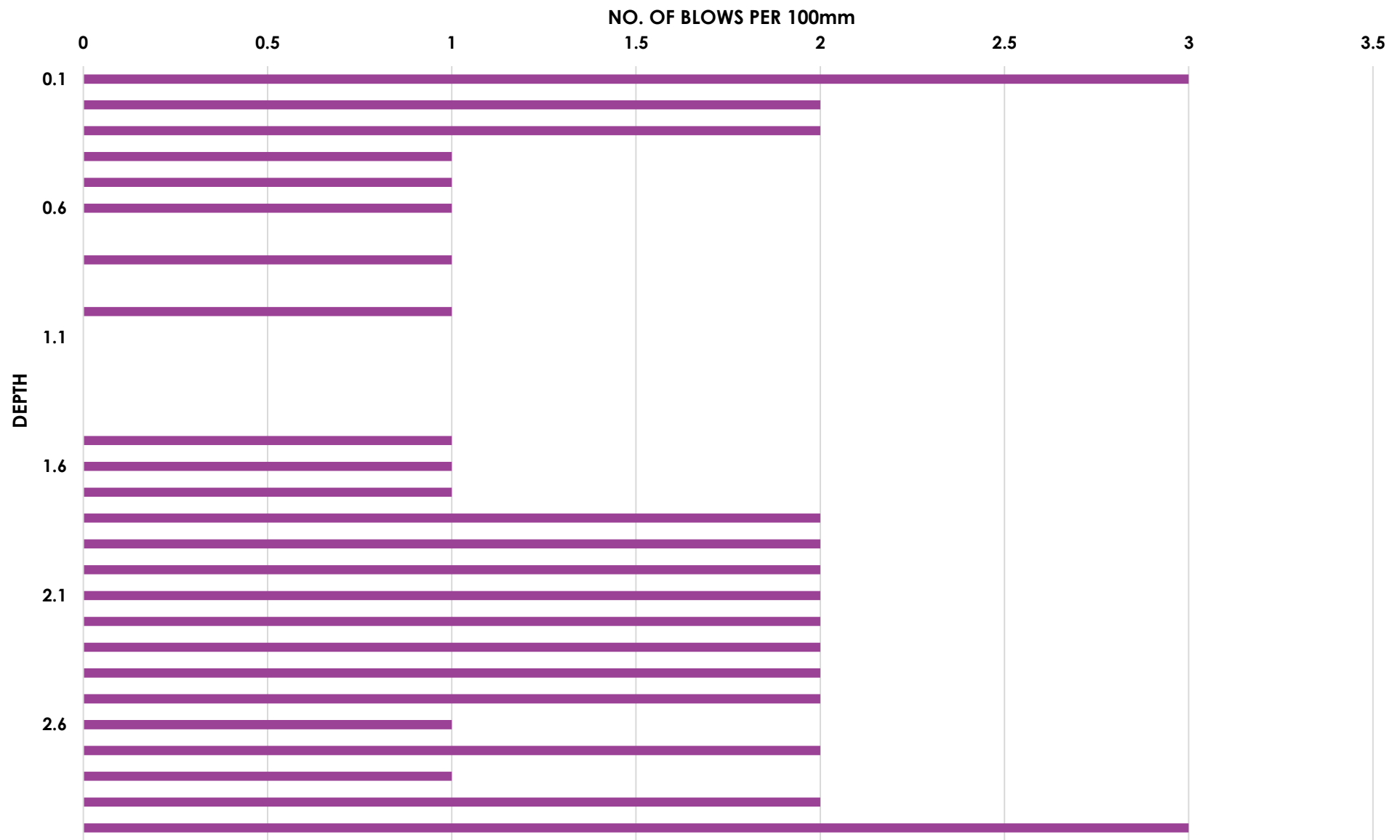
Water seepage at 2.5m bgl. No visual or olfactory evidence of hydrocarbons.



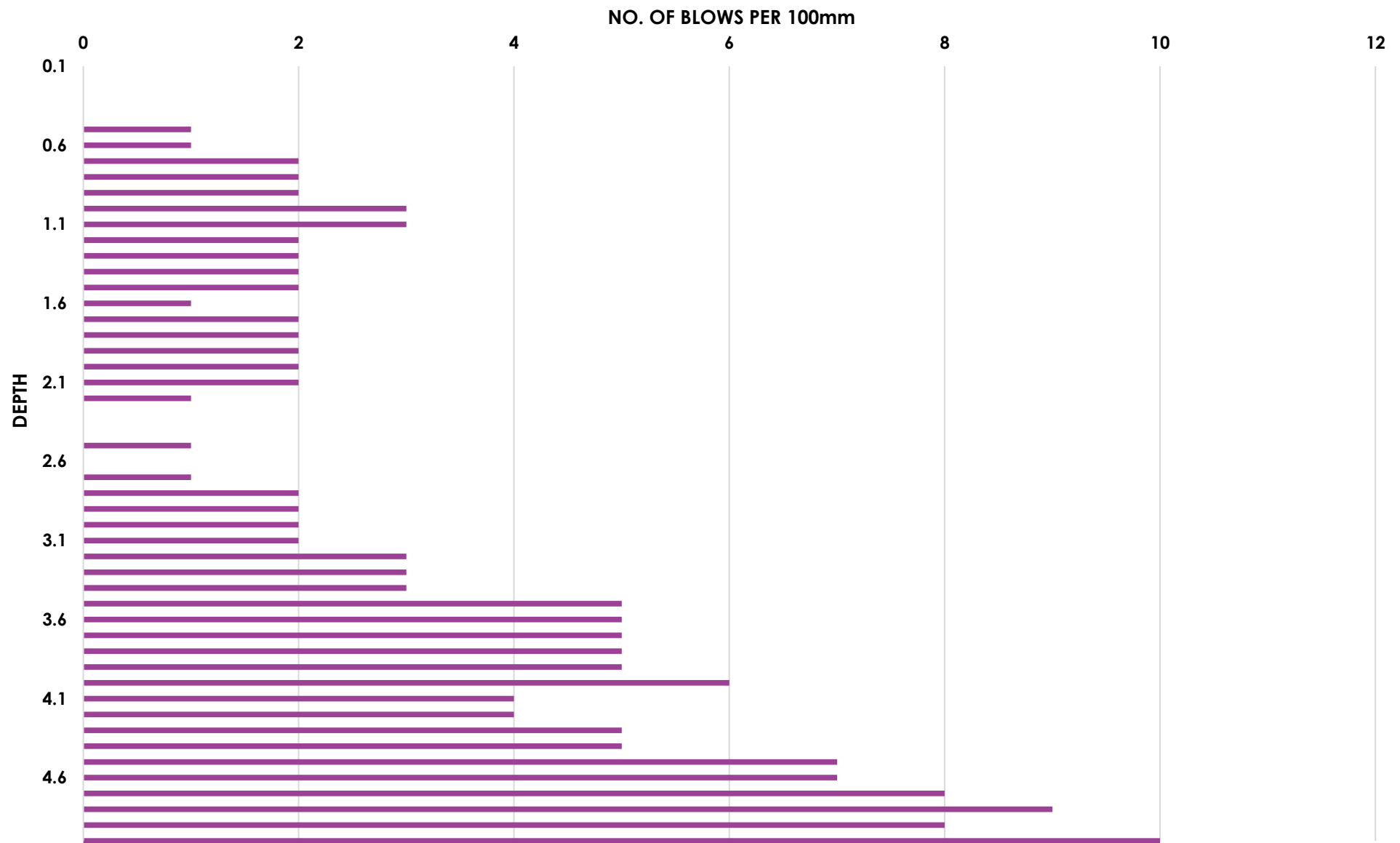
DCP102 - Dynamic Probe Super Heavy Data



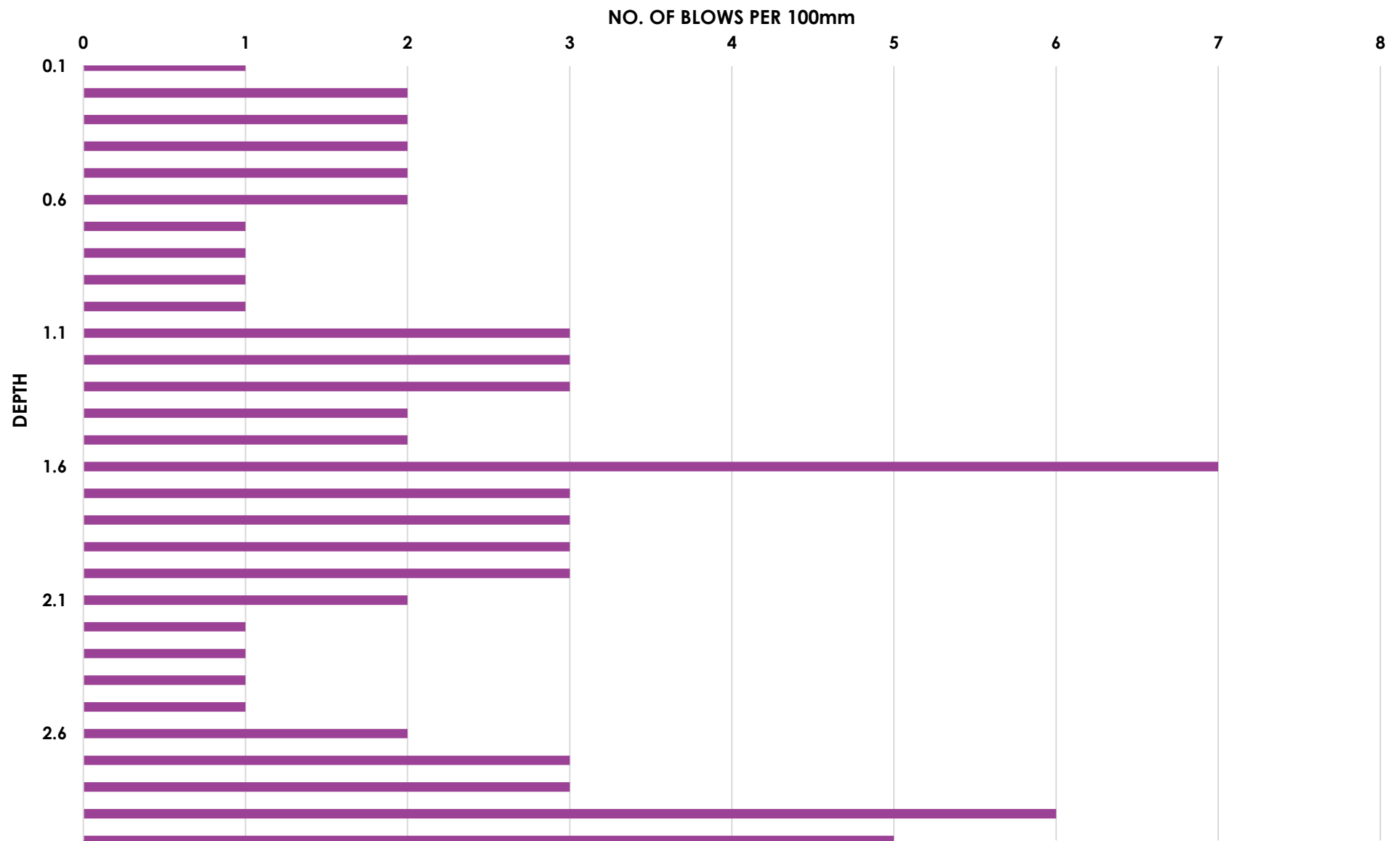
DCP110 - Dynamic Probe Super Heavy Data



DCP111 - Dynamic Probe Super Heavy Data



DCP114 - Dynamic Probe Super Heavy Data





Appendix C Geotechnical Testing Results



LABORATORY REPORT



4043

Contract Number: PSL21/8703

Report Date: 11 December 2021

Client's Reference:

Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: John Parkinson

Contract Title: Heywood H4

Date Received: 4/11/2021

Date Commenced: 4/11/2021

Date Completed: 11/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP118		D	1.65		Brown mottled grey gravelly very sandy CLAY.
TP118		B	2.40	2.90	Grey slightly gravelly very sandy CLAY.
TP115		D	1.20		Brown slightly gravelly very sandy CLAY.
TP119		B	2.00	2.50	Brown very sandy slightly clayey silty GRAVEL with cobbles.
TP110		D	1.70	2.20	Brown slightly gravelly very sandy CLAY.
TP110		B	0.40	0.90	Brown slightly gravelly very sandy CLAY.
TP103		D	0.70	1.10	Brown mottled grey slightly gravelly very sandy CLAY.
TP103		B	0.70	1.10	Brown mottled grey slightly gravelly very sandy CLAY.
TP111		D	1.50	2.00	Brown slightly gravelly very sandy CLAY.
TP112		B	0.20	0.70	Grey slightly gravelly very sandy CLAY.
TP109		B	0.50	1.00	Grey slightly gravelly sandy CLAY.
TP108		D	2.00		Brown slightly gravelly very sandy CLAY.
TP104		D	0.10	0.80	Brown slightly gravelly very sandy CLAY.
WS111		D	1.30		Brown slightly gravelly very sandy CLAY.
WS104		D	0.40		Brown mottled grey slightly gravelly very sandy CLAY.
WS102		D	1.25		Brown slightly gravelly very sandy CLAY.
WS110		D	1.50	2.00	Brown slightly gravelly very sandy CLAY.
WS112		D	0.90		Brown mottled grey slightly gravelly very sandy CLAY.
WS116		D	0.40		Brown gravelly very sandy CLAY.



4043

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

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Heywood H4

Contract No:

PSL21/8703

Client Ref:

5986

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

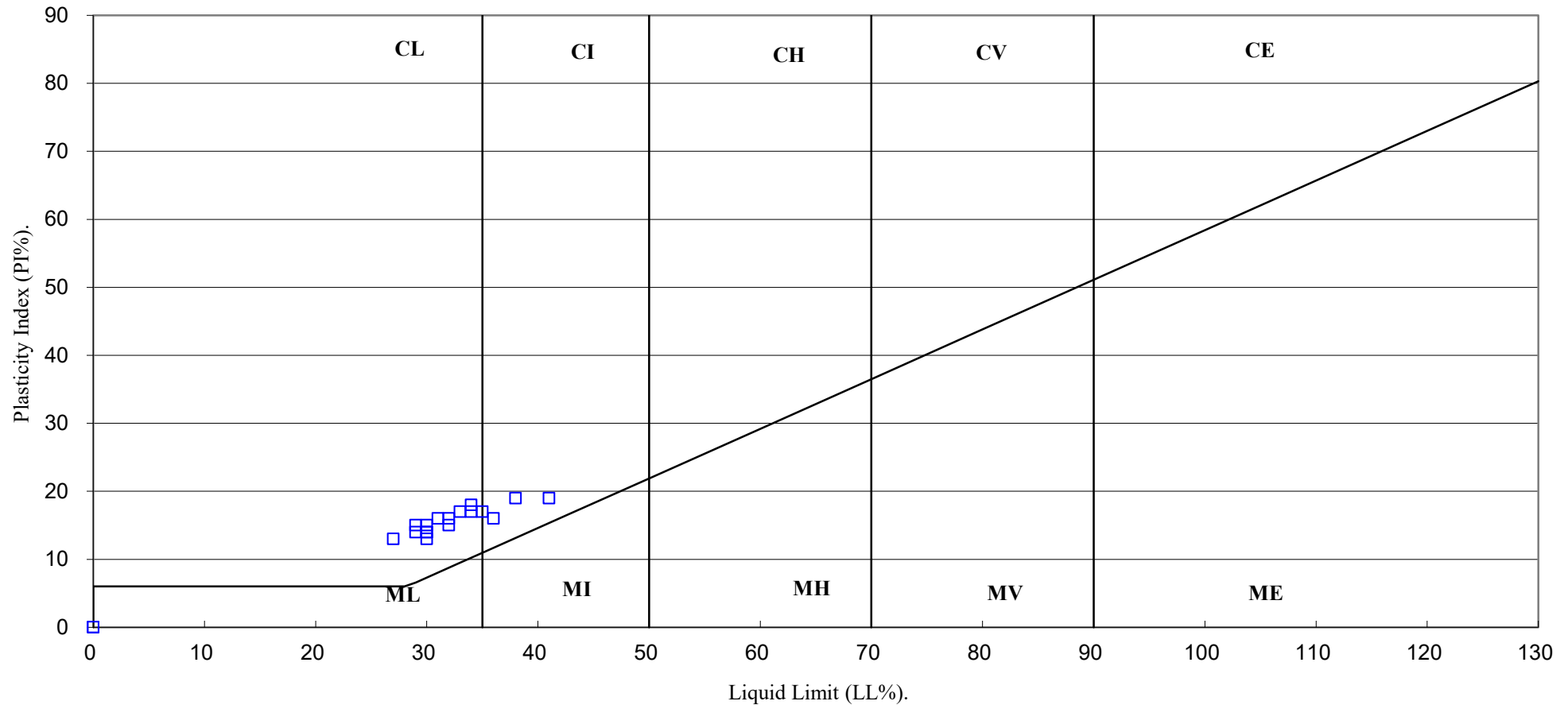
Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP118		D	1.65		18			27	14	13	86	Low Plasticity CL
TP118		B	2.40	2.90	17		2.68	31	15	16	83	Low Plasticity CL
TP115		D	1.20		15			29	14	15	97	Low Plasticity CL
TP119		B	2.00	2.50	8.6		2.60					
TP110		D	1.70	2.20	17			33	16	17	95	Low Plasticity CL
TP110		B	0.40	0.90	13		2.55					
TP103		D	0.70	1.10	17		2.67	30	15	15	93	Low Plasticity CL
TP111		D	1.50	2.00	20			35	18	17	91	Intermediate Plasticity CI
TP112		B	0.20	0.70	19		2.59	38	19	19	85	Intermediate Plasticity CI
TP109		B	0.50	1.00	23		2.58	41	22	19	96	Intermediate Plasticity CI
TP108		D	2.00		15			30	16	14	93	Low Plasticity CL
TP104		D	0.10	0.60	18			32	17	15	98	Low Plasticity CL
WS111		D	1.30		16			34	17	17	90	Low Plasticity CL
WS104		D	0.40		21			30	16	14	95	Low Plasticity CL
WS102		D	1.25		17			32	16	16	97	Low Plasticity CL
WS110		D	1.50	2.00	19			29	15	14	96	Low Plasticity CL
WS112		D	0.90		16			34	16	18	94	Low Plasticity CL
WS116		D	0.40		18			30	17	13	80	Low Plasticity CL
WS118		D	2.00		13			36	20	16	56	Intermediate Plasticity CI

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

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			PSL21/8703
			Client Ref:
			5986

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



4043

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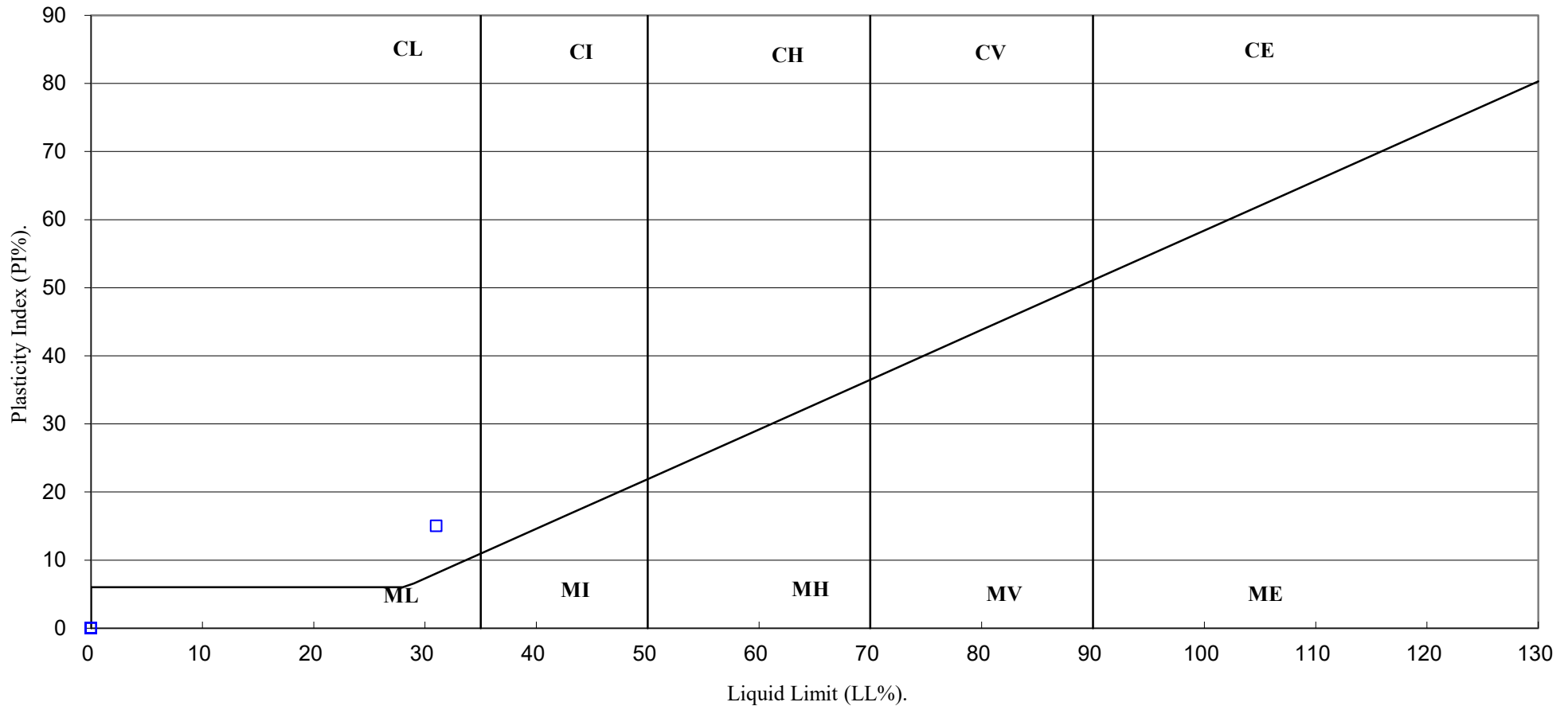
Contract No:

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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



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PARTICLE SIZE DISTRIBUTION TEST

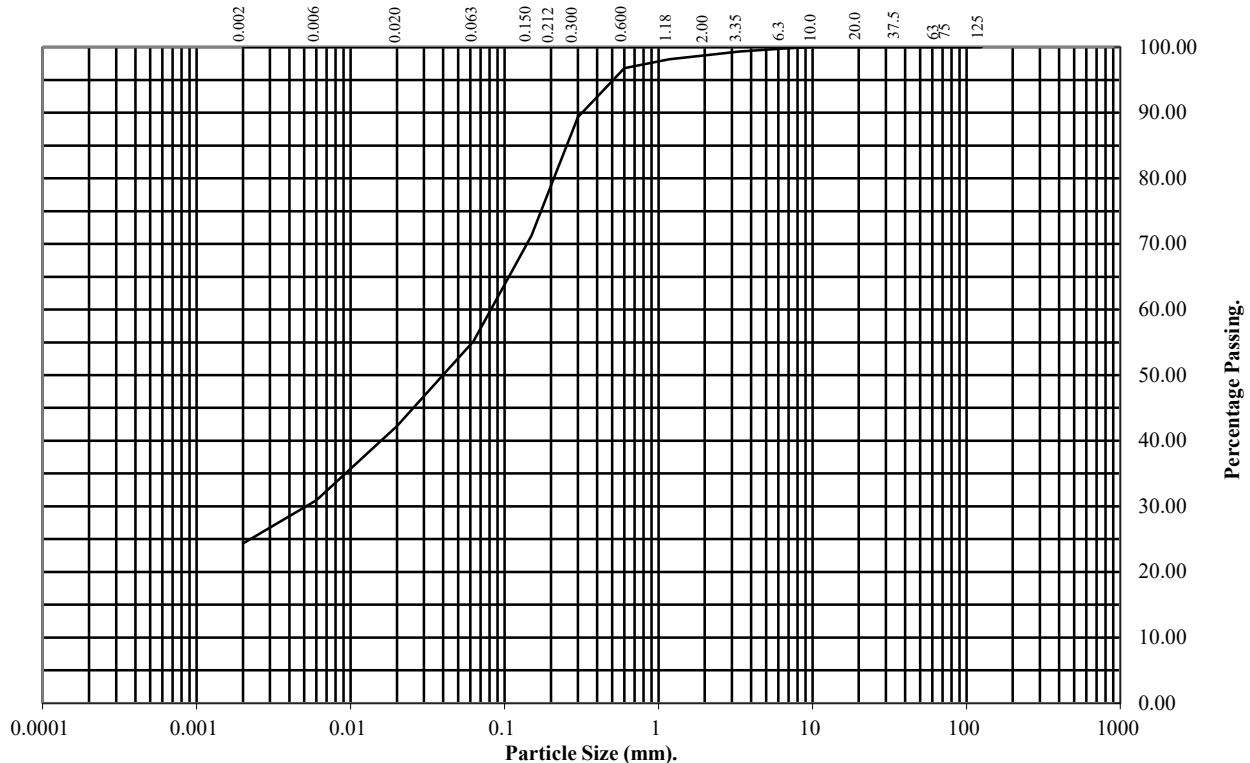
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP103 Top Depth (m): 0.70

Sample Number: Base Depth(m): 1.10

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	98
0.6	97
0.3	89
0.212	80
0.15	71
0.063	55

Particle Diameter	Percentage Passing
0.02	42
0.006	31
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	44
Silt	31
Clay	24

Remarks:

See Summary of Soil Descriptions



Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

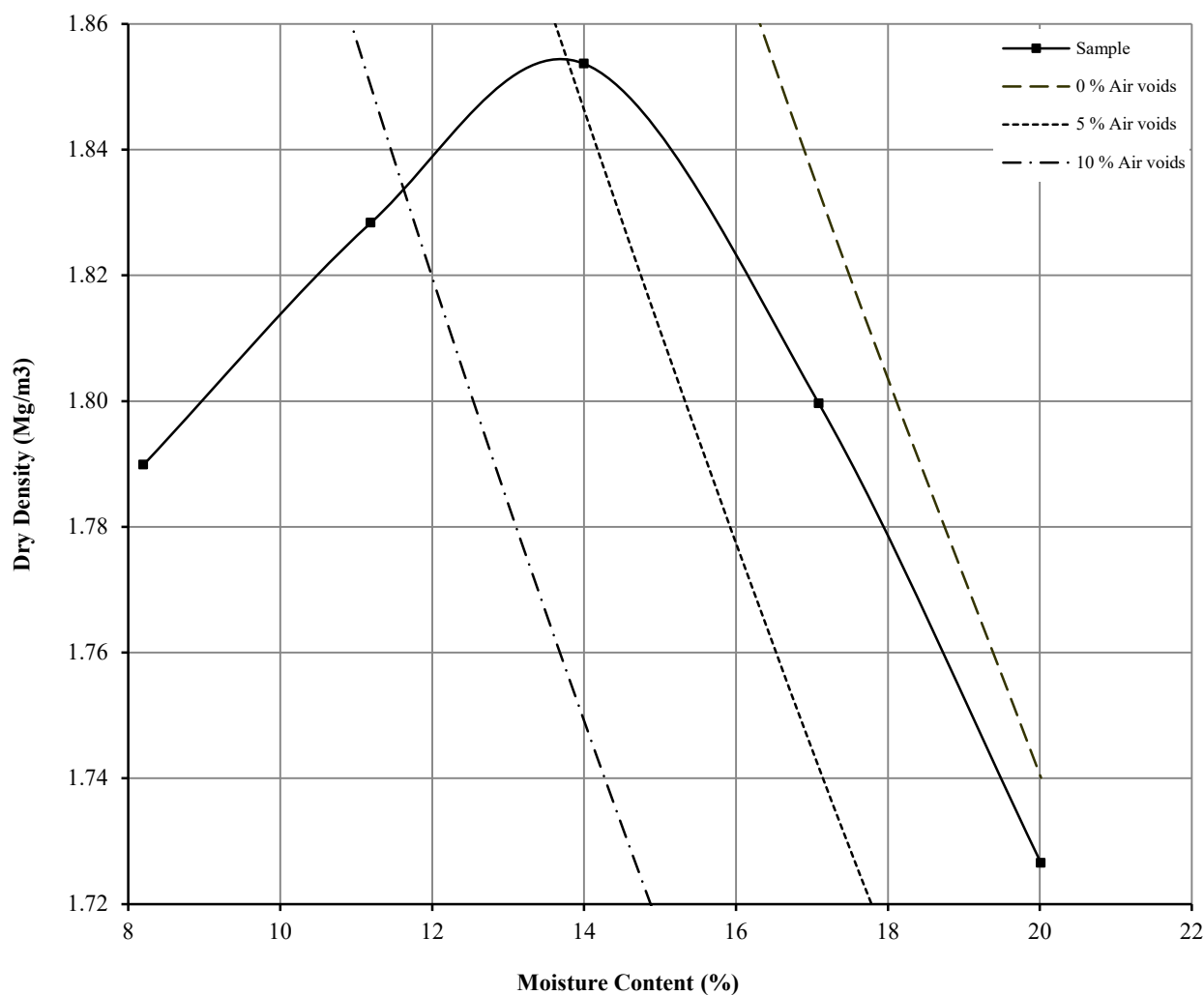
Hole Number: TP103

Top Depth (m) : 0.70

Sample Number:

Base Depth (m) : 1.10

Sample Type: B



Initial Moisture Content:	17	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.85		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	14			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

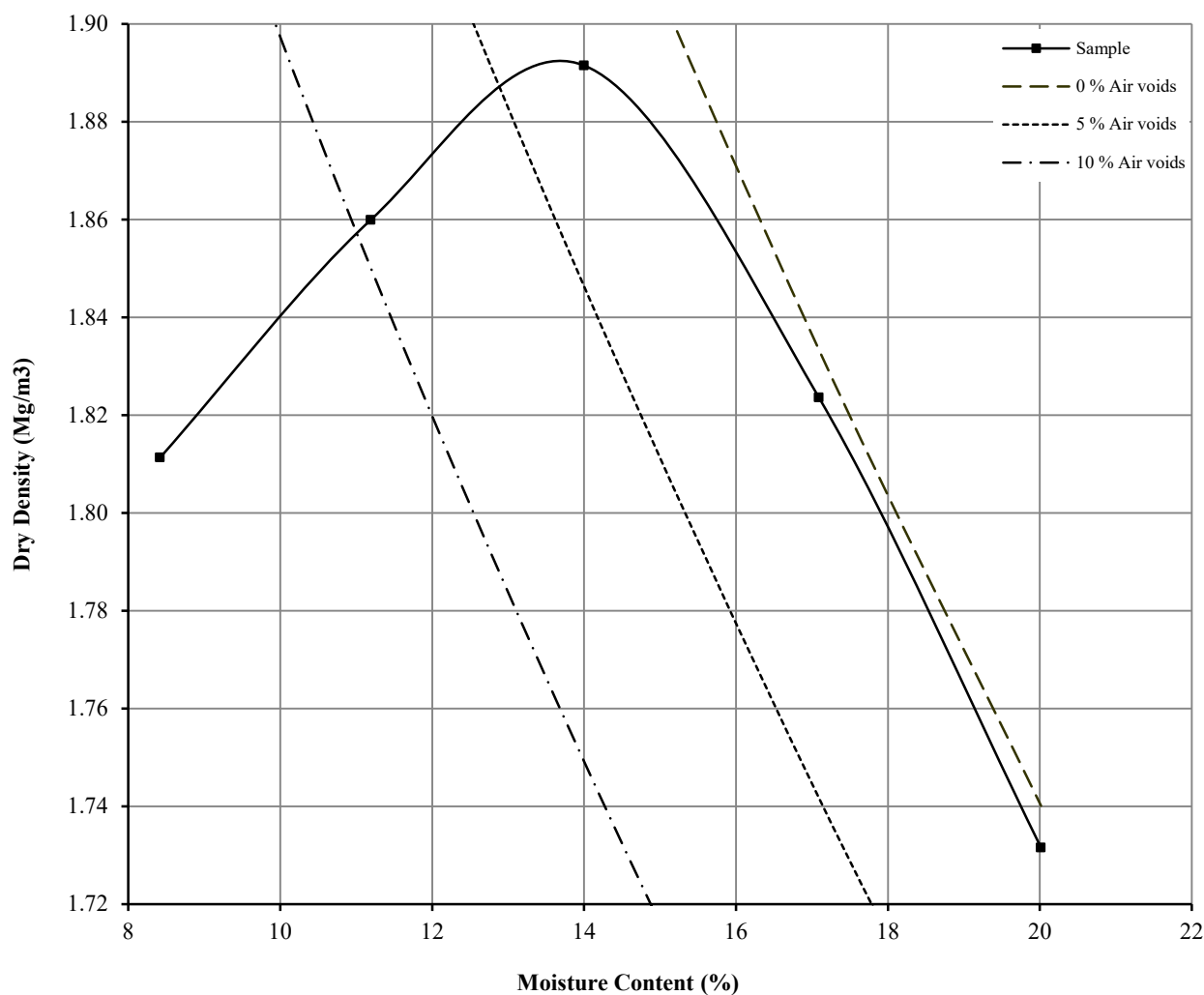
Hole Number: TP103

Top Depth (m) : 0.70

Sample Number:

Base Depth (m) : 1.10

Sample Type: B



Initial Moisture Content:	17	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.89		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	14			
Remarks See summary of soil descriptions				



Heywood H4

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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

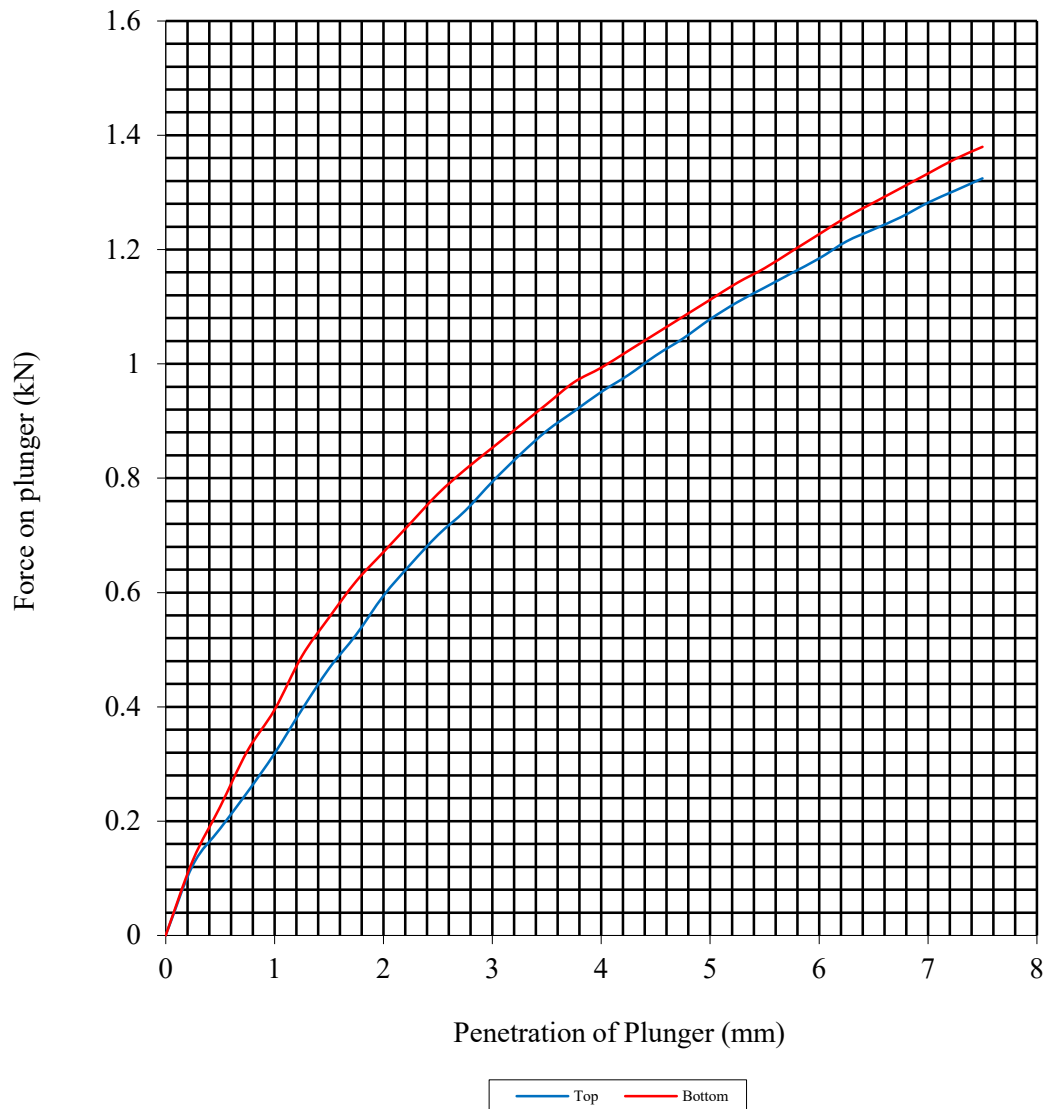
Hole Number: TP103

Top Depth (m): 0.70

Sample Number:

Base Depth (m): 1.10

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	17	Surcharge Kg:	4.00	Sample Top	17	Sample Top	5.4
Bulk Density Mg/m3:	2.11	Soaking Time hrs	0	Sample Bottom	17	Sample Bottom	5.9
Dry Density Mg/m3:	1.80	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



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Heywood H4

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PARTICLE SIZE DISTRIBUTION TEST

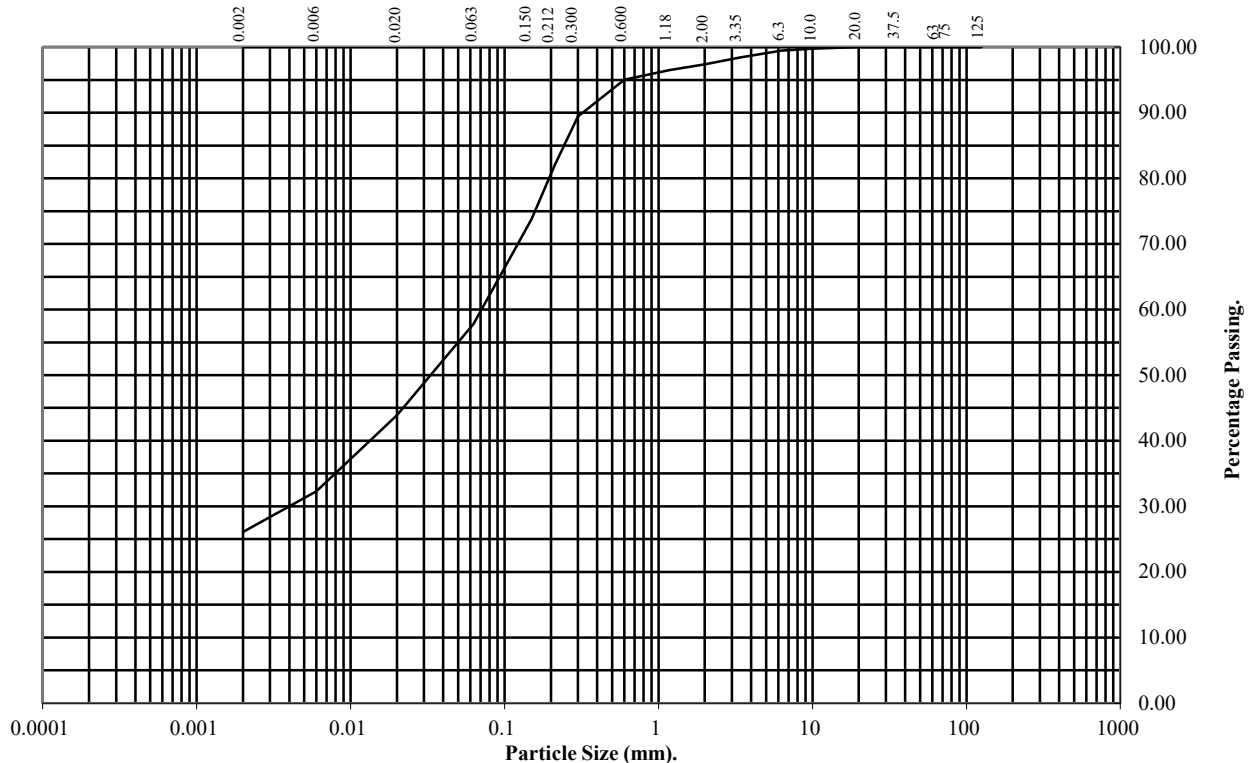
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP106 Top Depth (m): 0.80

Sample Number: Base Depth(m): 1.30

Sample Type: B



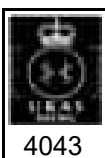
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	97
0.6	95
0.3	89
0.212	82
0.15	74
0.063	58

Particle Diameter	Percentage Passing
0.02	44
0.006	32
0.002	26

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	39
Silt	32
Clay	26

Remarks:

See Summary of Soil Descriptions



Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

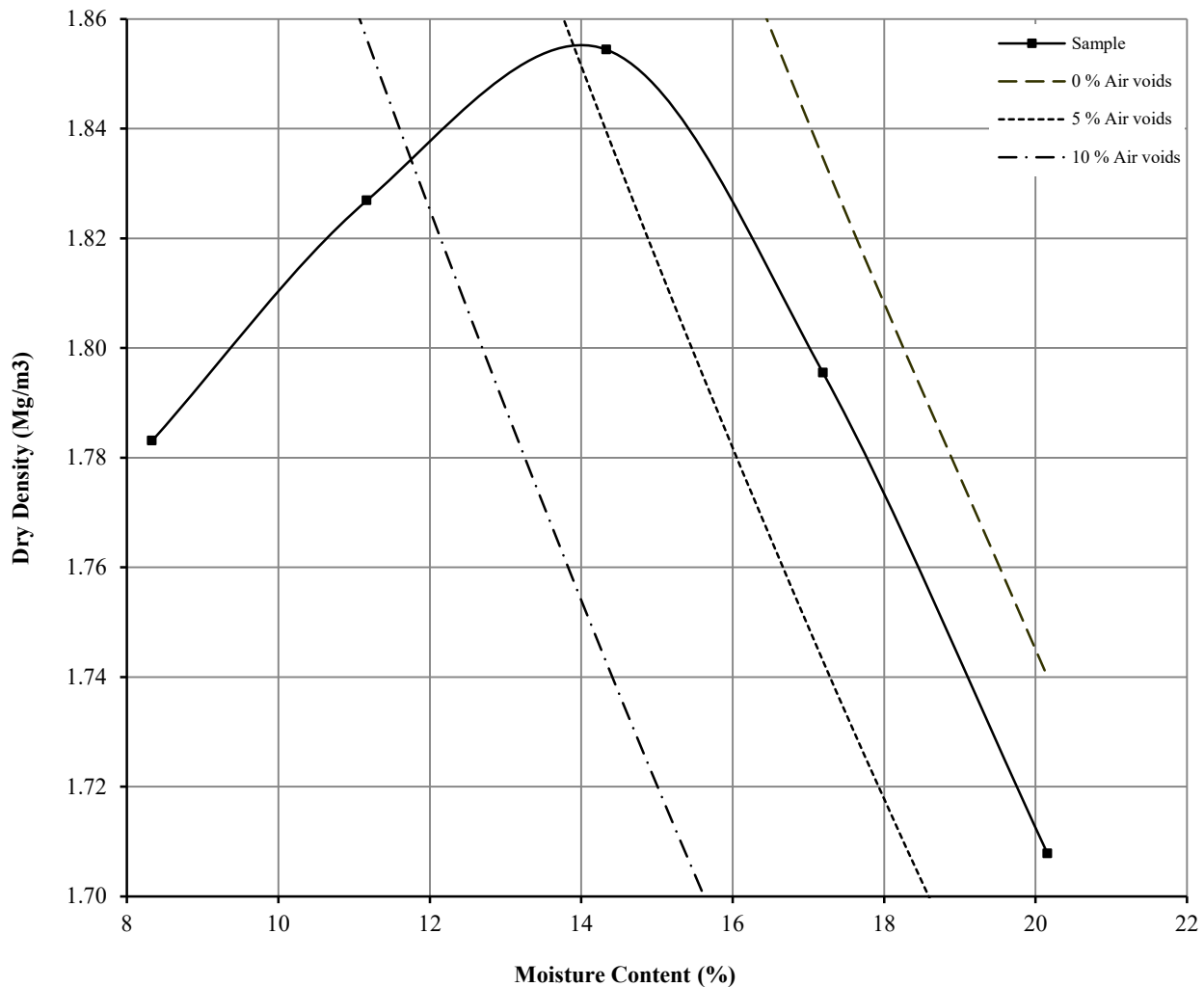
Hole Number: TP106

Top Depth (m) : 0.80

Sample Number:

Base Depth (m) : 1.20

Sample Type: B



Initial Moisture Content:	17	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.85		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	14			
Remarks See summary of soil descriptions				



Heywood H4

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PSL21/8703
Client Ref
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

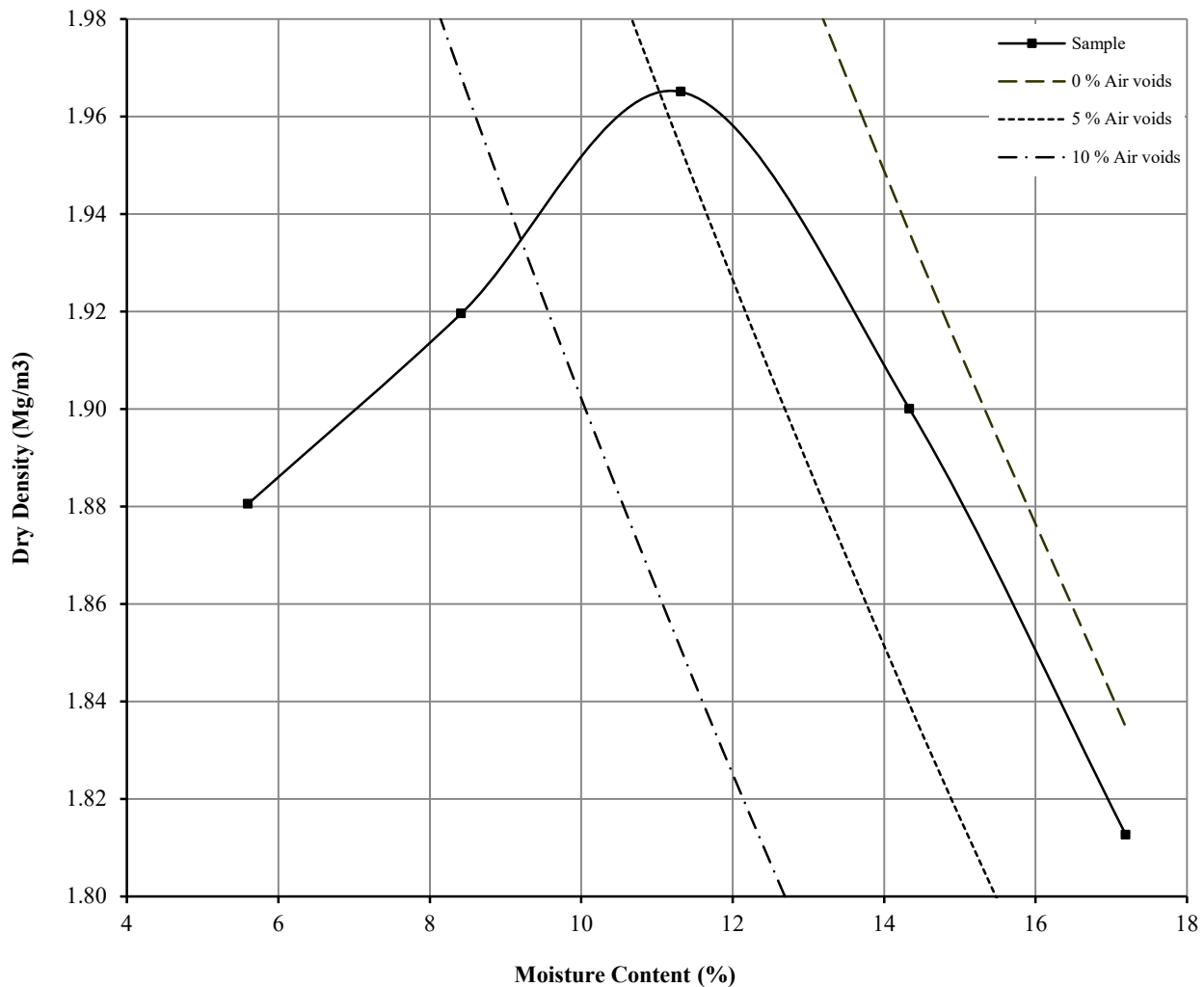
Hole Number: TP106

Top Depth (m) : 0.80

Sample Number:

Base Depth (m) : 1.20

Sample Type: B



Initial Moisture Content:	17	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.97		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	11			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

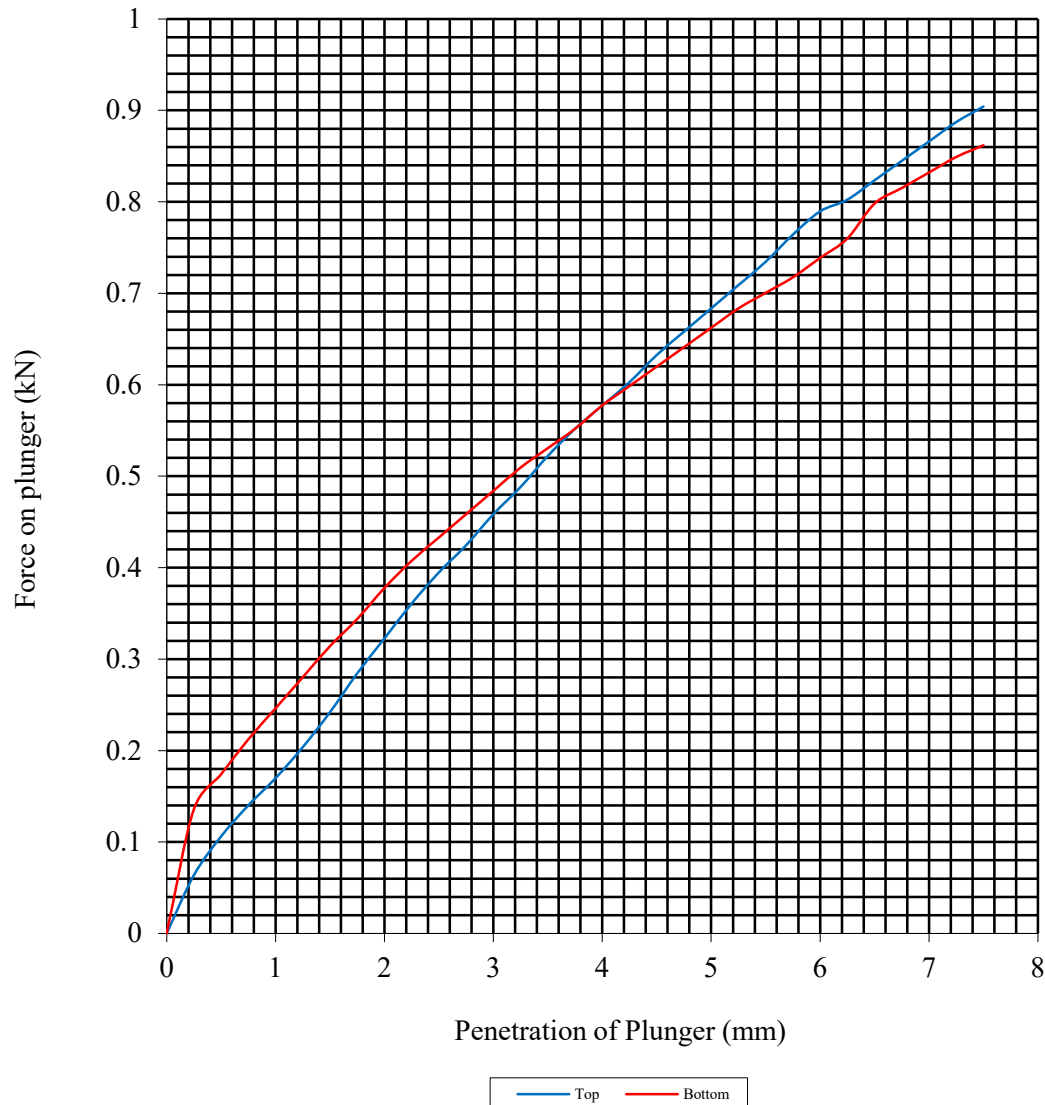
Hole Number: TP106

Top Depth (m): 0.80

Sample Number:

Base Depth (m): 1.30

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	17	Surcharge Kg:	4.00	Sample Top	17	Sample Top	3.4
Bulk Density Mg/m3:	2.11	Soaking Time hrs	0	Sample Bottom	17	Sample Bottom	3.3
Dry Density Mg/m3:	1.80	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



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Heywood H4

Contract No:
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Client Ref:
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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

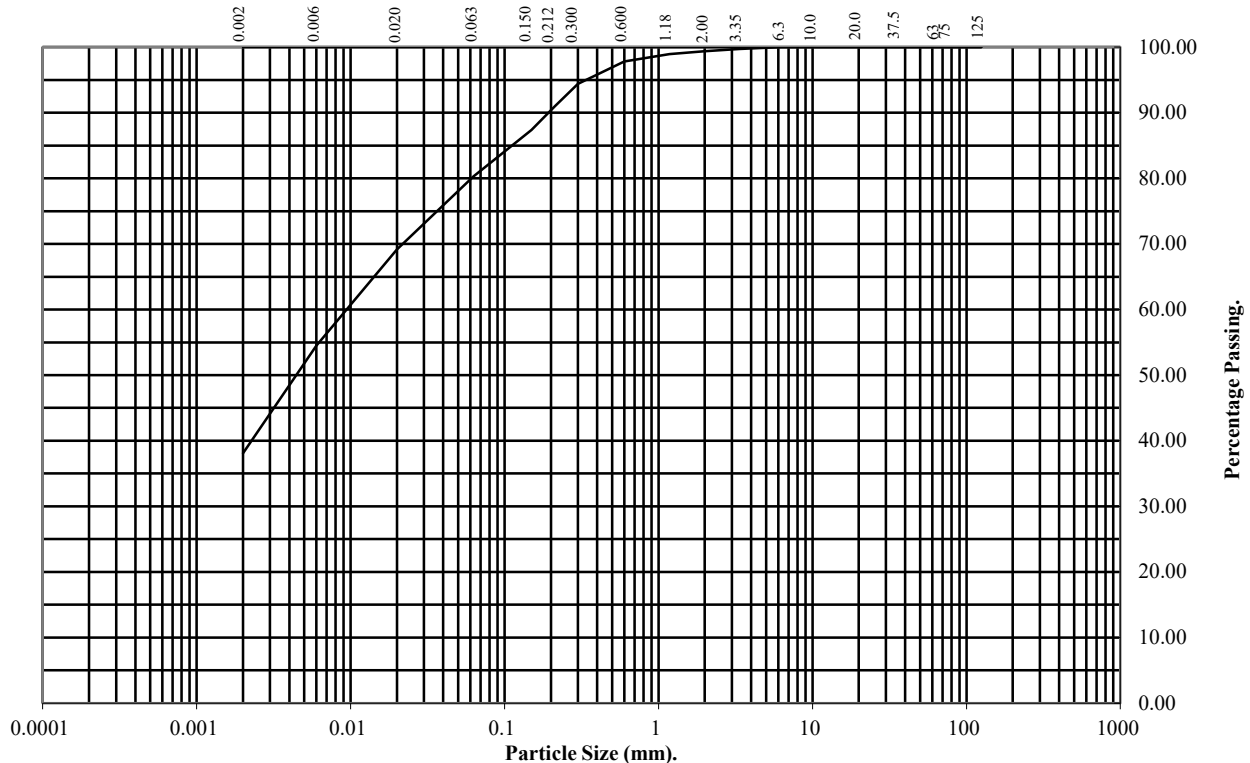
Hole Number: TP109

Top Depth (m): 0.50

Sample Number:

Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	94
0.212	91
0.15	87
0.063	80

Particle Diameter	Percentage Passing
0.02	69
0.006	54
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	19
Silt	42
Clay	38

Remarks:

See Summary of Soil Descriptions



Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

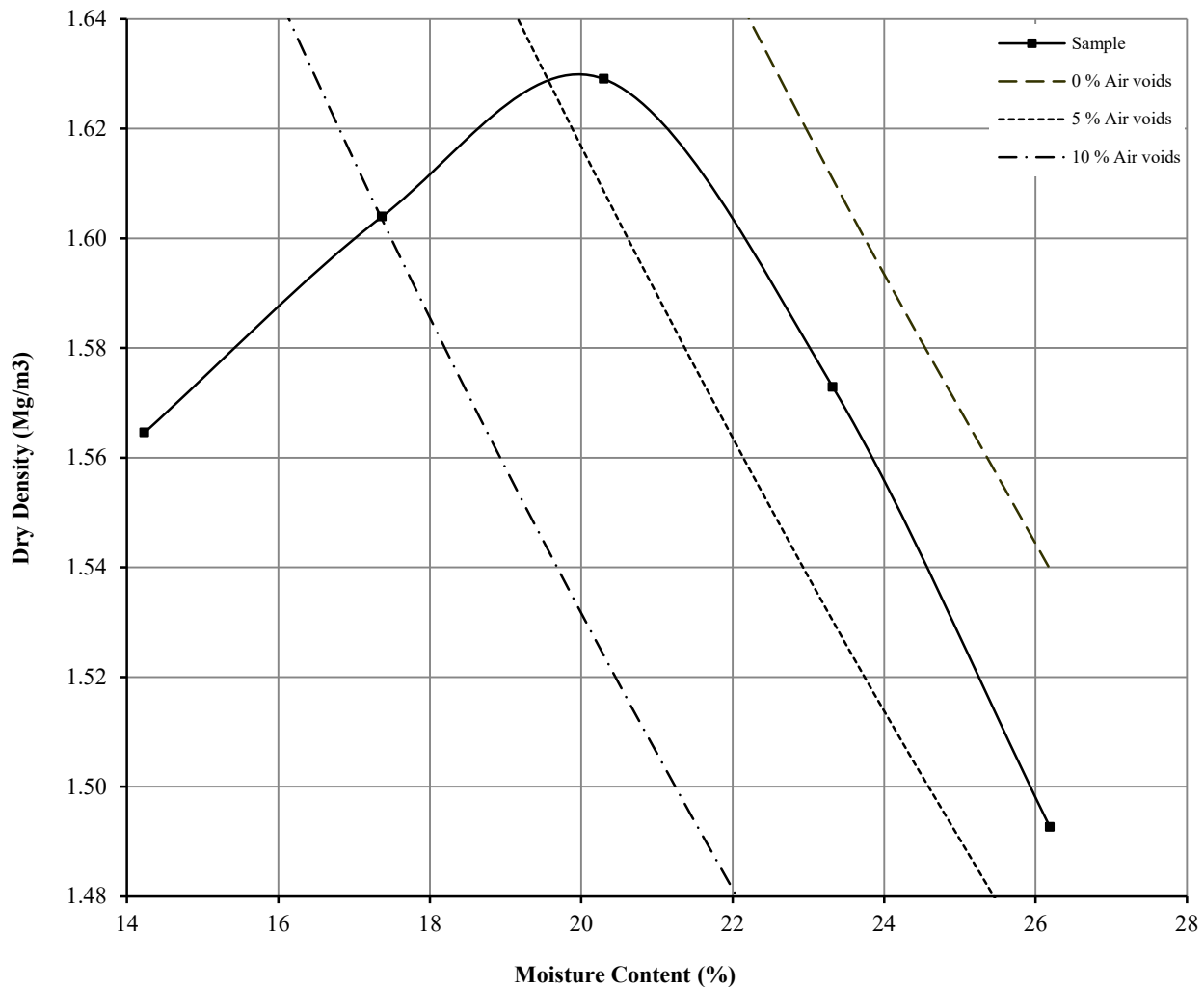
Hole Number: TP109

Top Depth (m) : 0.50

Sample Number:

Base Depth (m) : 1.00

Sample Type: B



Initial Moisture Content:	23	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.58	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.63		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	20			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

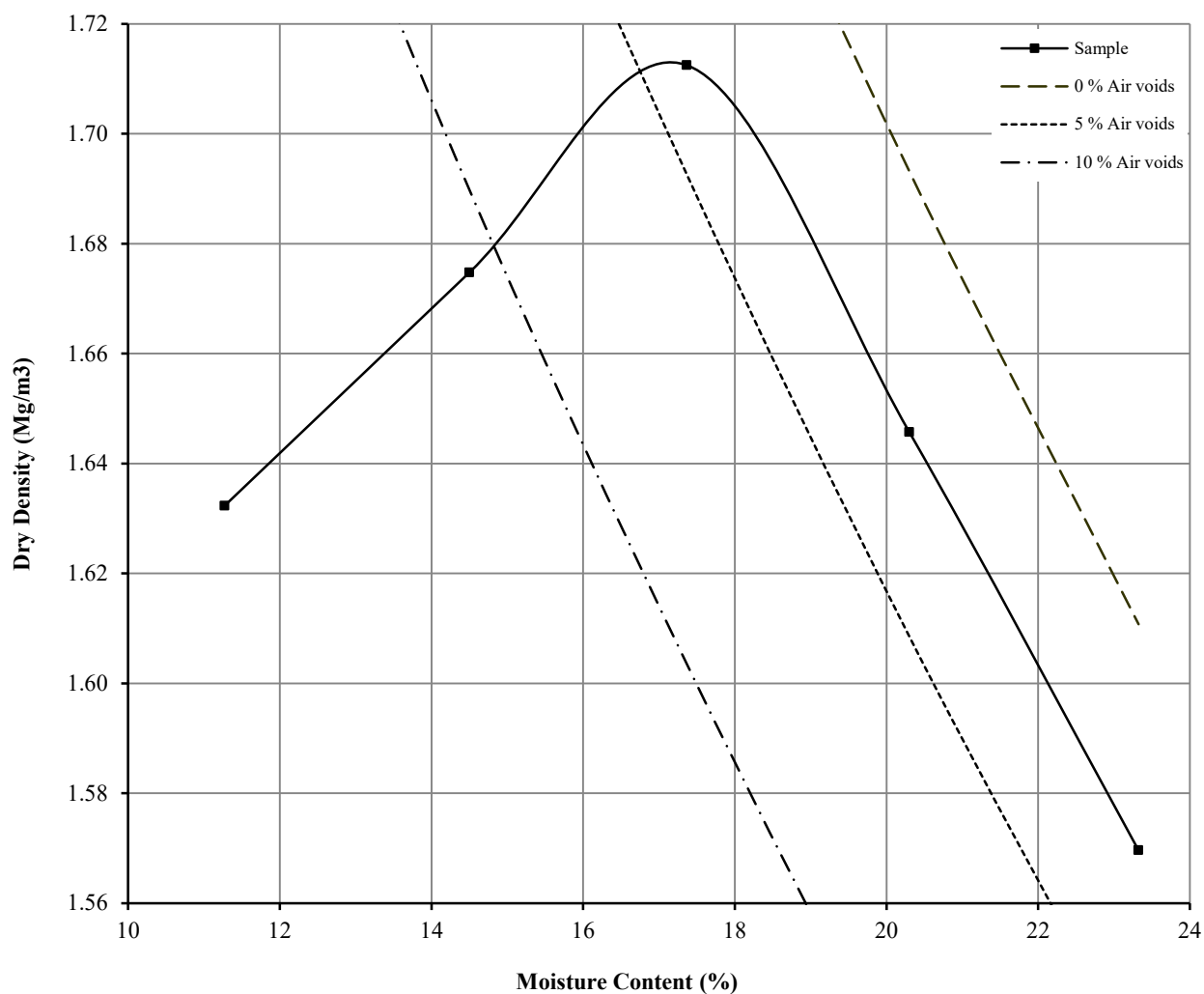
Hole Number: TP109

Top Depth (m) : 0.50

Sample Number:

Base Depth (m) : 1.00

Sample Type: B



Initial Moisture Content:	23	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.58	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.71		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	17			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

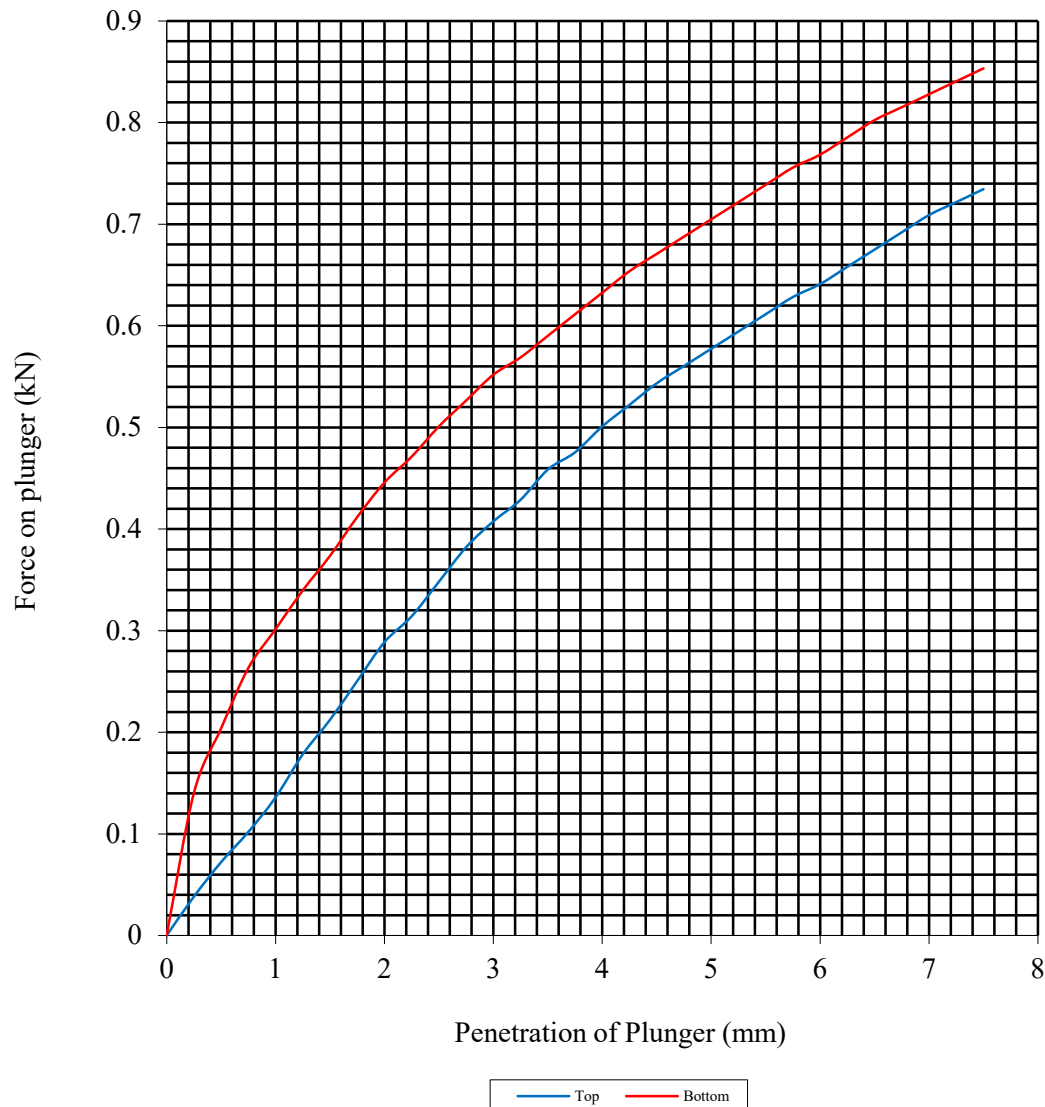
Hole Number: TP109

Top Depth (m): 0.50

Sample Number:

Base Depth (m): 1.00

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	23	Surcharge Kg:	4.00	Sample Top	23	Sample Top	2.9
Bulk Density Mg/m3:	1.94	Soaking Time hrs	0	Sample Bottom	23	Sample Bottom	3.8
Dry Density Mg/m3:	1.57	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



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Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

PARTICLE SIZE DISTRIBUTION TEST

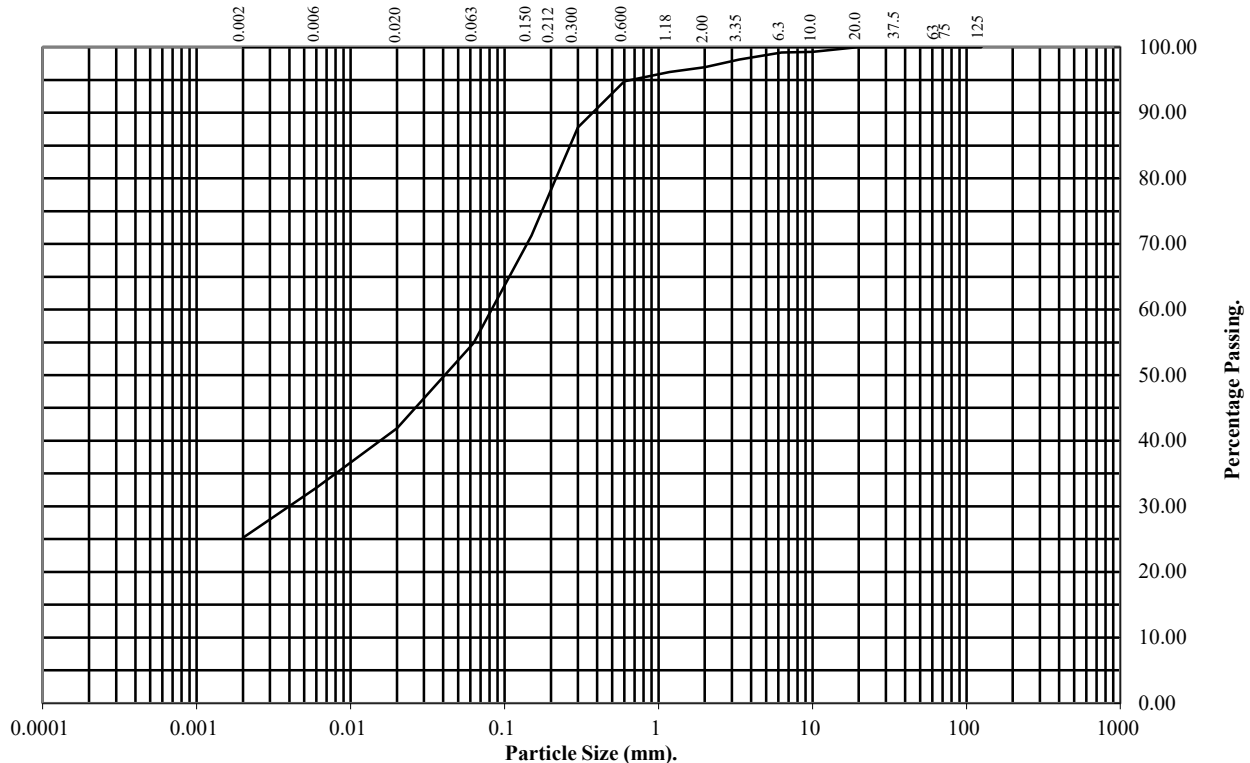
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP110 Top Depth (m): 0.40

Sample Number: Base Depth(m): 0.90

Sample Type: B



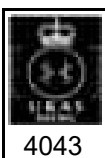
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	99
3.35	98
2	97
1.18	96
0.6	95
0.3	88
0.212	80
0.15	71
0.063	55

Particle Diameter	Percentage Passing
0.02	42
0.006	33
0.002	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	42
Silt	30
Clay	25

Remarks:

See Summary of Soil Descriptions



Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

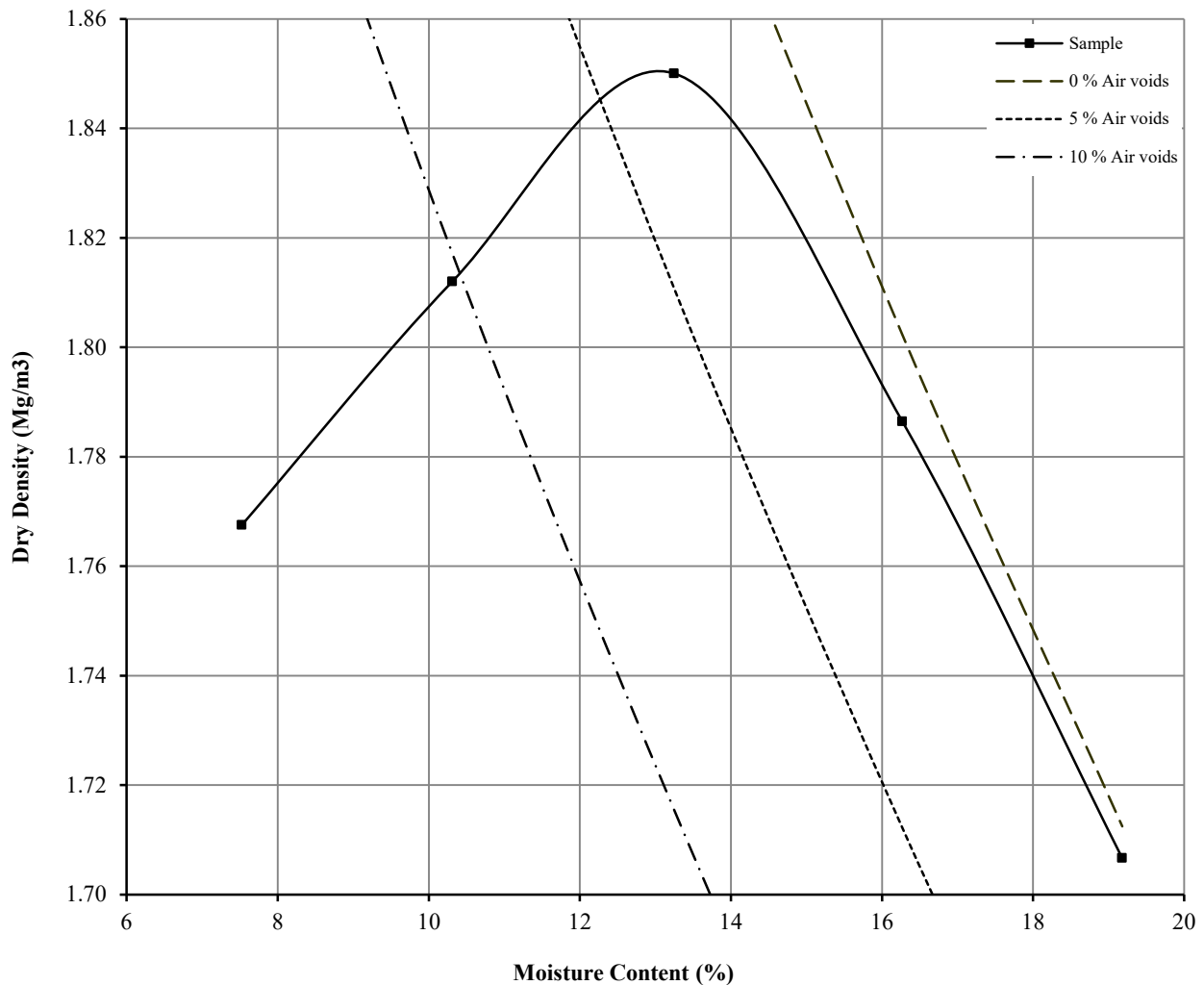
Hole Number: TP110

Top Depth (m) : 0.40

Sample Number:

Base Depth (m) : 0.90

Sample Type: B



Initial Moisture Content:	13	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.55	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.85		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	13			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

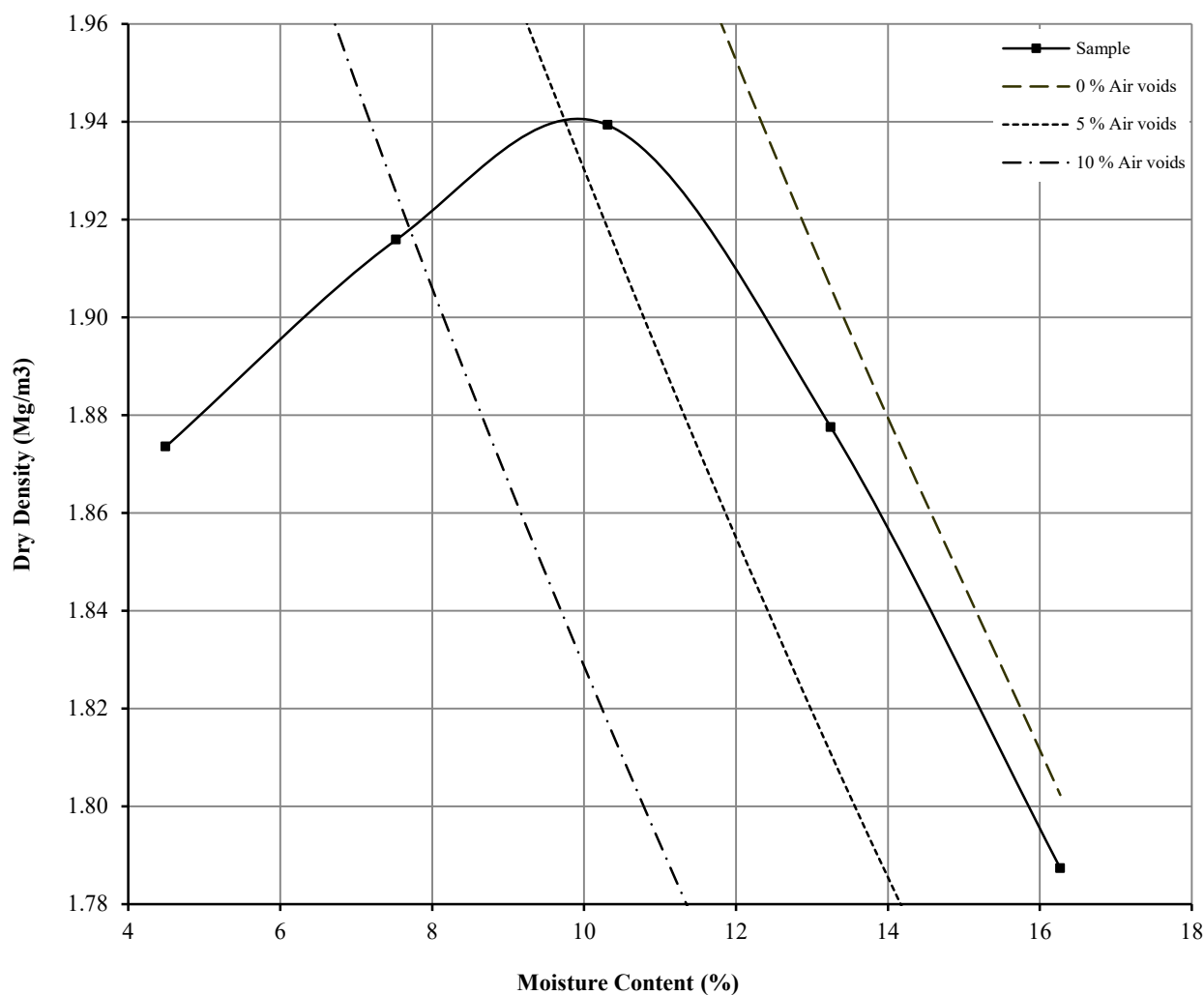
Hole Number: TP110

Top Depth (m) : 0.40

Sample Number:

Base Depth (m) : 0.90

Sample Type: B



Initial Moisture Content:	13	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.55	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.94		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	10			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

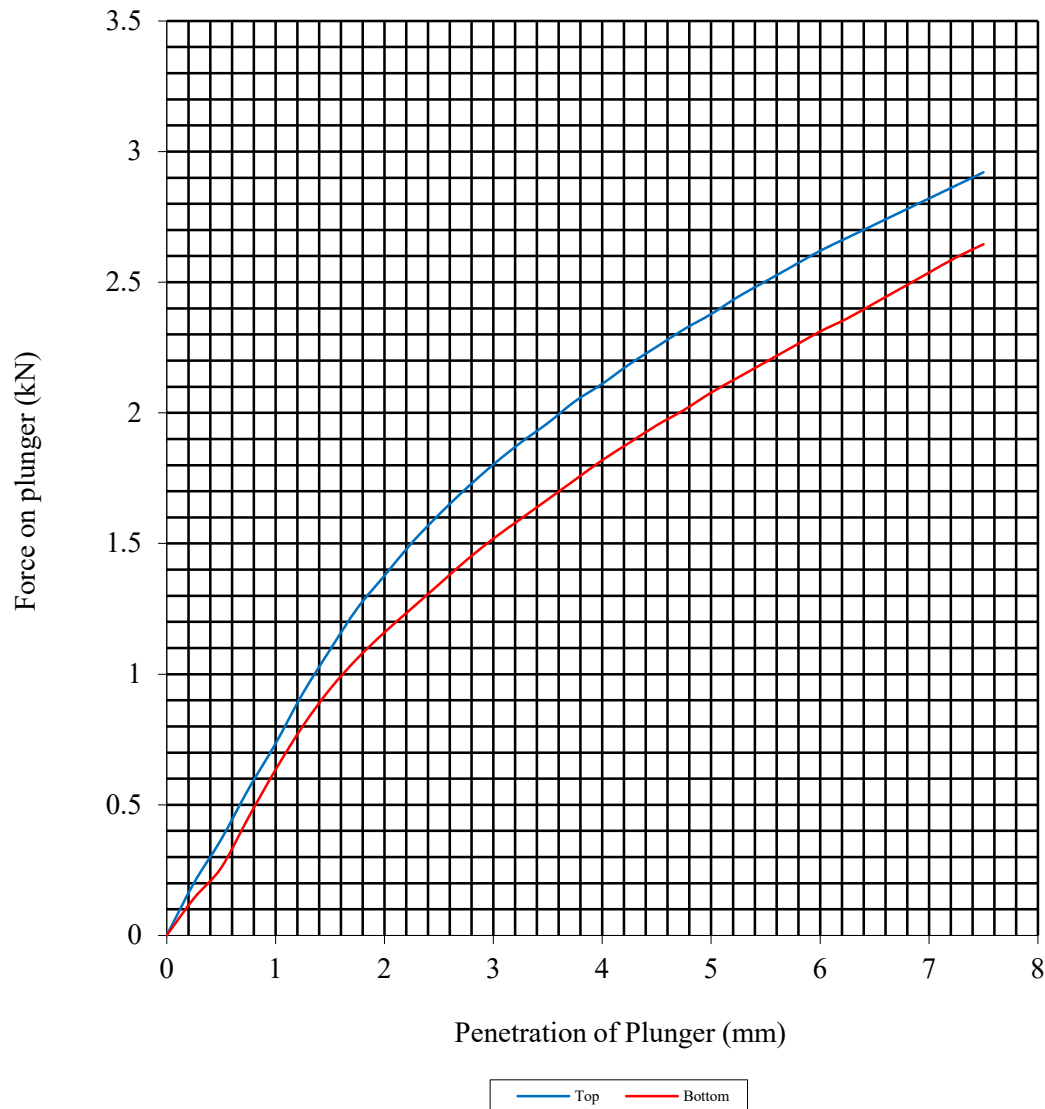
Hole Number: TP110

Top Depth (m): 0.40

Sample Number:

Base Depth (m): 0.90

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.00	Sample Top	13	Sample Top	12.2
Bulk Density Mg/m3:	2.10	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	10.4
Dry Density Mg/m3:	1.85	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



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Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

PARTICLE SIZE DISTRIBUTION TEST

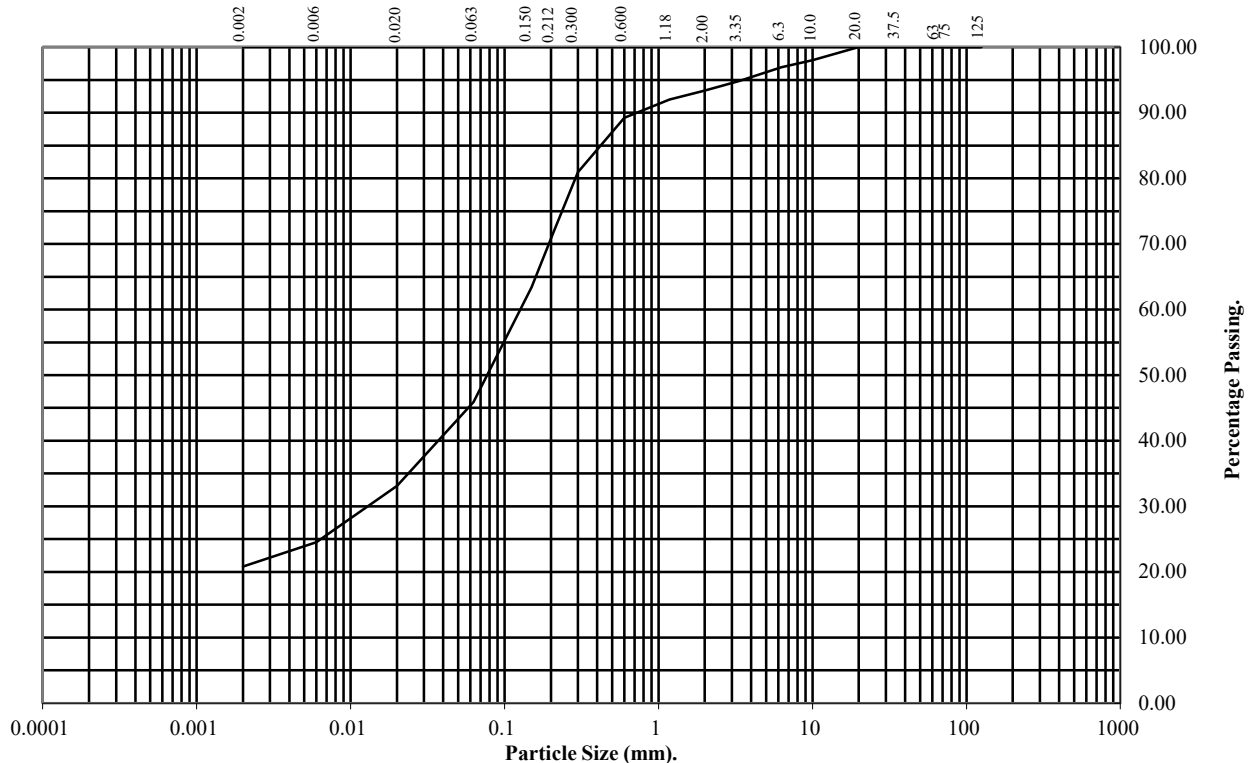
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP112 Top Depth (m): 0.20

Sample Number: Base Depth(m): 0.70

Sample Type: B



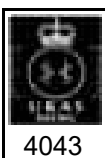
BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	97
3.35	95
2	93
1.18	92
0.6	89
0.3	81
0.212	72
0.15	63
0.063	46

Particle Diameter	Percentage Passing
0.02	33
0.006	25
0.002	21

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	47
Silt	25
Clay	21

Remarks:

See Summary of Soil Descriptions



Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

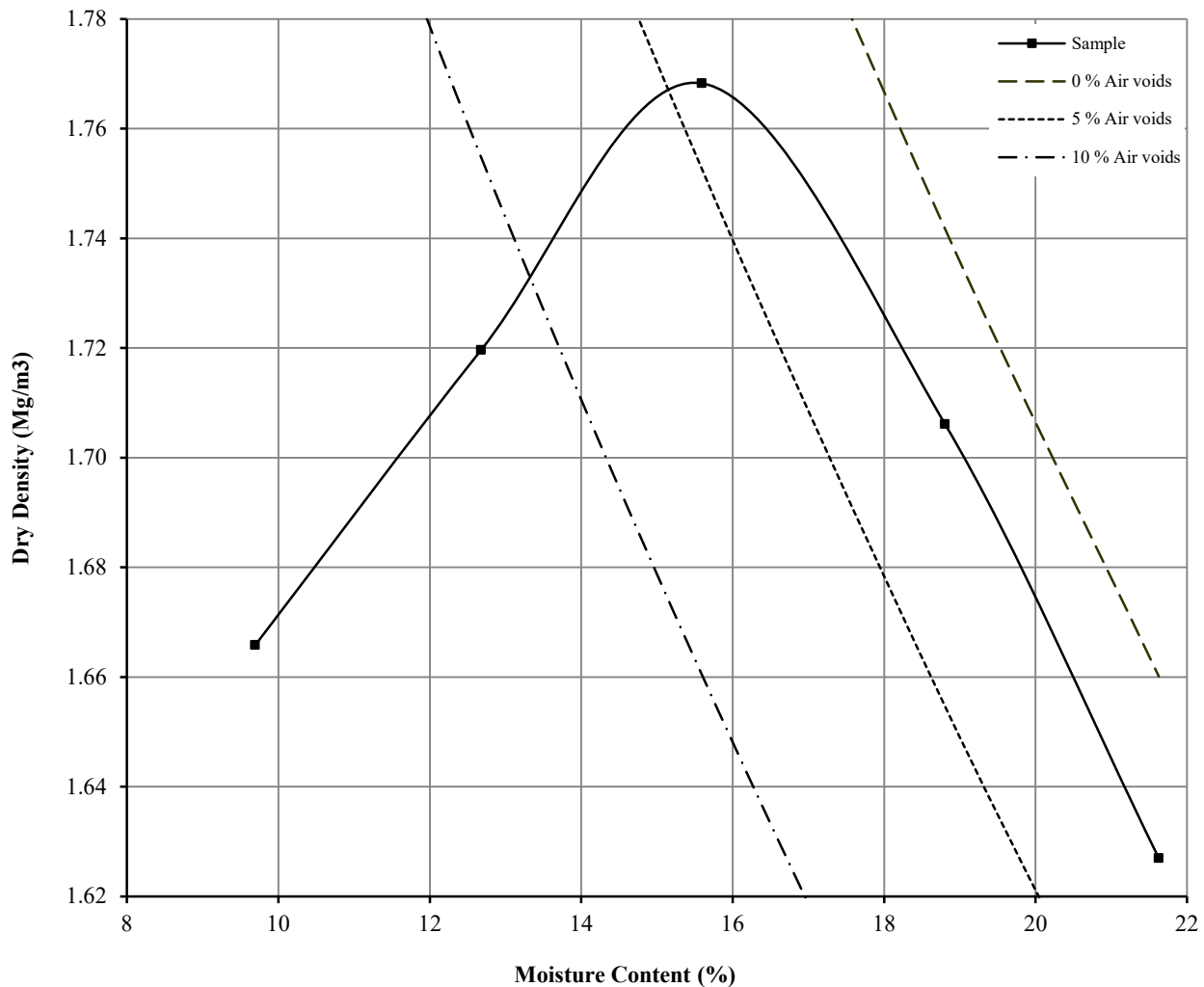
Hole Number: TP112

Top Depth (m) : 0.20

Sample Number:

Base Depth (m) : 0.70

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.59	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.77		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	16			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

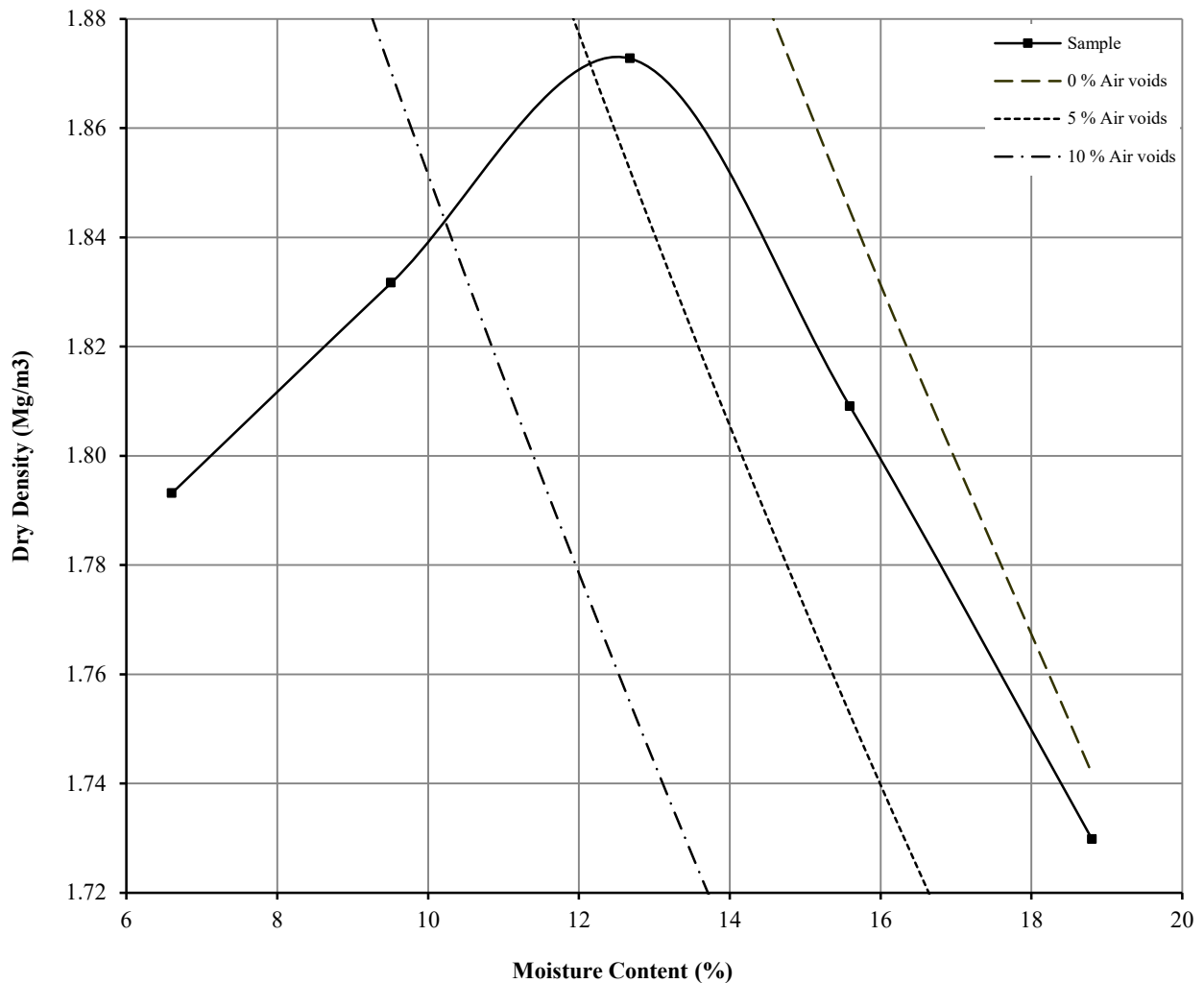
Hole Number: TP112

Top Depth (m) : 0.20

Sample Number:

Base Depth (m) : 0.70

Sample Type: B



Initial Moisture Content:	19	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.59	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.87		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	13			
Remarks See summary of soil descriptions				

 4043		Heywood H4	Contract
			PSL21/8703
			Client Ref
			5986

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

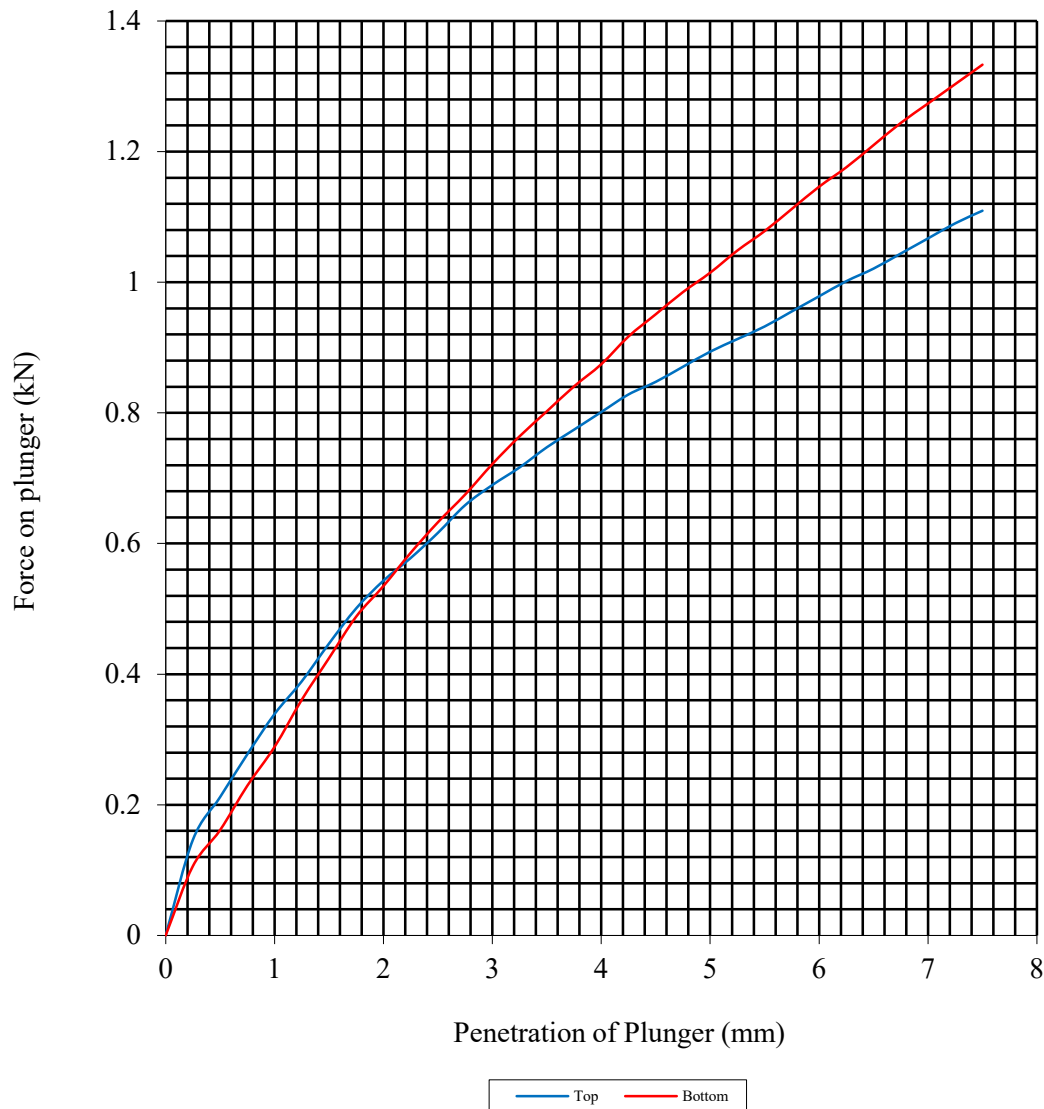
Hole Number: TP112

Top Depth (m): 0.20

Sample Number:

Base Depth (m): 0.70

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	19	Surcharge Kg:	4.00	Sample Top	19	Sample Top	4.7
Bulk Density Mg/m ³ :	2.04	Soaking Time hrs	0	Sample Bottom	19	Sample Bottom	5.1
Dry Density Mg/m ³ :	1.71	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					



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Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

PARTICLE SIZE DISTRIBUTION TEST

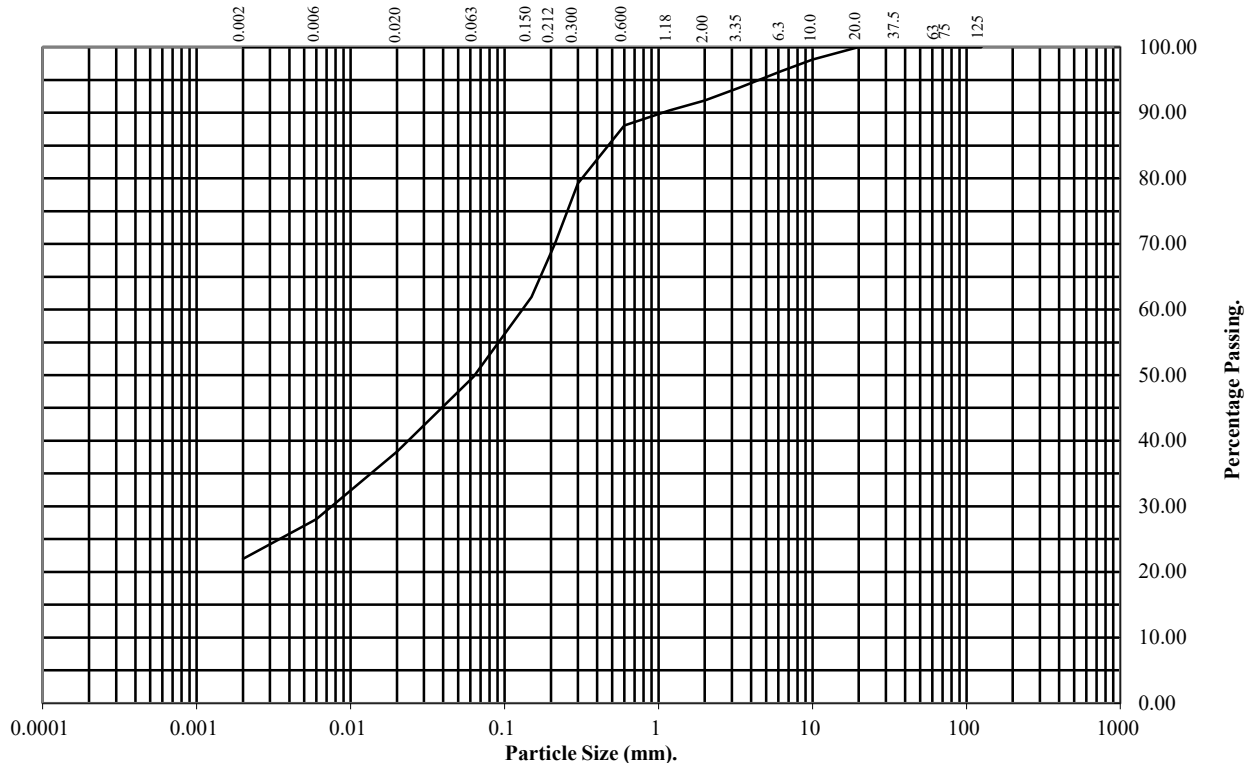
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP118 Top Depth (m): 2.40

Sample Number: Base Depth(m): 2.90

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	96
3.35	94
2	92
1.18	90
0.6	88
0.3	79
0.212	70
0.15	62
0.063	50

Particle Diameter	Percentage Passing
0.02	38
0.006	28
0.002	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	42
Silt	28
Clay	22

Remarks:

See Summary of Soil Descriptions



Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986

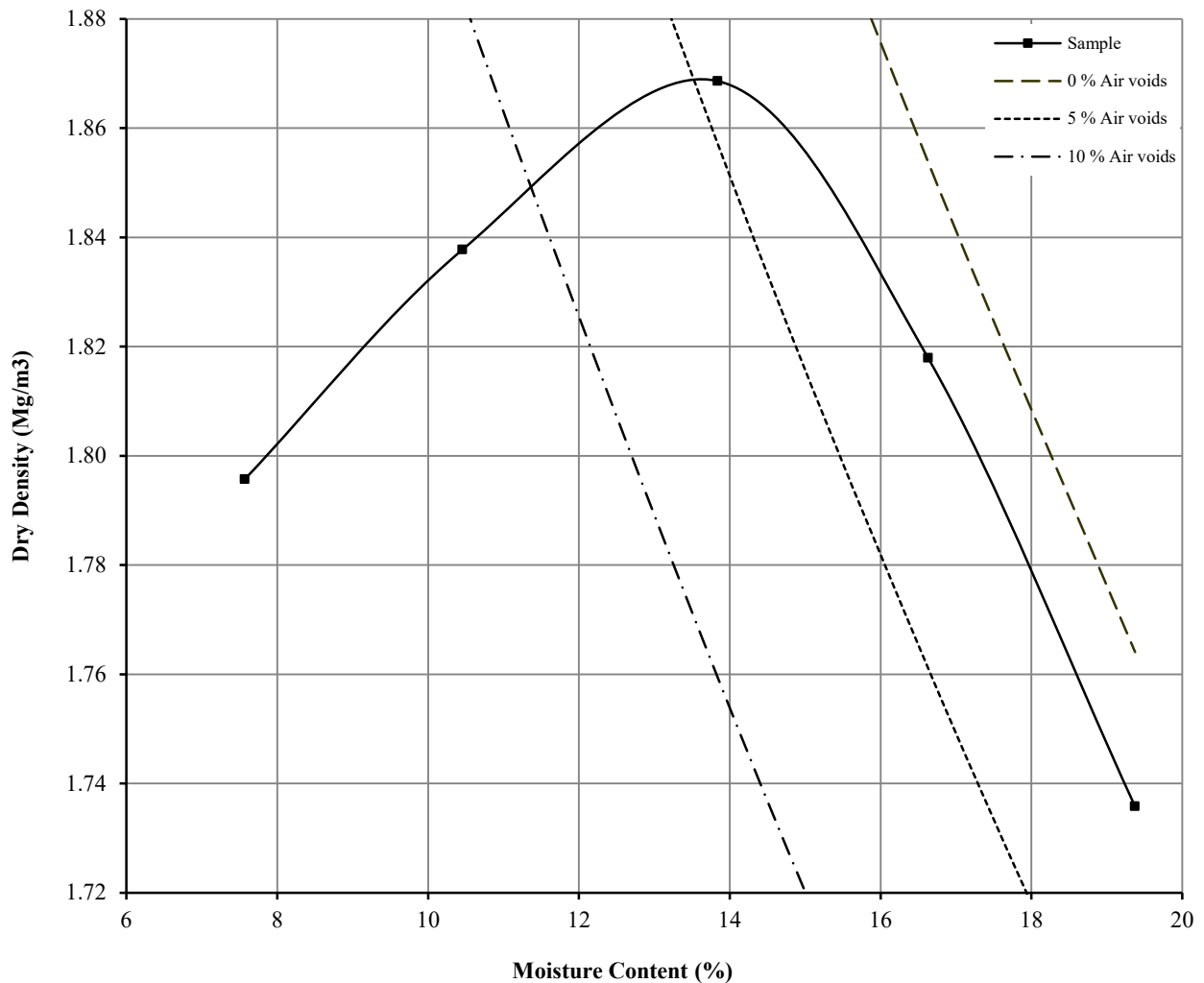
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number: TP118 Top Depth (m) : 2.40

Sample Number: Base Depth (m) : 2.90

Sample Type: B



Initial Moisture Content:	17	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.87		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	14			
Remarks See summary of soil descriptions				

 4043		Heywood H4	Contract
			PSL21/8703
			Client Ref
			5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

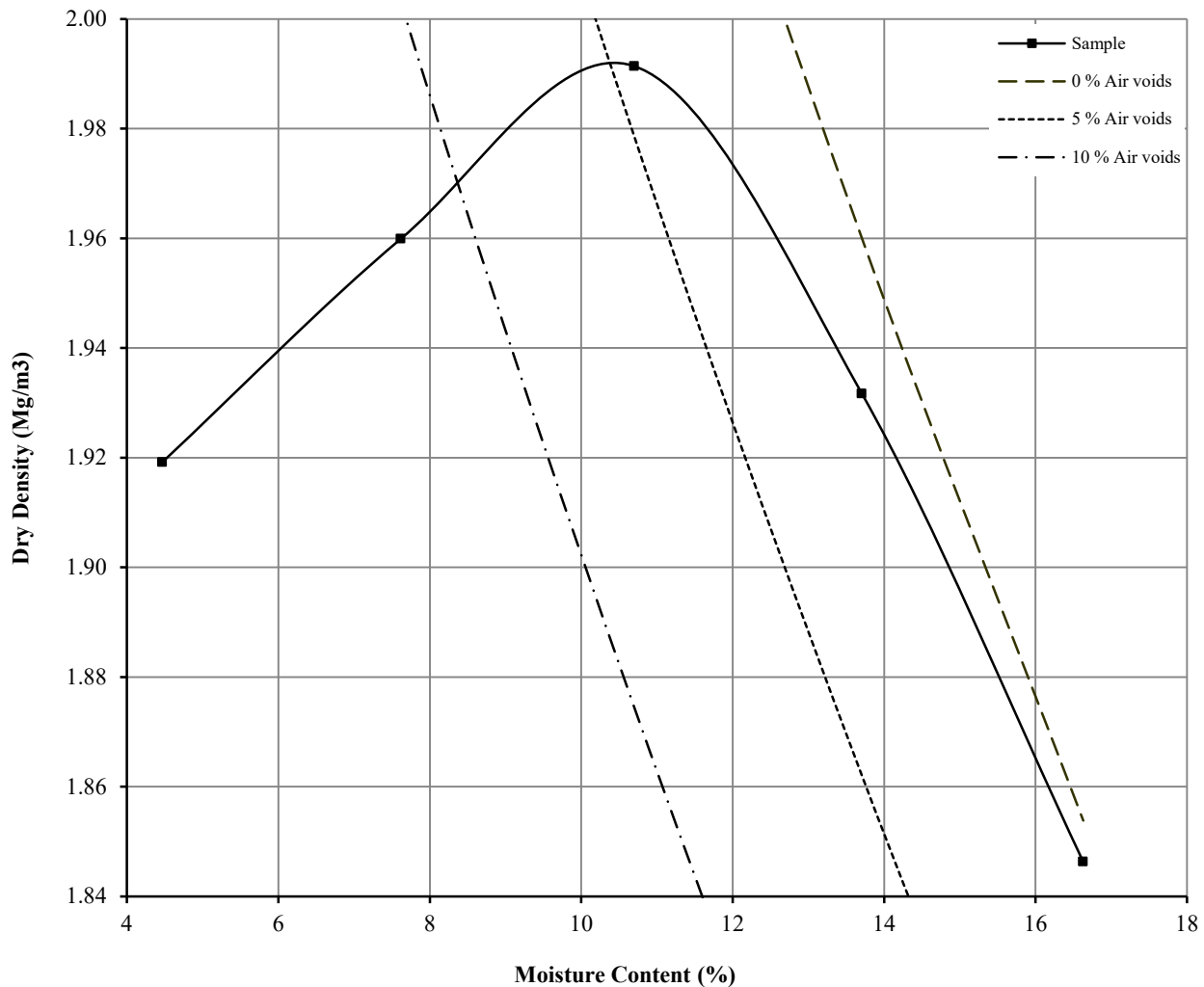
Hole Number: TP118

Top Depth (m) : 2.40

Sample Number:

Base Depth (m) : 2.90

Sample Type: B



Initial Moisture Content:	17	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.99		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	11			
Remarks See summary of soil descriptions				



Heywood H4

Contract
PSL21/8703
Client Ref
5986

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

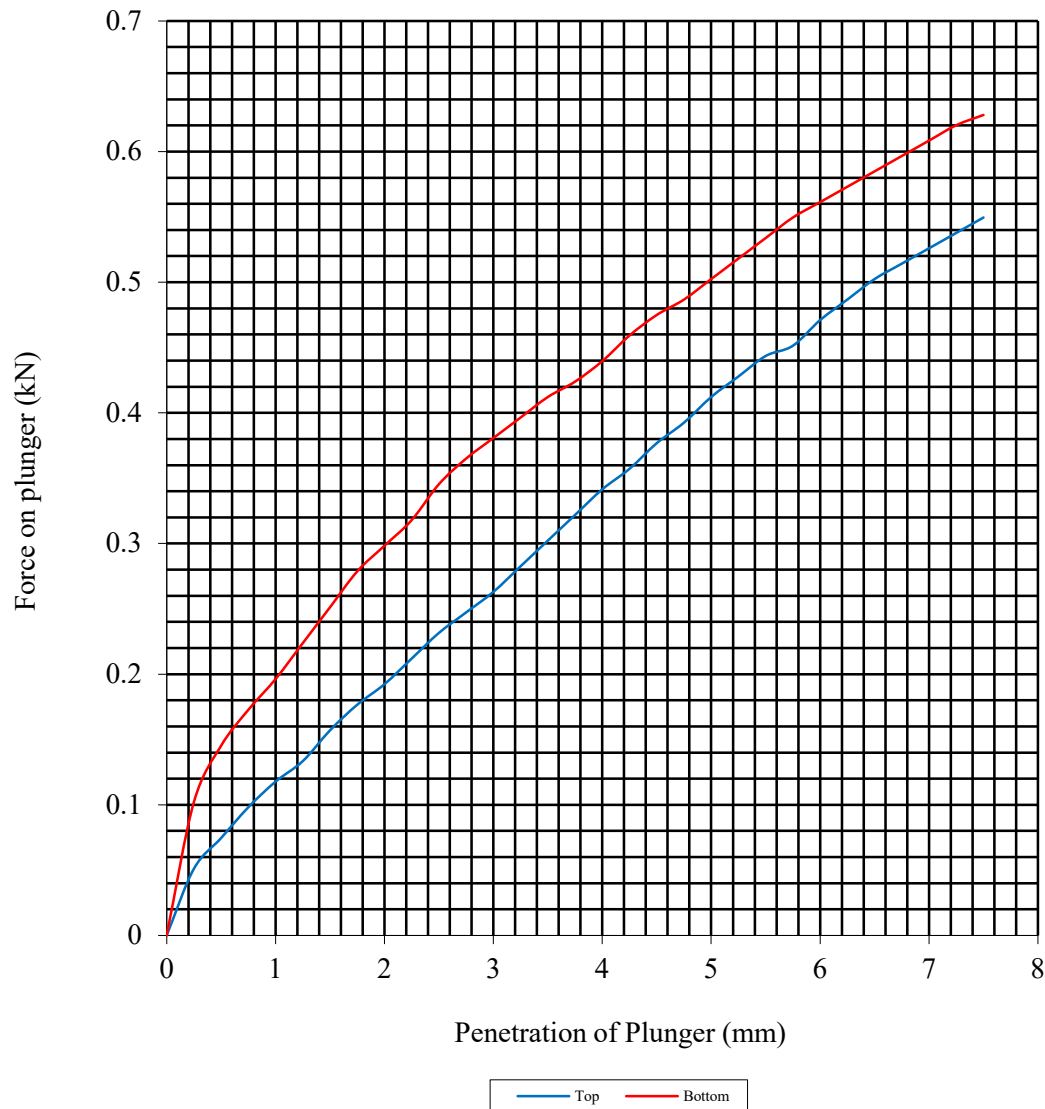
Hole Number: TP118

Top Depth (m): 2.40

Sample Number:

Base Depth (m): 2.90

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	17	Surcharge Kg:	4.00	Sample Top	17	Sample Top	2.1
Bulk Density Mg/m3:	2.12	Soaking Time hrs	0	Sample Bottom	17	Sample Bottom	2.6
Dry Density Mg/m3:	1.82	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



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Heywood H4

Contract No:
PSL21/8703
Client Ref:
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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

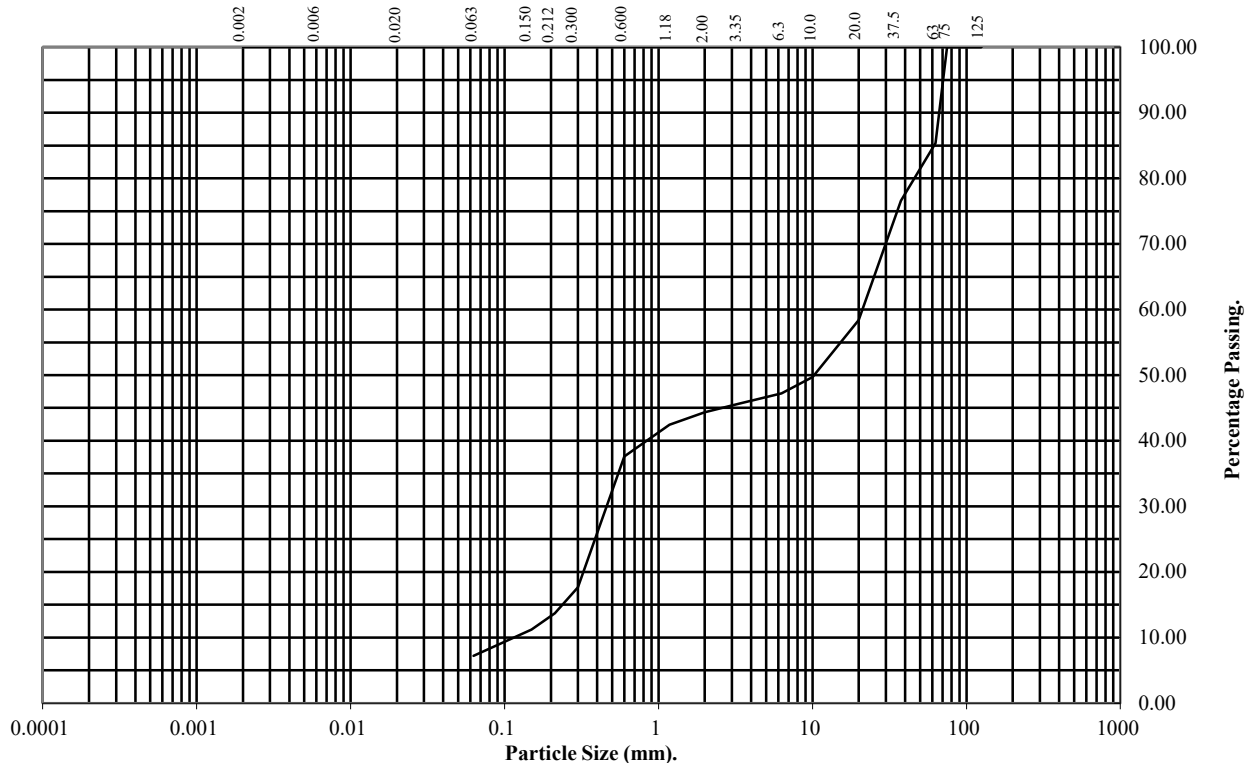
Hole Number: TP119

Top Depth (m): 2.00

Sample Number:

Base Depth(m): 2.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	85
37.5	77
20	58
10	50
6.3	47
3.35	46
2	44
1.18	42
0.6	38
0.3	18
0.212	14
0.15	11
0.063	7

Soil Fraction	Total Percentage
Cobbles	15
Gravel	41
Sand	37
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions



4043

PSL

Professional Soils Laboratory

Heywood H4

Contract No:

PSL21/8703

Client Ref:

5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

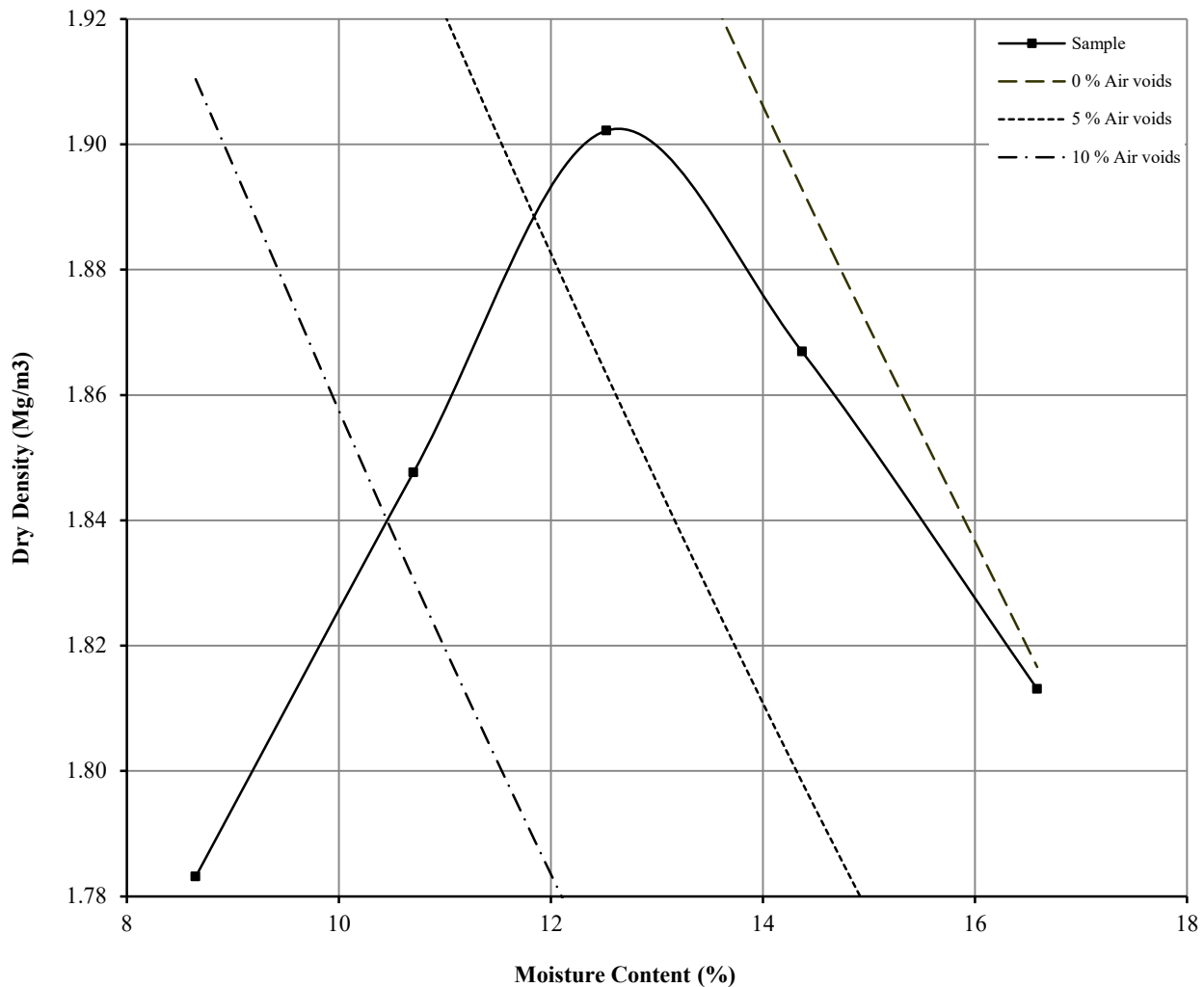
Hole Number: TP119

Top Depth (m) : 2.00

Sample Number:

Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	8.6	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	23
Maximum Dry Density (Mg/m ³):	1.90		Material Retained on 20.0 mm Test Sieve (%):	19
Optimum Moisture Content (%):	13			
Remarks See summary of soil descriptions				

 4043		Heywood H4	Contract
			PSL21/8703
			Client Ref
			5986

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

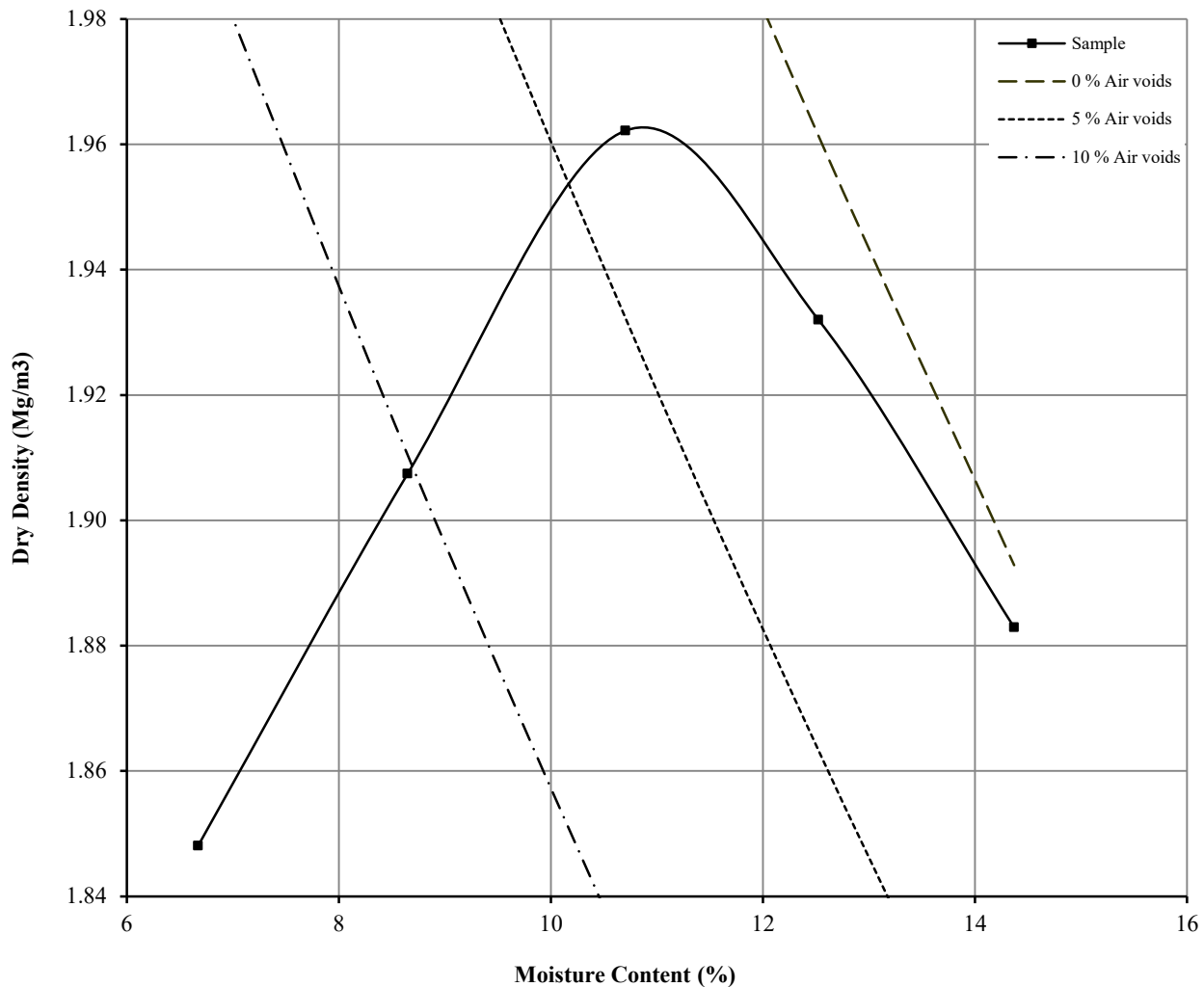
Hole Number: TP119

Top Depth (m) : 2.00

Sample Number:

Base Depth (m) : 2.50

Sample Type: B



Initial Moisture Content:	8.6	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	23
Maximum Dry Density (Mg/m ³):	1.96		Material Retained on 20.0 mm Test Sieve (%):	19
Optimum Moisture Content (%):	11			
Remarks See summary of soil descriptions				

 4043		Heywood H4	Contract
			PSL21/8703
			Client Ref
			5986

CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

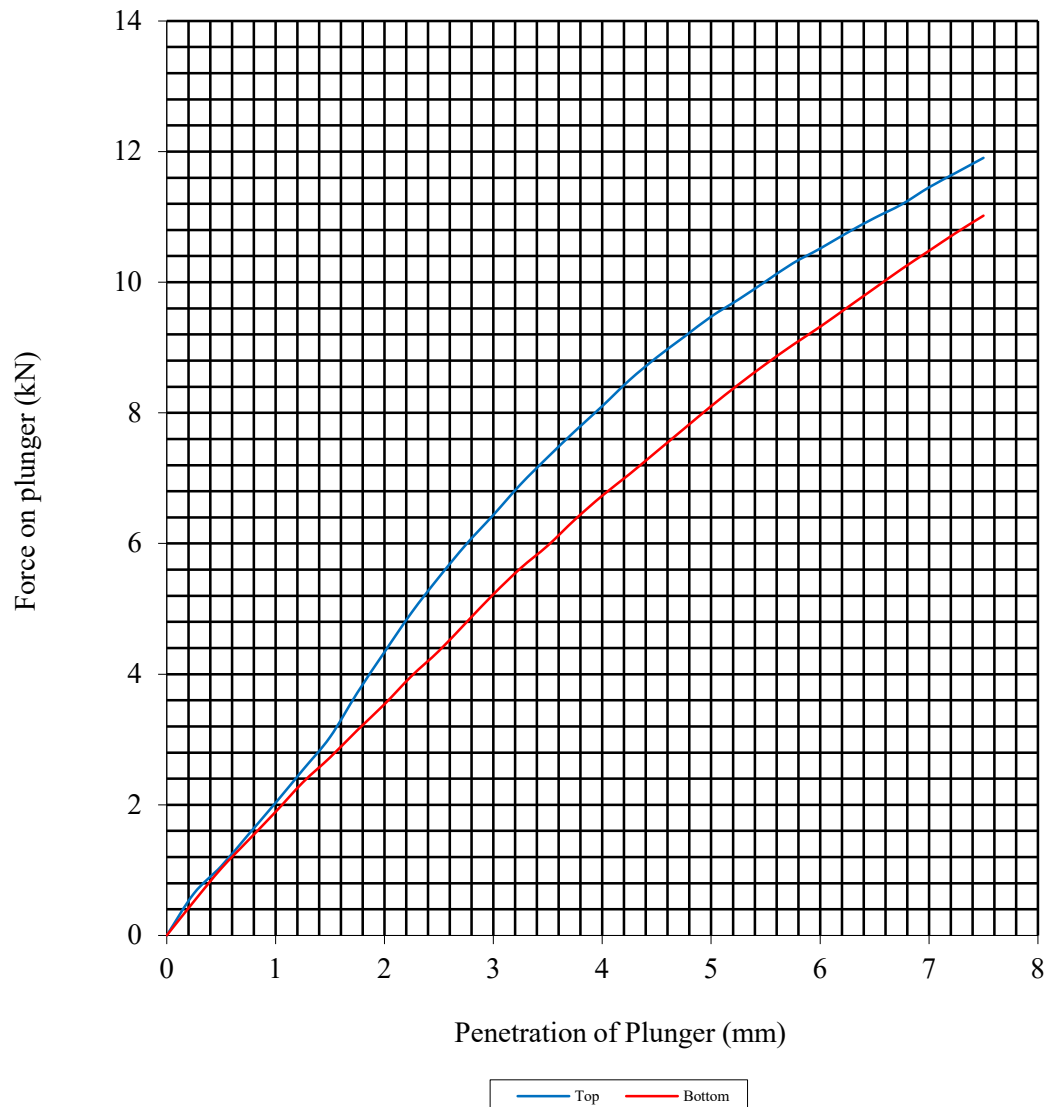
Hole Number: TP119

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.50

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.6	Surcharge Kg:	4.00	Sample Top	8.4	Sample Top	47.4
Bulk Density Mg/m3:	1.93	Soaking Time hrs	0	Sample Bottom	7.9	Sample Bottom	40.5
Dry Density Mg/m3:	1.78	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		42					
Compaction Conditions		2.5kg					



PSL
Professional Soils Laboratory

Heywood H4

Contract No:
PSL21/8703
Client Ref:
5986



ANALYTICAL TEST REPORT

Contract no: 102956

Contract name: Heywood (H4)

Client reference: PSL21/8703

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 22 November 2021

Analysis started: 22 November 2021

Analysis completed: 29 November 2021

Report issued: 29 November 2021

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Rachael Burton

Reporting Team Lead

Chemtech Environmental Limited

SOILS

Lab number			102956-1	102956-2	102956-3	102956-4	102956-5	102956-6
Sample id			TP103	TP106	TP108	TP110	TP111	TP112
Depth (m)			0.70-1.10	0.80-1.20	2.00	1.70-2.20	1.50-2.00	0.20-0.70
Sample Type			B	B	D	D	D	B
Date sampled			-	-	-	-	-	-
Test	Method	Units						
pH	CE004 ^U	units	8.3	6.7	5.7	5.7	7.1	6.6
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	99	30	36	39	16	70

Chemtech Environmental Limited

SOILS

Lab number			102956-7	102956-8	102956-9	102956-10	102956-11	102956-12
Sample id			TP115	TP118	TP119	WS102	WS104	WS110
Depth (m)			1.20	1.65	2.00-2.50	1.25	0.40	1.50-2.00
Sample Type			D	D	B	D	D	D
Date sampled			-	-	-	-	-	-
Test	Method	Units						
pH	CE004 ^U	units	6.0	7.3	8.6	7.4	7.5	6.3
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	40	113	64	31	21	1934

Chemtech Environmental Limited

SOILS

Lab number			102956-13	102956-14	102956-15	102956-16
Sample id			WS111	WS116	WS118	WS128
Depth (m)			1.30	0.40	2.00	1.20
Sample Type			D	D	D	D
Date sampled			-	-	-	-
Test	Method	Units				
pH	CE004 ^U	units	6.6	5.0	6.3	7.6
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	152	68	33	37

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO ₄

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
102956-1	TP103	0.70-1.10	Y	All (NSD)
102956-2	TP106	0.80-1.20	Y	All (NSD)
102956-3	TP108	2.00	Y	All (NSD)
102956-4	TP110	1.70-2.20	Y	All (NSD)
102956-5	TP111	1.50-2.00	Y	All (NSD)
102956-6	TP112	0.20-0.70	Y	All (NSD)
102956-7	TP115	1.20	Y	All (NSD)
102956-8	TP118	1.65	Y	All (NSD)
102956-9	TP119	2.00-2.50	Y	All (NSD)
102956-10	WS102	1.25	Y	All (NSD)
102956-11	WS104	0.40	Y	All (NSD)
102956-12	WS110	1.50-2.00	Y	All (NSD)
102956-13	WS111	1.30	Y	All (NSD)
102956-14	WS116	0.40	Y	All (NSD)
102956-15	WS118	2.00	Y	All (NSD)
102956-16	WS128	1.20	Y	All (NSD)

Chemtech Environmental Limited

Additonal Information

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.



LABORATORY REPORT



4043

Contract Number: PSL21/9013

Report Date: 06 December 2021
Client's Reference: 5986
Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: John Parkinson

Contract Title: Heywood H4
Date Received: 16/11/2021
Date Commenced: 16/11/2021
Date Completed: 6/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

Heywood H4

Contract No:

PSL21/9013

Client Ref:

5986

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Heywood H4

Contract No:

PSL21/9013

Client Ref:

5986



LABORATORY REPORT



4043

Contract Number: PSL21/9257

Report Date: 06 December 2021
Client's Reference: 5986
Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: John Parkinson

Contract Title: Heywood H4
Date Received: 24/11/2021
Date Commenced: 24/11/2021
Date Completed: 6/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

Heywood H4

Contract No:

PSL21/9257

Client Ref:

5986



LABORATORY REPORT



4043

Contract Number: PSL21/9258

Report Date: 07 December 2021
Client's Reference: 5986
Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: John Parkinson

Contract Title: Heywood H4
Date Received: 24/11/2021
Date Commenced: 24/11/2021
Date Completed: 7/12/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

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fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Heywood H4

Contract No:

PSL21/9258

Client Ref:

5986

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

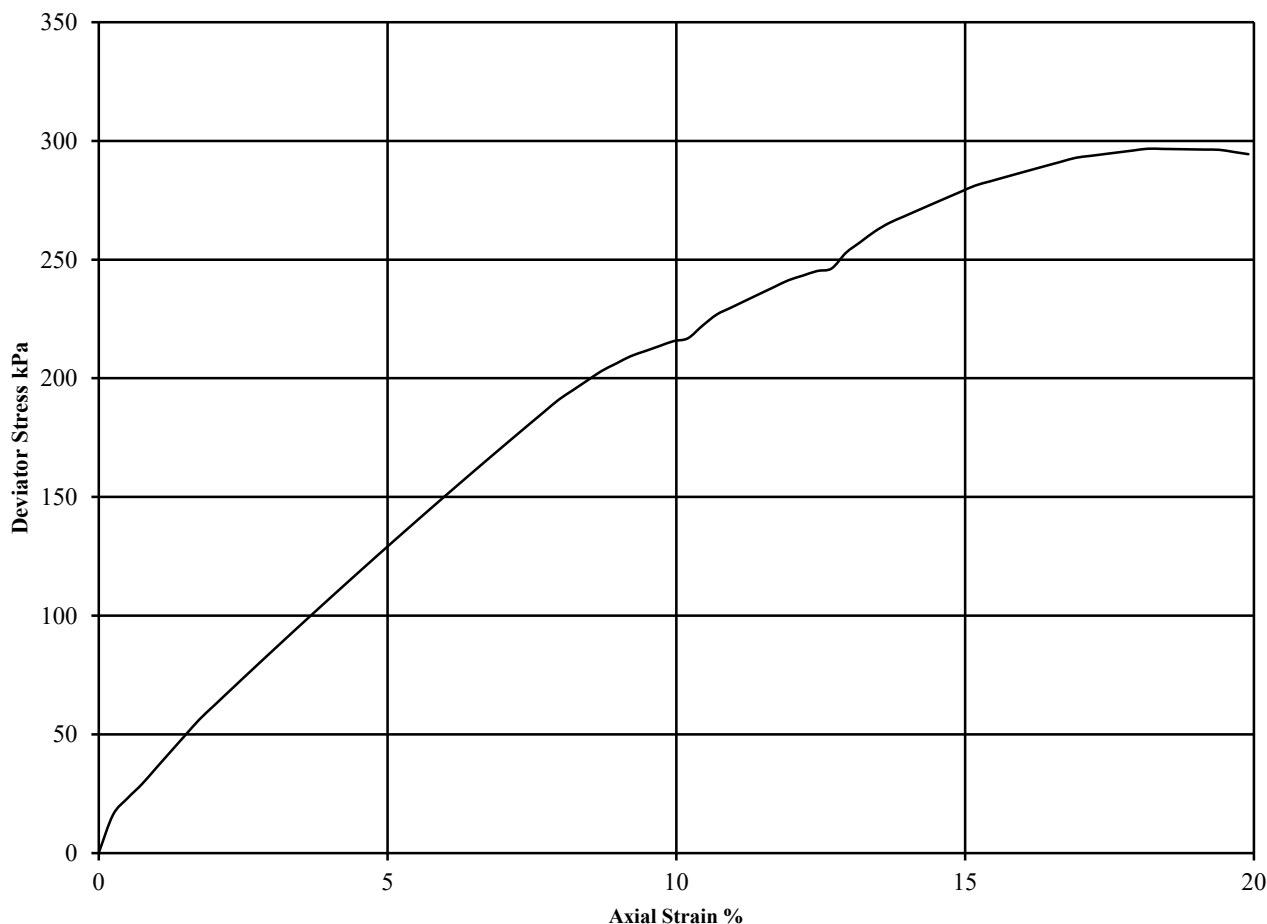
Hole Number: BH101

Top Depth (m): 3.00

Sample Number:

Base Depth (m): 3.45

Sample Type U100



Diameter (mm):		103	Height (mm):		207	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.35 0.34 0.33 See summary of soil descriptions
	12	2.26	2.02	40	217	108	10.2		
				80	246	123	12.7		
				160	297	148	18.2	Plastic	



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Heywood H4

Contract No:

PSL21/9258

Client Ref:

5986

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

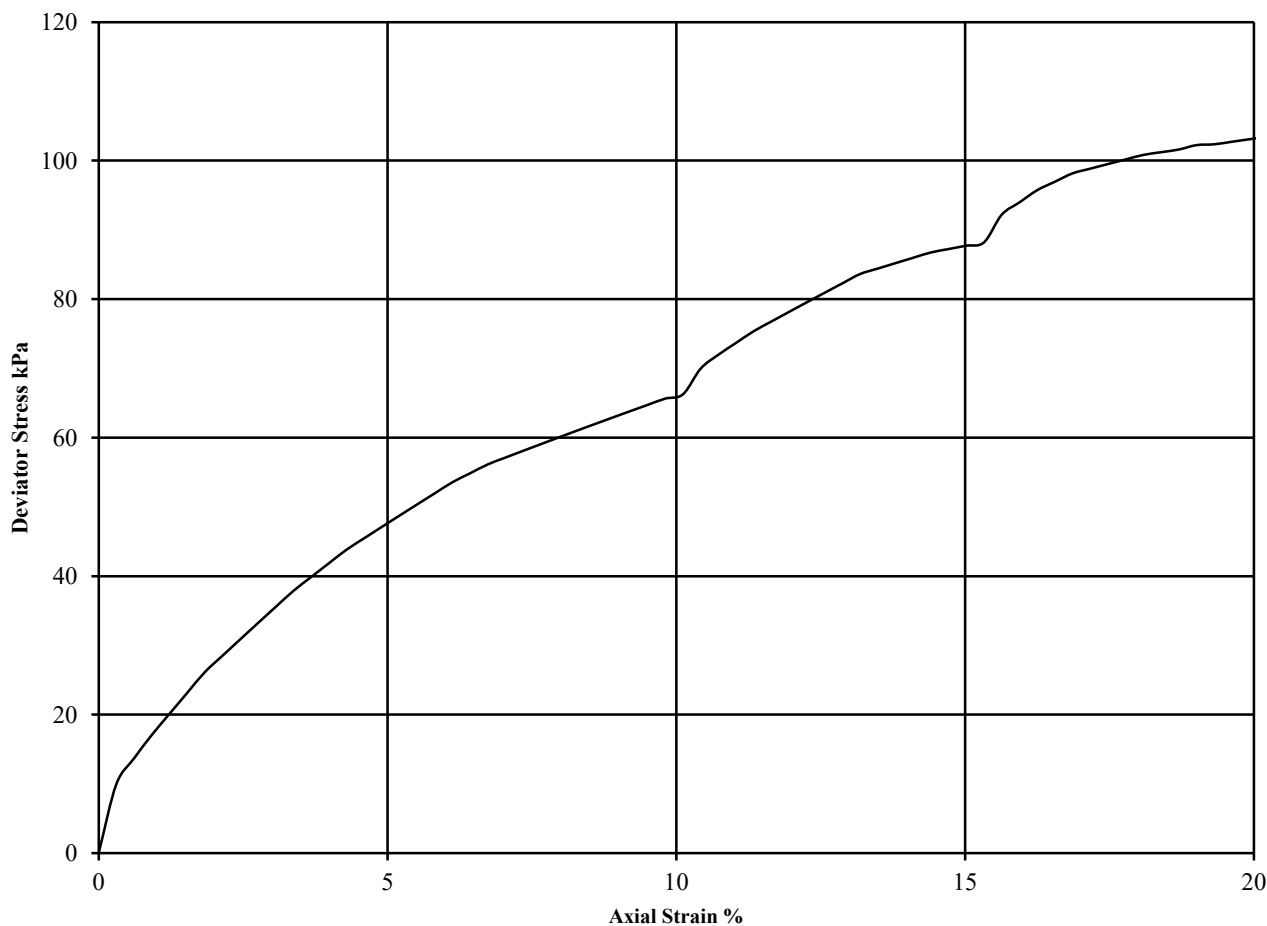
Hole Number: BH102

Top Depth (m): 3.00

Sample Number:

Base Depth (m): 3.45

Sample Type U100



Diameter (mm):		103	Height (mm):		168	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.35 0.34 0.32 See summary of soil descriptions
1	15	2.18	1.89	40	66	33	10.1		
				80	88	44	15.3		
				160	105	52	24.5	Plastic	



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Heywood H4

Contract No:

PSL21/9258

Client Ref:

5986

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

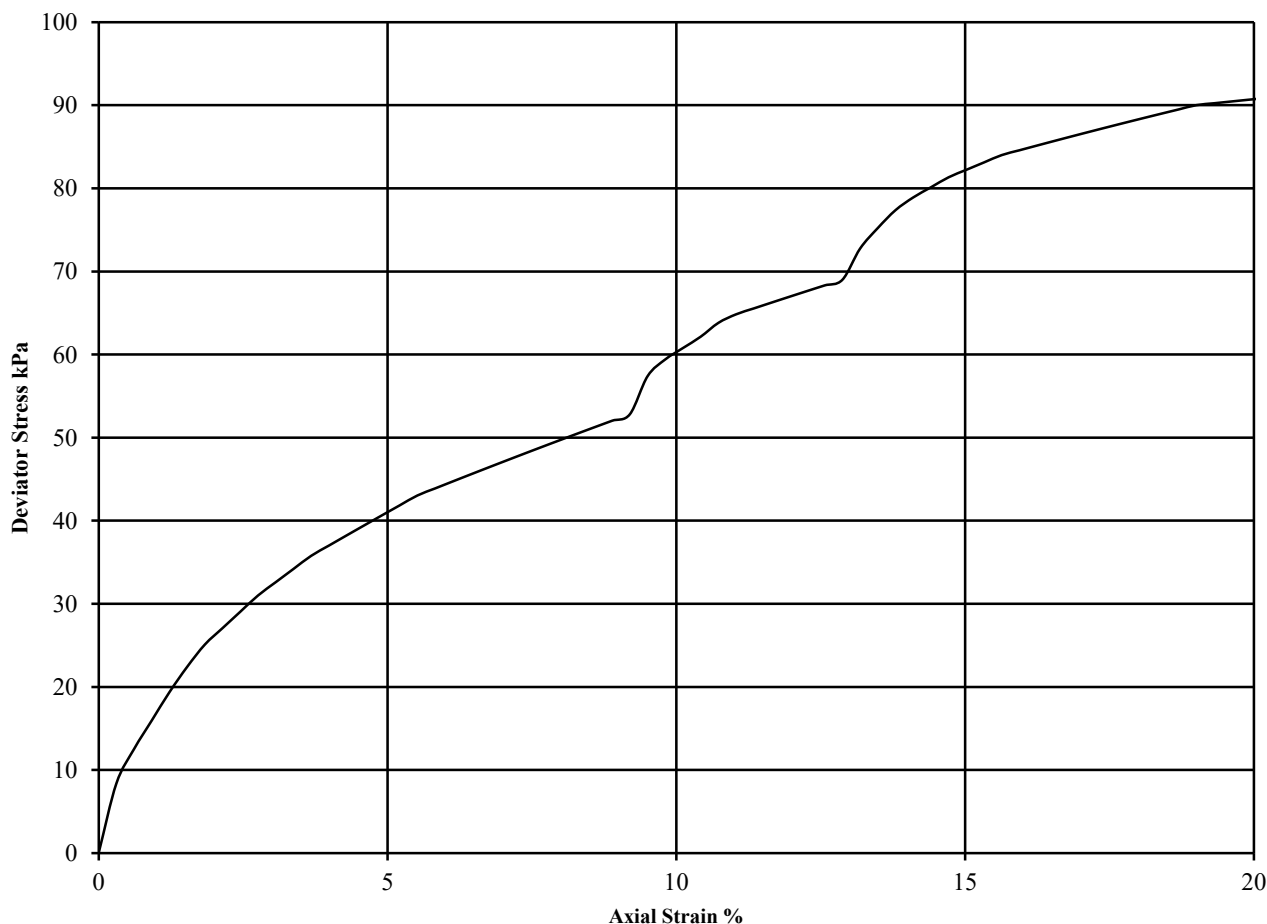
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number: BH102 Top Depth (m): 8.00

Sample Number: Base Depth (m): 8.45

Sample Type U100



Diameter (mm):		103	Height (mm):		168	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample
				θ_3	$(\theta_1-\theta_3)_f$	$\frac{1}{2}(\theta_1-\theta_3)_f$			Sample taken from top of tube
									Rate of strain = 2 %/min
									Latex Membrane used 0.2 mm thick
1	18	2.06	1.75	90	53	26	9.2		Membrane Correction applied (kPa)
				180	69	34	12.9		0.35 0.34 0.33
				360	92	46	21.8	Plastic	See summary of soil descriptions



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Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

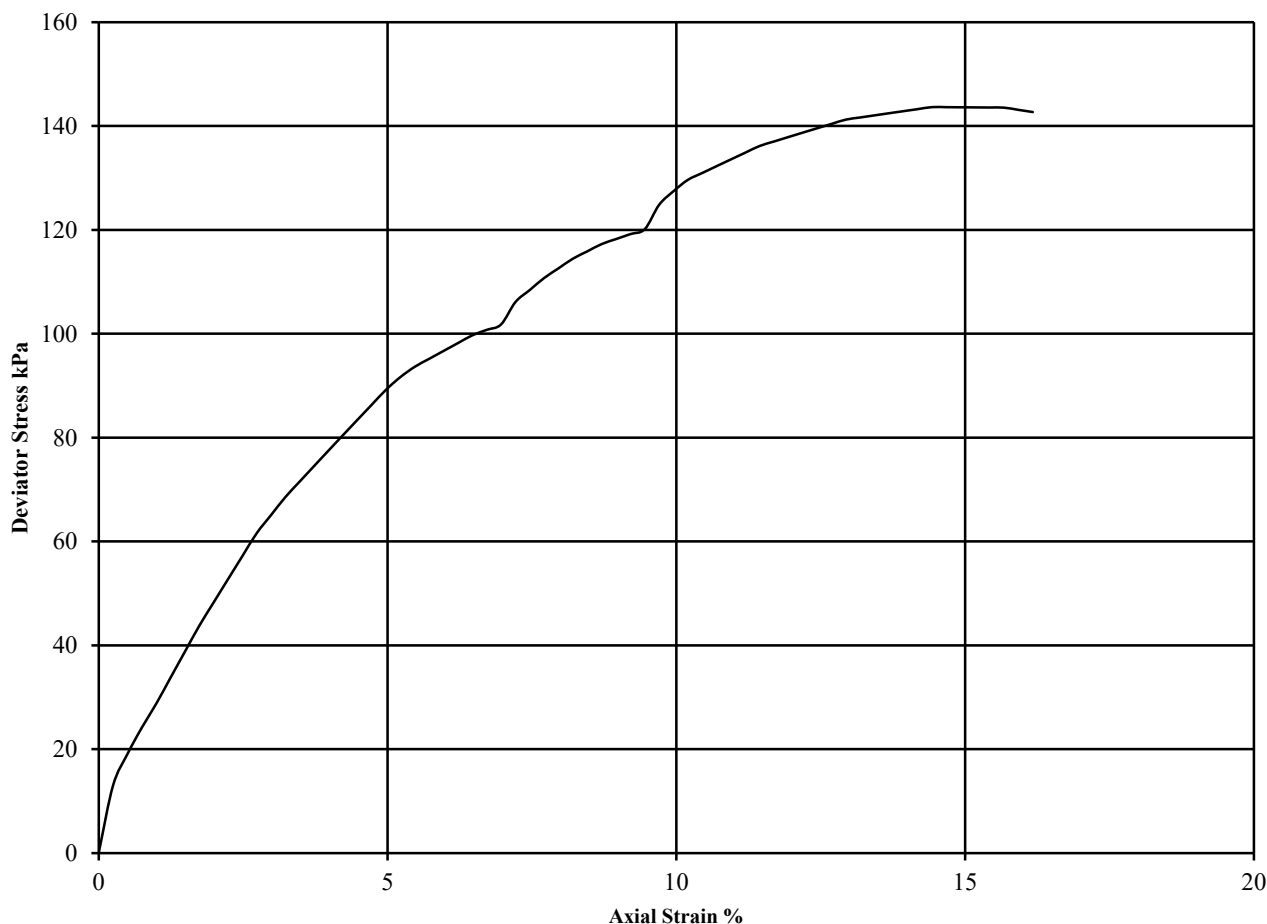
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number: BH103 Top Depth (m): 5.00

Sample Number: Base Depth (m): 5.45

Sample Type U100



Diameter (mm):		103	Height (mm):		207	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.36 0.35 0.34 See summary of soil descriptions
	1	16	2.12	60	102	51	7.0		
				120	120	60	9.5		
				240	144	72	14.4	Plastic	



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Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

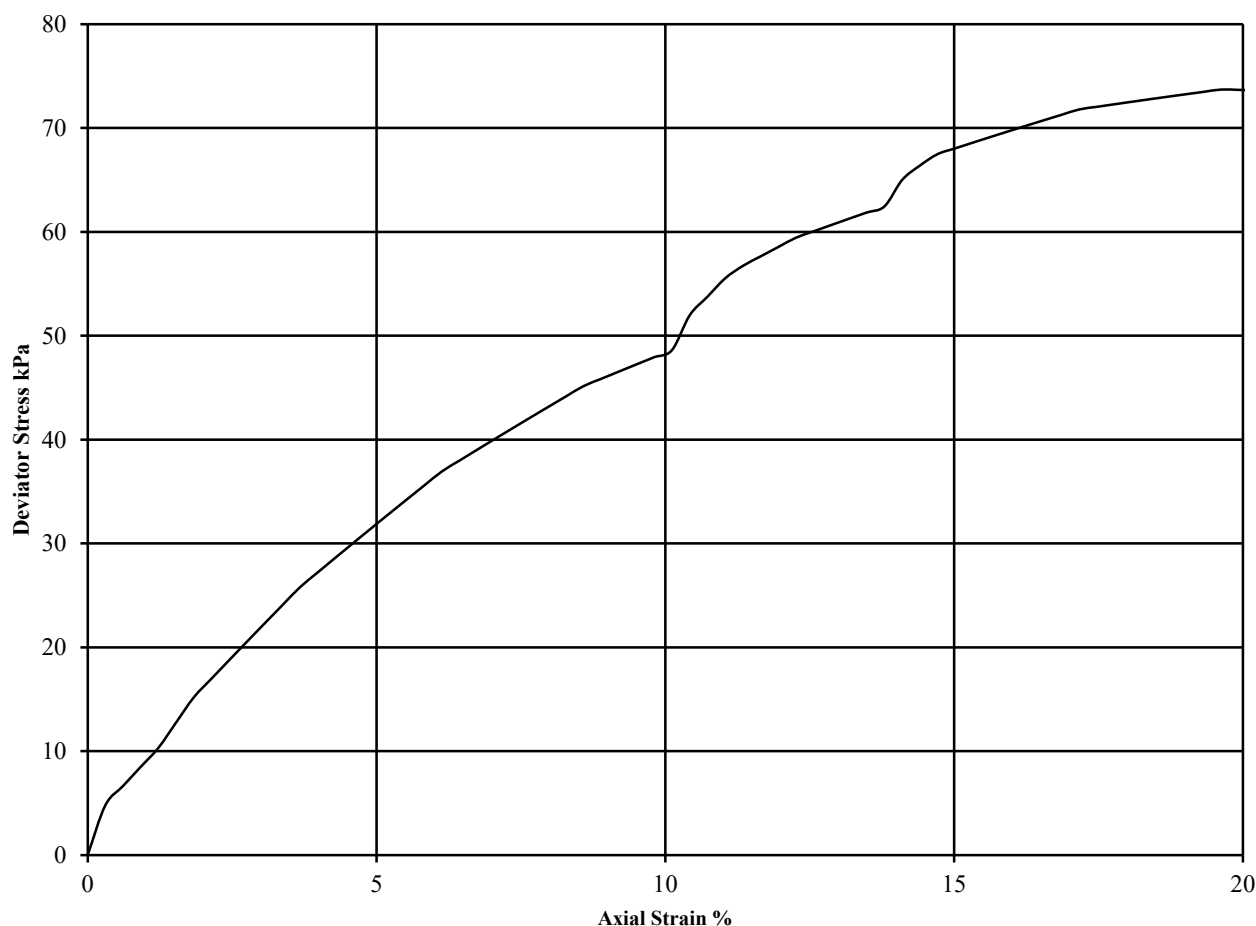
Hole Number: BH104

Top Depth (m): 1.20

Sample Number:

Base Depth (m): 1.65

Sample Type U100



Diameter (mm):		103	Height (mm):		168	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.35 0.34 0.33 See summary of soil descriptions
1	17	2.10	1.80	20	49	24	10.1		
				40	62	31	13.8		
				80	74	37	19.6	Plastic	



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Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH101

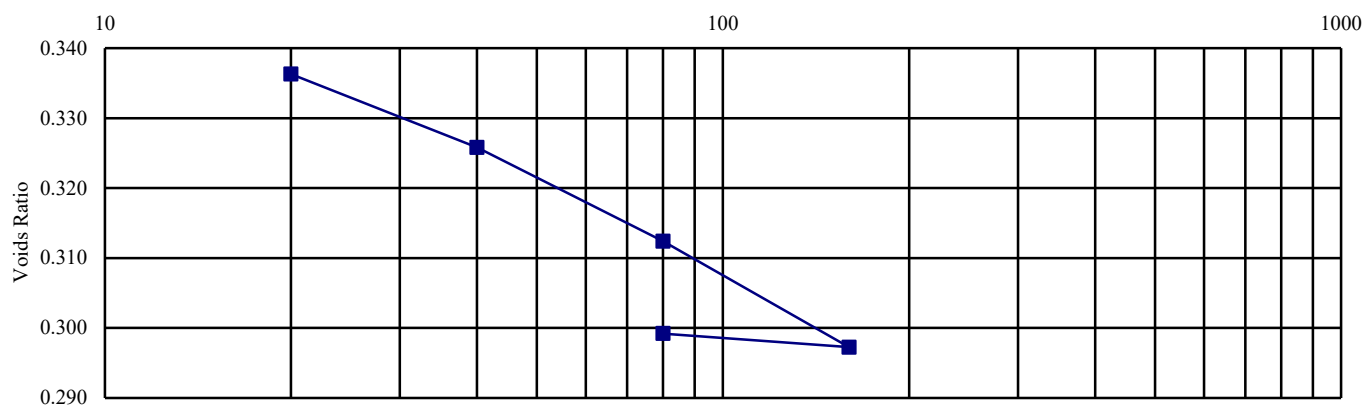
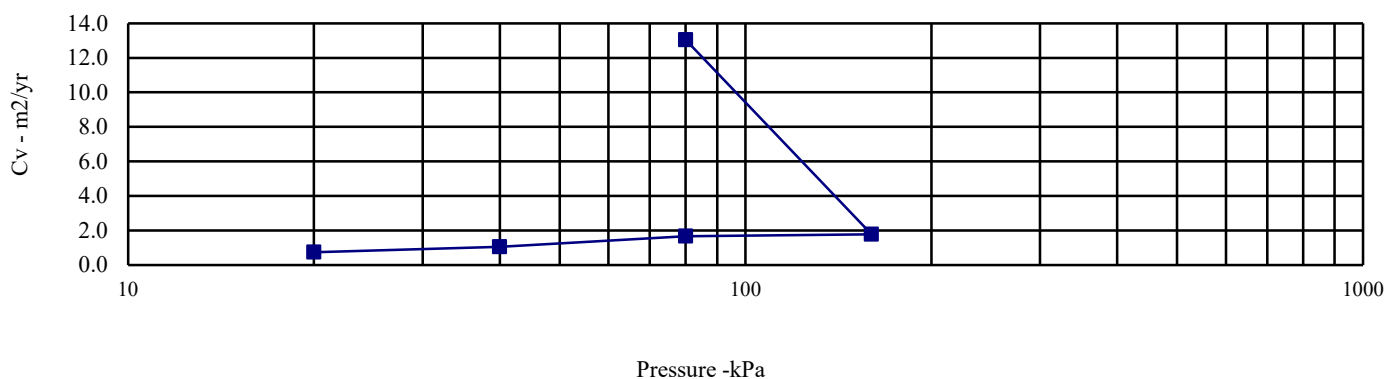
Top Depth (m): 1.20

Sample Number:

Base Depth (m) : 1.65

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	14	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.23	0	20	0.664	0.752	Method used to	
Dry Density (Mg/m3):	1.96	20	40	0.393	1.069	determine CV:	T90
Voids Ratio:	0.354	40	80	0.253	1.680	Nominal temperature	
Degree of saturation:	105.2	80	160	0.144	1.791	during test ' C:	20
Height (mm):	20.114	160	80	0.019	13.039	Remarks:	
Diameter (mm)	75.003					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



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Contract No:
PSL21/9258
Client Ref:
5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH101

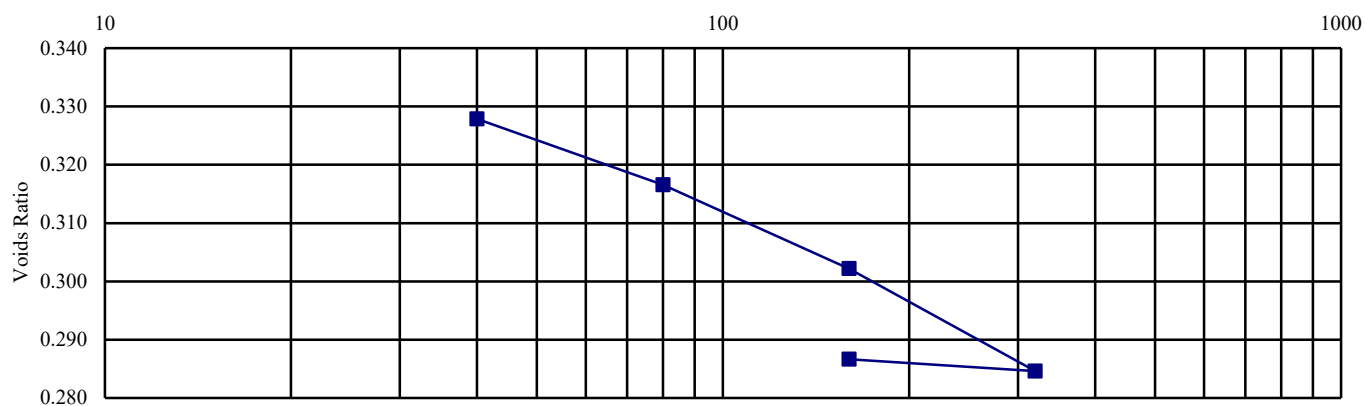
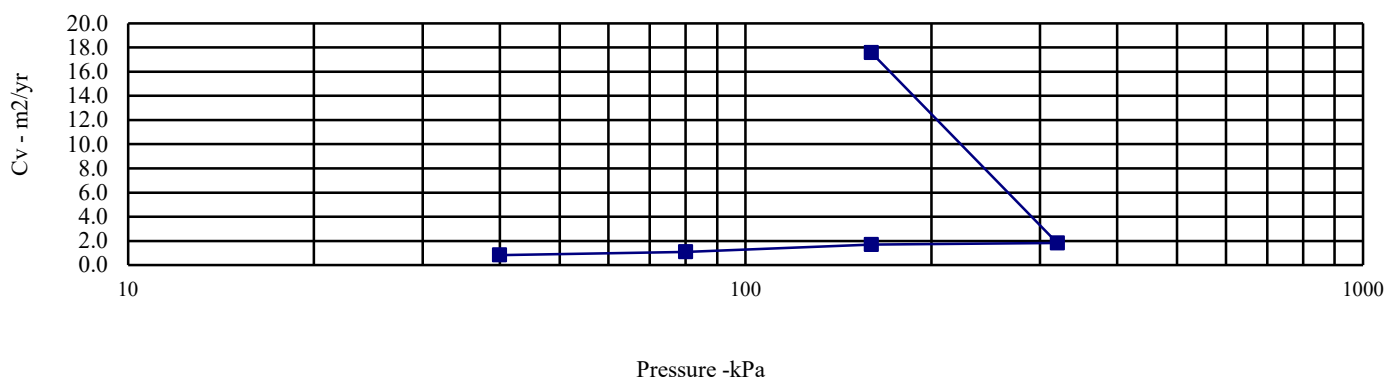
Top Depth (m): 3.00

Sample Number:

Base Depth (m) : 3.45

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	13	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.22	0	40	0.490	0.830	Method used to	
Dry Density (Mg/m3):	1.96	40	80	0.213	1.092	determine CV:	T90
Voids Ratio:	0.354	80	160	0.136	1.707	Nominal temperature	
Degree of saturation:	99.9	160	320	0.084	1.833	during test ' C:	20
Height (mm):	20.188	320	160	0.010	17.560	Remarks:	
Diameter (mm)	75.038					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH102

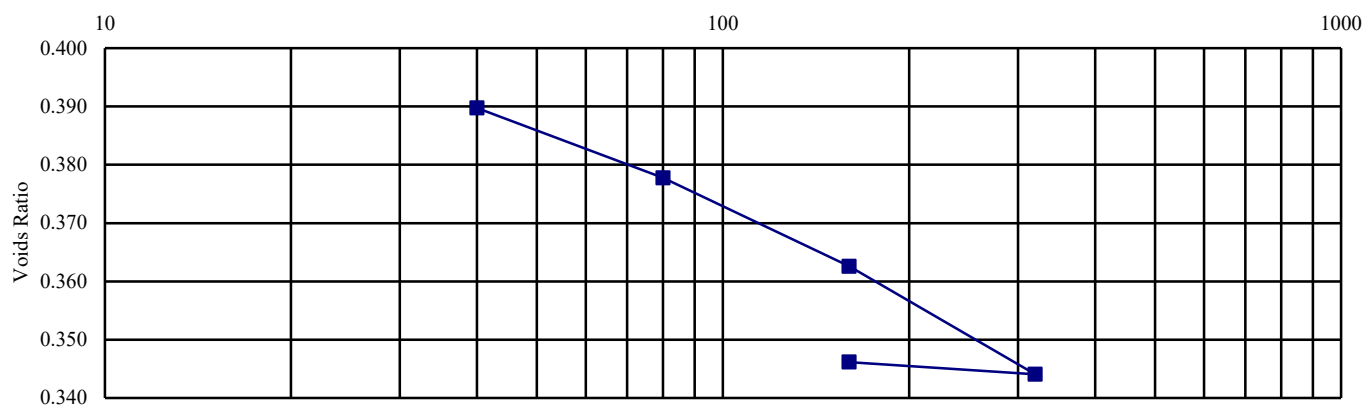
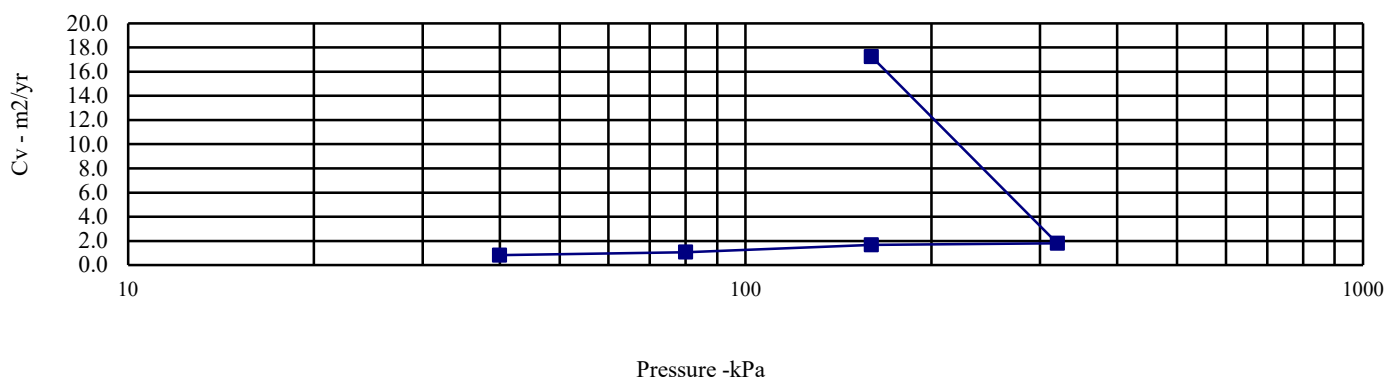
Top Depth (m): 3.00

Sample Number:

Base Depth (m) : 3.45

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	16	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.17	0	40	0.495	0.816	Method used to	
Dry Density (Mg/m3):	1.87	40	80	0.215	1.072	determine CV:	T90
Voids Ratio:	0.418	80	160	0.138	1.677	Nominal temperature	
Degree of saturation:	100.7	160	320	0.085	1.799	during test ' C:	20
Height (mm):	20.012	320	160	0.010	17.239	Remarks:	
Diameter (mm)	75.005					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



Heywood H4

Contract No:

PSL21/9258

Client Ref:

5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH102

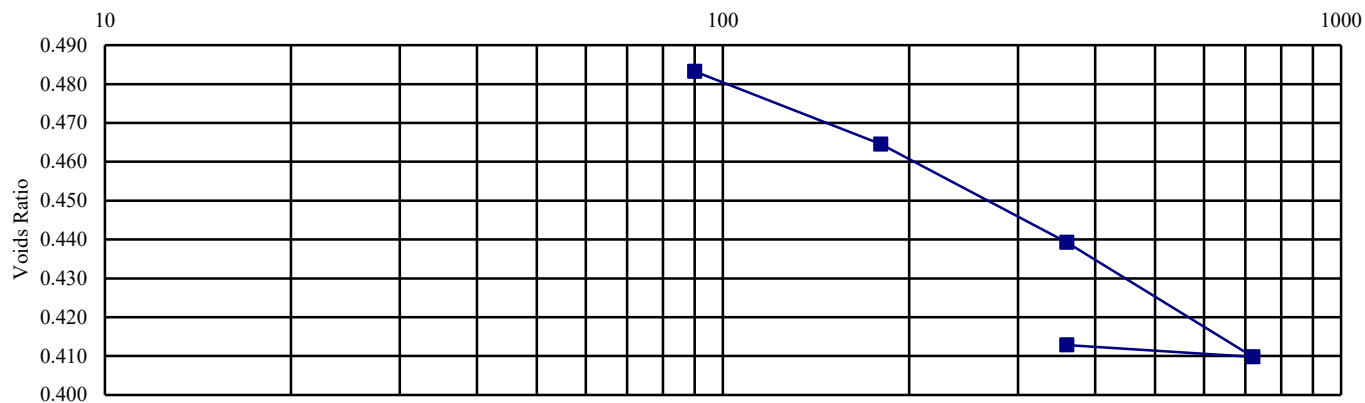
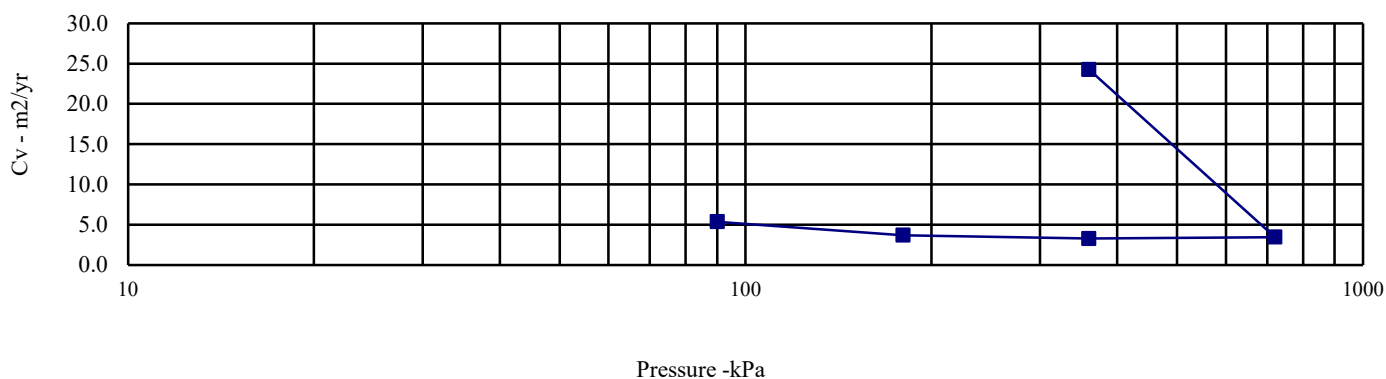
Top Depth (m): 8.00

Sample Number:

Base Depth (m) : 8.45

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	19	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.07	0	90	0.306	5.367	Method used to	
Dry Density (Mg/m3):	1.74	90	180	0.141	3.705	determine CV:	T90
Voids Ratio:	0.525	180	360	0.096	3.289	Nominal temperature	
Degree of saturation:	95.6	360	720	0.057	3.475	during test ' C:	20
Height (mm):	20.072	720	360	0.006	24.265	Remarks:	
Diameter (mm)	75.12					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH103

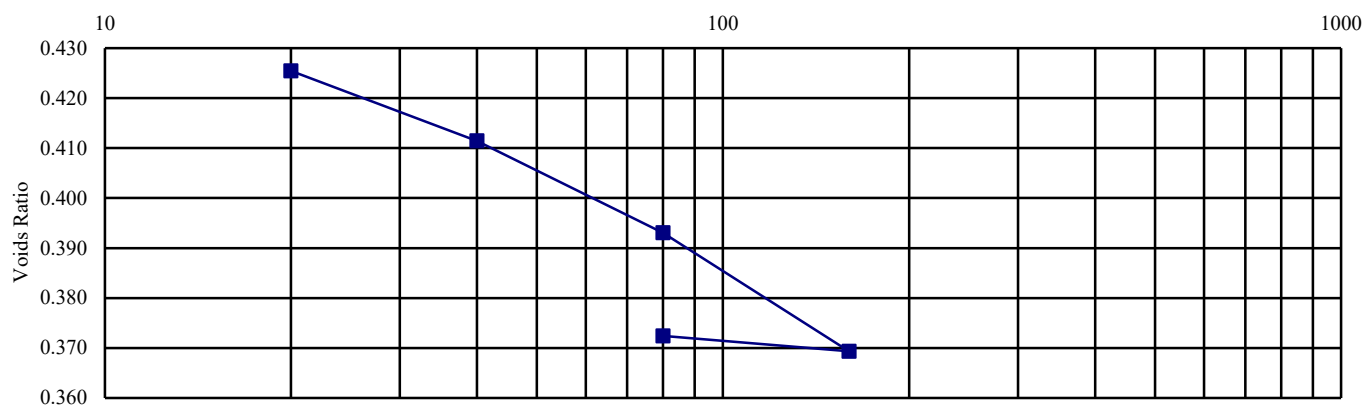
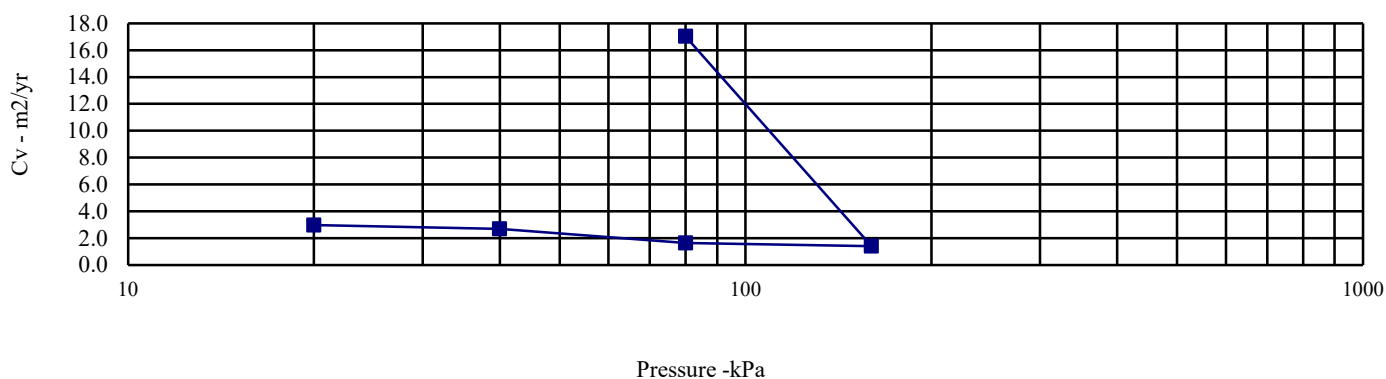
Top Depth (m): 1.20

Sample Number:

Base Depth (m) : 1.65

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	17	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.16	0	20	0.465	2.976	Method used to	
Dry Density (Mg/m3):	1.84	20	40	0.492	2.700	determine CV:	T90
Voids Ratio:	0.439	40	80	0.326	1.640	Nominal temperature	
Degree of saturation:	103.8	80	160	0.213	1.401	during test ' C:	20
Height (mm):	20.196	160	80	0.028	17.024	Remarks:	
Diameter (mm)	75.013					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



Heywood H4

Contract No:

PSL21/9258

Client Ref:

5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH103

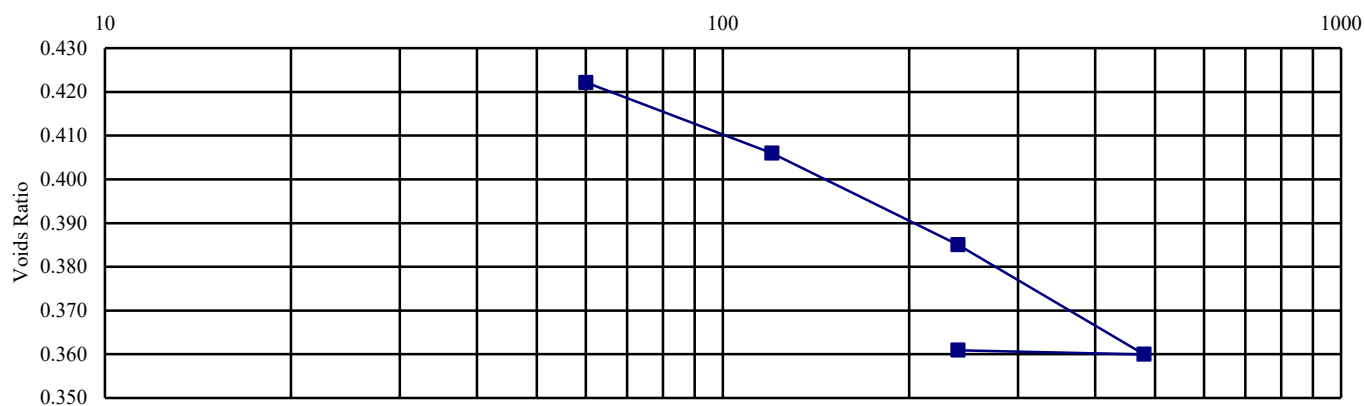
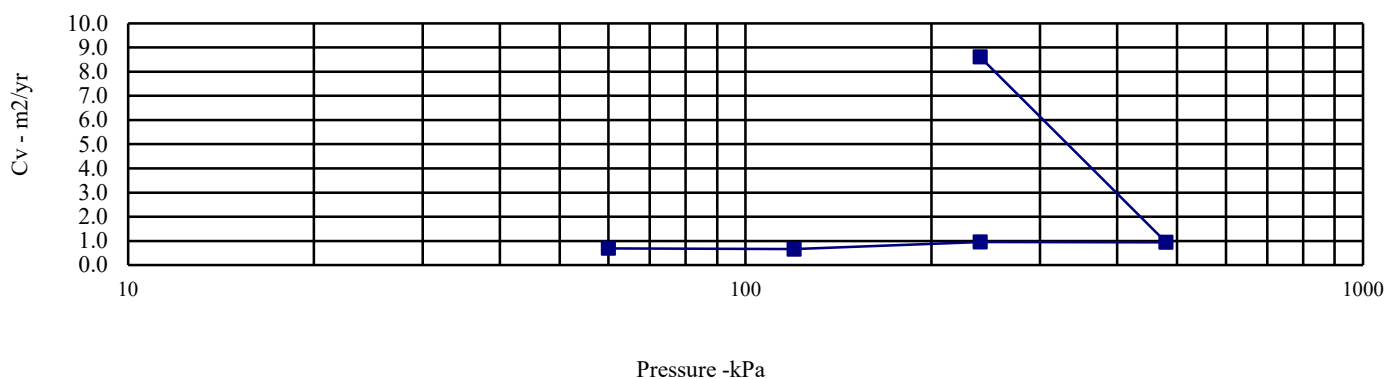
Top Depth (m): 5.00

Sample Number:

Base Depth (m) : 5.45

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	17	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.12	0	60	0.436	0.697	Method used to	
Dry Density (Mg/m3):	1.81	60	120	0.189	0.660	determine CV:	T90
Voids Ratio:	0.460	120	240	0.124	0.951	Nominal temperature	
Degree of saturation:	97.3	240	480	0.076	0.945	during test ' C:	20
Height (mm):	20.012	480	240	0.003	8.609	Remarks:	
Diameter (mm)	75.01					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH104

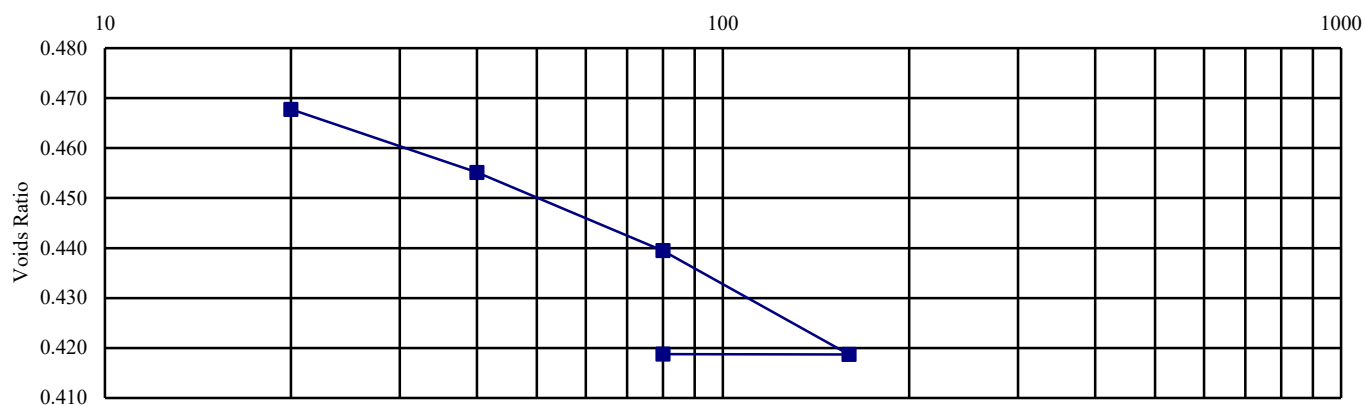
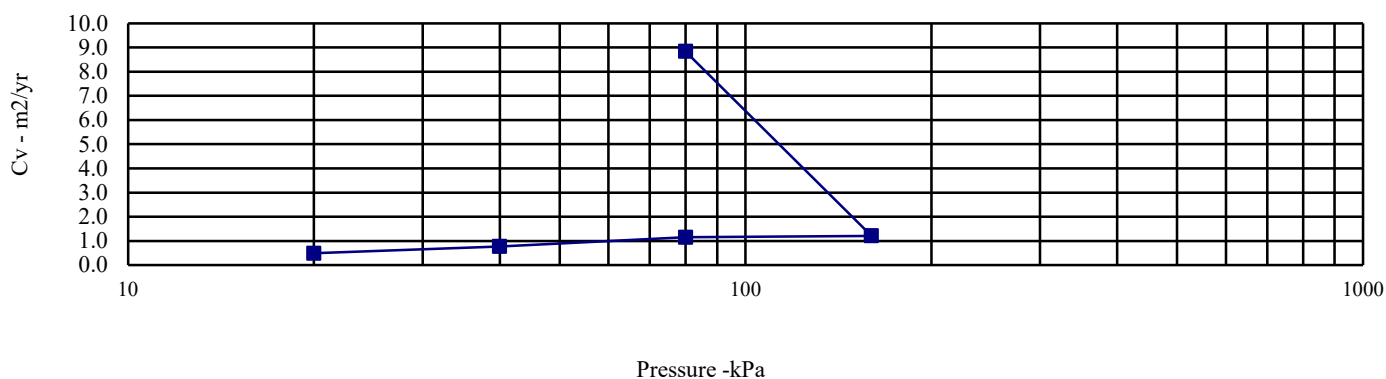
Top Depth (m): 1.20

Sample Number:

Base Depth (m) : 1.65

Sample Type: U100

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	18	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.09	0	20	0.850	0.490	Method used to	
Dry Density (Mg/m3):	1.77	20	40	0.430	0.775	determine CV:	T90
Voids Ratio:	0.493	40	80	0.269	1.151	Nominal temperature	
Degree of saturation:	94.7	80	160	0.180	1.208	during test ' C:	20
Height (mm):	20.114	160	80	0.001	8.831	Remarks:	
Diameter (mm)	75.005					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed							



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Heywood H4

Contract No:
PSL21/9258
Client Ref:
5986



Appendix D Chemical Analysis Certificates and HazWasteOnline Waste Classification



STATISTICAL ASSESSMENT OF CHEMICAL ANALYSIS

The results of the chemical analysis have been assessed in accordance with CL:AIRE (Contaminated Land: Applications in Real Environments) 'Guidance on Comparing Soil Contamination Data with a Critical Concentration' published by the CIEH, May 2008.

This guidance provides a statistical approach to objectively evaluate the evidence for and against particular propositions/hypothesis and has the useful attribute of enabling decision makers to reach conclusions about the available evidence, with at least some understanding of the validity of the results.

The guidance approaches this in the context of assessing the results from two different perspectives, the Planning Scenario and Part 2A.

When assessing in terms of the Planning Scenario, the key question would be 'can we confidently say that the level of contamination on this land is low relative to some appropriate measure of risk?' Under Part 2A, the question would be 'can we confidently say that the level of contamination is high relative to some appropriate measure of risk?'

These questions are addressed through the use of formal hypothesis – the "Null Hypothesis" and the "Alternative Hypothesis".

This assessment will be carried out in accordance with the Planning Scenario, where the aim is to demonstrate 'suitability for use'. The Null Hypothesis is that the level of contamination is the same as, or higher than the critical concentration/GAC. The Alternative Hypothesis is that the level of contamination is lower than the critical concentration/GAC. Under Part 2A the opposite set of propositions are applicable.

By convention, the Null Hypothesis is the starting proposition against which the key question, as expressed by the Alternative Hypothesis, can be tested.

The assessment of the results relies on there being a normal distribution of results for a particular contaminant and that the data set under consideration is representative of the particular material which is being assessed. If more than one dataset is present, then the hypothesis should be applied individually for each data set.

Under the Planning Scenario, the statistical test is used to demonstrate that there is a 95% probability that the true population mean falls below the critical concentration/GAC.

Appropriate data sets must be created to enable the statistical testing to be carried out and three key elements must be considered prior to statistical analysis. These are as follows:

- Dealing with non-detects;
- Understanding the statistical distribution of data; and
- Dealing with outliers.

The results can then be assessed, and the results will be compared against the following:

- Sample Mean – if the sample mean of the data set is in excess of the GAC then the Upper Confidence Limit of the true population mean will be higher than the critical concentration.
- 95% of the Upper Confidence Limit.
- One Sample T Test (parametric test) carried out at the 95% confidence level.

On the basis of these tests, the validity of the Null Hypothesis can be assessed.



Certificate of Analysis

Certificate Number 21-22263-1

Issued: 29-Oct-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-22263-1

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description 9 Soil samples, 6 Leachate samples.

Date Received 19-Oct-21

Date Started 19-Oct-21

Date Completed 29-Oct-21

Test Procedures Identified by prefix DETSn (details on request).

Notes This report supersedes 21-22263, extra testing added

Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in black ink, appearing to read "A. Fenwick", is written over a light blue circular stamp.

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-22263-1
 Client Ref 5986
 Contract Title Heywood H4

Lab No	1921374	1921375	1921376	1921377	1921378	1921379
Sample ID	TP118	TP119	TP115	TP110	TP103	TP111
Depth	0.55	0.70	0.50	0.40-0.90	0.35-0.70	0.50-1.00
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	14/10/2021	14/10/2021	14/10/2021	15/10/2021	15/10/2021	15/10/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Asbestos Quantification	DETS 1102	0.001	%						
Metals									
Arsenic	DETS 2301#	0.2	mg/kg	21	3.4	2.4	4.2	5.9	7.1
Cadmium	DETS 2301#	0.1	mg/kg	0.2	< 0.1	0.2	< 0.1	0.1	0.2
Chromium	DETS 2301#	0.15	mg/kg	19	5.0	15	16	13	19
Chromium, Hexavalent	DETS 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETS 2301#	0.2	mg/kg	40	8.2	18	19	20	25
Lead	DETS 2301#	0.3	mg/kg	23	5.8	9.6	10	19	23
Mercury	DETS 2325#	0.05	mg/kg	0.09	< 0.05	< 0.05	< 0.05	0.13	< 0.05
Nickel	DETS 2301#	1	mg/kg	27	4.4	21	13	16	21
Selenium	DETS 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETS 2301#	1	mg/kg	39	15	39	30	33	51
Inorganics									
pH	DETS 2008#		pH	8.3	7.5	6.7	5.6	10.9	7.0
Cyanide, Free	DETS 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETS 2002#	0.1	%	0.7	0.3	1.4	1.4	1.0	1.8
Ammoniacal Nitrogen as N	DETS 2119#	0.5	mg/kg	3.5		1.1		2.5	
Chloride	DETS 2055	1	mg/kg	2.9		14.8		7.1	
Sulphate Aqueous Extract as SO4	DETS 2076#	10	mg/l	68	24	25	28	36	27
Sulphide	DETS 2024*	10	mg/kg	< 10		20		32	
Sulphate as SO4, Total	DETS 2321#	100	mg/kg	2130		423		650	
PAHs									
Naphthalene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03
Acenaphthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETS 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03	< 0.03	0.42	0.05
Anthracene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.13	< 0.03
Fluoranthene	DETS 3303#	0.03	mg/kg	0.06	< 0.03	0.03	< 0.03	2.3	0.10
Pyrene	DETS 3303#	0.03	mg/kg	0.06	< 0.03	0.03	< 0.03	2.0	0.09
Benzo(a)anthracene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	1.1	0.04
Chrysene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.99	0.04
Benzo(b)fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	1.3	0.06
Benzo(k)fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.36	< 0.03
Benzo(a)pyrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.97	0.03
Indeno(1,2,3-c,d)pyrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.40	< 0.03
Dibenzo(a,h)anthracene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.11	< 0.03
Benzo(g,h,i)perylene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.44	< 0.03
PAH - USEPA 16, Total	DETS 3303	0.1	mg/kg	0.12	< 0.10	< 0.10	< 0.10	11	0.39
Phenols									
Phenol - Monohydric	DETS 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Chemical Analysis

Soil Samples

Our Ref 21-22263-1

Client Ref 5986

Contract Title Heywood H4

Lab No	1921380	1921381	1921382
Sample ID	TP112	TP109	TP104
Depth	0.70-1.00	0.00-0.50	0.10-0.60
Other ID			
Sample Type	SOIL	SOIL	SOIL
Sampling Date	15/10/2021	15/10/2021	15/10/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Asbestos Quantification	DETSC 1102	0.001	%		< 0.001	
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	24	6.7	4.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.4	0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	21	18	16
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	71	24	20
Lead	DETSC 2301#	0.3	mg/kg	220	23	15
Mercury	DETSC 2325#	0.05	mg/kg	0.37	0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	23	16	14
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	84	43	36
Inorganics						
pH	DETSC 2008#		pH	6.6	7.6	7.4
Cyanide, Free	DETSC 2130#	0.1	mg/kg	0.4	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	7.9	2.6	2.0
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	3.6		10
Chloride	DETSC 2055	1	mg/kg	5.0		4.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	26	15	11
Sulphide	DETSC 2024*	10	mg/kg	76		12
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg	926		251
PAHs						
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.11	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.17	0.03	0.04
Pyrene	DETSC 3303#	0.03	mg/kg	0.15	0.03	0.04
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.07	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.07	0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.63	< 0.10	< 0.10
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.6	0.4	< 0.3

Summary of Chemical Analysis

Leachate Samples

Our Ref 21-22263-1

Client Ref 5986

Contract Title Heywood H4

Lab No	1921383	1921384	1921385	1921386	1921387	1921388
Sample ID	TP118	TP115	TP103	TP111	TP112	TP104
Depth	0.55	0.50	0.35-0.70	0.50-1.00	0.70-1.00	0.10-0.60
Other ID						
Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE
Sampling Date	14/10/2021	14/10/2021	15/10/2021	15/10/2021	15/10/2021	15/10/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
NRA Leachate Preparation	DETSC 1009*			Y	Y	Y	Y	Y	Y
Metals									
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	3.2	0.58	1.3	0.77	0.81	0.78
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	0.21	< 0.03	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25	< 0.25	1.9	< 0.25	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.1	1.1	1.4	2.7	0.6	1.1
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.74	0.27	0.88	2.8	0.43	1.4
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5	1.7	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.69	0.28	0.25	0.91	< 0.25	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.4	7.5	3.3	7.6	4.9	5.0
Inorganics									
pH	DETSC 2008		pH	7.4	7.2	7.6	7.1	7.3	7.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
Sulphate as SO4	DETSC 2055	0.1	mg/l	3.5	2.0	3.0	1.2	1.3	3.1
PAHs									
Naphthalene	DETSC 3304	0.05	ug/l	0.12	0.06	0.07	< 0.05	0.06	0.06
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	0.02	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.06	0.05	0.02	< 0.01	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	0.02	0.03	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.03	0.05	0.07	< 0.01	< 0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	0.03	0.04	0.06	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.01	0.01	0.03	< 0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	0.01	0.02	0.04	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.02	0.05	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.01	0.02	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	0.01	0.02	< 0.01	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	0.31	0.32	0.41	< 0.20	< 0.20	< 0.20
Phenols									
Total Phenol	DETSC 3451*	0.5	ug/l	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Summary of Asbestos Analysis Soil Samples

Our Ref 21-22263-1

Client Ref 5986

Contract Title Heywood H4

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1921374	TP118 0.55	SOIL	NAD	none	Rebecca Burgess
1921375	TP119 0.70	SOIL	NAD	none	Rebecca Burgess
1921376	TP115 0.50	SOIL	NAD	none	Rebecca Burgess
1921377	TP110 0.40-0.90	SOIL	NAD	none	Rebecca Burgess
1921378	TP103 0.35-0.70	SOIL	NAD	none	Rebecca Burgess
1921379	TP111 0.50-1.00	SOIL	NAD	none	Rebecca Burgess
1921380	TP112 0.70-1.00	SOIL	NAD	none	Rebecca Burgess
1921381	TP109 0.00-0.50	SOIL	Chrysotile	Bundle of Chrysotile fibres	Rebecca Burgess
1921382	TP104 0.10-0.60	SOIL	NAD	none	Rebecca Burgess

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 21-22263-1

Client Ref 5986

Contract Title Heywood H4

Lab No	1921381
Sample ID	TP109
Depth	0.00-0.50
Other ID	
Sample Type	
Sampling Date	15/10/2021
Sampling Time	

Test	Method	Units	
Total Mass% Asbestos (a+b+c)	DETS 1102	Mass %	< 0.001
Gravimetric Quantification (a)	DETS 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETS 1102	Mass %	<0.001
Quantification by PCOM (c)	DETS 1102	Mass %	na
Potentially Respirable Fibres (d)	DETS 1102	Fibres/g	na

Breakdown of Gravimetric Analysis (a)

Mass of Sample		g	687.79
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	

Breakdown of Detailed Gravimetric Analysis (b)

% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	<0.001

Breakdown of PCOM Analysis (c)

% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na

Breakdown of Potentially Respirable Fibre Analysis (d)

Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
 % asbestos in Asbestos Containing Materials (ACMs) is determined by
 by reference to HSG 264.
 Recommended sample size for quantification is approximately 1kg
 # denotes deviating sample

Information in Support of the Analytical Results

Our Ref 21-22263-1
 Client Ref 5986
 Contract Heywood H4

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1921374	TP118 0.55 SOIL	14/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1921375	TP119 0.70 SOIL	14/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921376	TP115 0.50 SOIL	14/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1921377	TP110 0.40-0.90 SOIL	15/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921378	TP103 0.35-0.70 SOIL	15/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1921379	TP111 0.50-1.00 SOIL	15/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921380	TP112 0.70-1.00 SOIL	15/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1921381	TP109 0.00-0.50 SOIL	15/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921382	TP104 0.10-0.60 SOIL	15/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1921383	TP118 0.55 LEACHATE	14/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921384	TP115 0.50 LEACHATE	14/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921385	TP103 0.35-0.70 LEACHATE	15/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921386	TP111 0.50-1.00 LEACHATE	15/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921387	TP112 0.70-1.00 LEACHATE	15/10/21	GJ 250ml, GJ 60ml, PT 1L		
1921388	TP104 0.10-0.60 LEACHATE	15/10/21	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-22990

Issued: 08-Nov-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-22990

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description 9 Soil samples, 6 Leachate samples.

Date Received 27-Oct-21

Date Started 27-Oct-21

Date Completed 08-Nov-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in black ink, appearing to read "Adam Fenwick".

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-22990

Client Ref 5986

Contract Title Heywood H4

Lab No	1926360	1926361	1926362	1926363	1926364	1926365	1926366
Sample ID	WS101	WS103	WS105	WS106	WS113	WS123	WS109
Depth	0.25	0.20-0.50	0.20-0.50	0.50	0.80-1.15	0.20	0.10-0.20
Other ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	18/10/2021	18/10/2021	19/10/2021	19/10/2021	19/10/2021	18/10/2021	21/10/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units							
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg	21	9.3	7.6	7.0	7.4	7.3	16
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.1	0.1	0.1	0.1	0.4	0.3
Chromium	DETSC 2301#	0.15	mg/kg	35	21	19	16	15	34	18
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	57	37	30	27	26	23	50
Lead	DETSC 2301#	0.3	mg/kg	97	37	27	24	23	42	120
Mercury	DETSC 2325#	0.05	mg/kg	0.22	0.08	0.05	< 0.05	0.06	0.07	0.25
Nickel	DETSC 2301#	1	mg/kg	21	19	21	17	18	14	16
Selenium	DETSC 2301#	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	77	56	56	51	50	51	110
Inorganics										
pH	DETSC 2008#		pH	6.6	6.8	7.9	7.9	10.6	6.7	7.0
Calorific Value	DETSC 5008	1	MJ/kg	2.0		< 1.0		< 1.0		2.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	8.2	3.5	2.8	2.0	4.1	1.4	9.7
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	3.5		1.5		7.2		31
Chloride	DETSC 2055	0.001	g/kg	0.53		0.56		0.04		0.06
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	17	11	< 10	11	< 10	370	< 10
Sulphide	DETSC 2024*	10	mg/kg	27		27		< 10		19
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg	774		238		342		1010
PAHs										
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.27	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.07	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	5.0	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	1.5	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.15	0.08	0.04	0.04	< 0.03	2.5	0.20
Anthracene	DETSC 3303	0.03	mg/kg	0.03	0.03	< 0.03	< 0.03	< 0.03	0.54	0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.27	0.13	0.06	0.07	< 0.03	2.4	0.25
Pyrene	DETSC 3303#	0.03	mg/kg	0.25	0.11	0.05	0.07	< 0.03	2.3	0.25
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.10	0.05	< 0.03	0.03	< 0.03	0.86	0.08
Chrysene	DETSC 3303	0.03	mg/kg	0.09	0.06	< 0.03	< 0.03	< 0.03	0.89	0.09
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.09	0.05	< 0.03	0.03	< 0.03	0.84	0.07
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	< 0.03	< 0.03	< 0.03	0.32	0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.06	0.04	< 0.03	< 0.03	< 0.03	0.72	0.06
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.22	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.06	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.29	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	1.0	0.52	0.11	0.18	< 0.10	19	0.99
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.9

Summary of Chemical Analysis

Soil Samples

Our Ref 21-22990

Client Ref 5986

Contract Title Heywood H4

Lab No	1926367	1926368
Sample ID	WS121	WS125
Depth	0.10-0.20	0.00-0.20
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	21/10/2021	22/10/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	8.2	16
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.4
Chromium	DETSC 2301#	0.15	mg/kg	13	20
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	24	57
Lead	DETSC 2301#	0.3	mg/kg	43	75
Mercury	DETSC 2325#	0.05	mg/kg	0.09	0.18
Nickel	DETSC 2301#	1	mg/kg	16	17
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.7
Zinc	DETSC 2301#	1	mg/kg	64	100
Inorganics					
pH	DETSC 2008#		pH	6.8	7.9
Calorific Value	DETSC 5008	1	MJ/kg		1.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	4.1	6.8
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg		1.8
Chloride	DETSC 2055	0.001	g/kg		0.02
Sulphate Aqueous Extract as SO ₄	DETSC 2076#	10	mg/l	22	19
Sulphide	DETSC 2024*	10	mg/kg		23
Sulphate as SO ₄ , Total	DETSC 2321#	100	mg/kg		957
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.03	0.04
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.33	0.22
Anthracene	DETSC 3303	0.03	mg/kg	0.07	0.05
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.95	0.48
Pyrene	DETSC 3303#	0.03	mg/kg	0.91	0.47
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.34	0.18
Chrysene	DETSC 3303	0.03	mg/kg	0.41	0.17
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.49	0.18
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.18	0.07
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.35	0.14
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.15	0.05
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.18	0.06
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	4.4	2.1
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	0.6

Summary of Chemical Analysis

Leachate Samples

Our Ref 21-22990

Client Ref 5986

Contract Title Heywood H4

Lab No	1926369	1926370	1926371	1926372	1926373	1926374
Sample ID	WS101	WS103	WS106	WS113	WS109	WS121
Depth	0.25	0.20-0.50	0.50	0.80-1.15	0.10-0.20	0.10-0.20
Other ID						
Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE
Sampling Date	18/10/2021	18/10/2021	19/10/2021	19/10/2021	21/10/2021	21/10/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
NRA Leachate Preparation	DETSC 1009*			Y	Y	Y	Y	Y	Y
Metals									
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.46	0.67	0.49	0.73	0.30	0.57
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	0.29	< 0.25	0.28	< 0.25	0.28
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.1	1.2	0.5	1.1	1.9	1.3
Lead, Dissolved	DETSC 2306	0.09	ug/l	1.7	1.8	0.89	2.4	2.8	2.9
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	16	8.7	1.7	1.9	6.2	4.2
Inorganics									
pH	DETSC 2008		pH	7.0	6.9	6.8	6.8	6.8	6.2
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulphate as SO4	DETSC 2055	0.1	mg/l	0.88	1.1	2.5	0.63	1.1	0.85
PAHs									
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Phenols									
Total Phenol	DETSC 3451*	0.5	ug/l	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Summary of Asbestos Analysis Soil Samples

Our Ref 21-22990

Client Ref 5986

Contract Title Heywood H4

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1926360	WS101 0.25	SOIL	NAD	none	Darryl Fletcher
1926361	WS103 0.20-0.50	SOIL	NAD	none	Darryl Fletcher
1926362	WS105 0.20-0.50	SOIL	NAD	none	Darryl Fletcher
1926363	WS106 0.50	SOIL	NAD	none	Darryl Fletcher
1926364	WS113 0.80-1.15	SOIL	NAD	none	Darryl Fletcher
1926365	WS123 0.20	SOIL	NAD	none	Darryl Fletcher
1926366	WS109 0.10-0.20	SOIL	NAD	none	Darryl Fletcher
1926367	WS121 0.10-0.20	SOIL	NAD	none	Darryl Fletcher
1926368	WS125 0.00-0.20	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-22990
Client Ref 5986
Contract Heywood H4

Containers Received & Deviating Samples

					Inappropriate container for tests
Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	
1926360	WS101 0.25 SOIL	18/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days), pH + Conductivity (7 days)	
1926361	WS103 0.20-0.50 SOIL	18/10/21	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1926362	WS105 0.20-0.50 SOIL	19/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days), pH + Conductivity (7 days)	
1926363	WS106 0.50 SOIL	19/10/21	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1926364	WS113 0.80-1.15 SOIL	19/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days), pH + Conductivity (7 days)	
1926365	WS123 0.20 SOIL	18/10/21	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1926366	WS109 0.10-0.20 SOIL	21/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1926367	WS121 0.10-0.20 SOIL	21/10/21	GJ 250ml, GJ 60ml, PT 1L		
1926368	WS125 0.00-0.20 SOIL	22/10/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1926369	WS101 0.25 LEACHATE	18/10/21	GJ 250ml, GJ 60ml, PT 1L		
1926370	WS103 0.20-0.50 LEACHATE	18/10/21	GJ 250ml, GJ 60ml, PT 1L		
1926371	WS106 0.50 LEACHATE	19/10/21	GJ 250ml, GJ 60ml, PT 1L		
1926372	WS113 0.80-1.15 LEACHATE	19/10/21	GJ 250ml, GJ 60ml, PT 1L		
1926373	WS109 0.10-0.20 LEACHATE	21/10/21	GJ 250ml, GJ 60ml, PT 1L		
1926374	WS121 0.10-0.20 LEACHATE	21/10/21	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-23878

Issued: 18-Nov-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-23878

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description 2 Soil samples, 1 Leachate sample.

Date Received 09-Nov-21

Date Started 09-Nov-21

Date Completed 18-Nov-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in black ink, appearing to read "Adam Fenwick".

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-23878

Client Ref 5986

Contract Title Heywood H4

Lab No	1931545	1931546
Sample ID	WS128	WS126
Depth	0.60	0.35
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	28/10/2021	28/10/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	7.1	1.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.1
Chromium	DETSC 2301#	0.15	mg/kg	12	5.7
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	29	10
Lead	DETSC 2301#	0.3	mg/kg	120	4.9
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	15	4.5
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	60	20
Inorganics					
pH	DETSC 2008#		pH	10.9	11.7
Calorific Value	DETSC 5008	1	MJ/kg		< 1.0
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	0.1
Organic matter	DETSC 2002#	0.1	%	3.6	0.2
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg		1.5
Chloride	DETSC 2055	1	mg/kg		35.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	200	63
Sulphide	DETSC 2024*	10	mg/kg		67
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg		2160
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg		< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg		0.77
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg		4.5
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg		61
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg		240
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg		230
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg		67
Aliphatic C5-C35	DETSC 3072*	10	mg/kg		600
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg		< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg		0.11
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg		5.0
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg		34
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg		180
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg		230
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg		100
Aromatic C5-C35	DETSC 3072*	10	mg/kg		550
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg		1100

Summary of Chemical Analysis

Soil Samples

Our Ref 21-23878

Client Ref 5986

Contract Title Heywood H4

Lab No	1931545	1931546
Sample ID	WS128	WS126
Depth	0.60	0.35
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	28/10/2021	28/10/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	0.46	0.22
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.07	0.14
Acenaphthene	DETSC 3303#	0.03	mg/kg	3.9	0.62
Fluorene	DETSC 3303	0.03	mg/kg	2.5	1.0
Phenanthrene	DETSC 3303#	0.03	mg/kg	18	1.2
Anthracene	DETSC 3303	0.03	mg/kg	5.6	0.28
Fluoranthene	DETSC 3303#	0.03	mg/kg	27	1.6
Pyrene	DETSC 3303#	0.03	mg/kg	24	1.5
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	7.7	0.21
Chrysene	DETSC 3303	0.03	mg/kg	5.8	0.30
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	4.2	0.20
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	2.0	0.08
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	3.9	0.16
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	1.4	0.08
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.42	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	1.7	0.09
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	110	7.6
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3

Summary of Chemical Analysis

Leachate Samples

Our Ref 21-23878

Client Ref 5986

Contract Title Heywood H4

Lab No	1931547
Sample ID	WS126
Depth	0.35
Other ID	
Sample Type	LEACHATE
Sampling Date	28/10/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
NRA Leachate Preparation	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.74
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.4
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.35
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3
Inorganics				
pH	DETSC 2008		pH	11.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Sulphate as SO4	DETSC 2055	0.1	mg/l	3.7
PAHs				
Naphthalene	DETSC 3304	0.05	ug/l	0.65
Acenaphthylene	DETSC 3304	0.01	ug/l	0.15
Acenaphthene	DETSC 3304	0.01	ug/l	2.2
Fluorene	DETSC 3304	0.01	ug/l	2.7
Phenanthrene	DETSC 3304	0.01	ug/l	1.1
Anthracene	DETSC 3304	0.01	ug/l	0.11
Fluoranthene	DETSC 3304	0.01	ug/l	0.27
Pyrene	DETSC 3304	0.01	ug/l	0.19
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.02
Chrysene	DETSC 3304	0.01	ug/l	0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	7.4
Phenols				
Total Phenol	DETSC 3451*	0.5	ug/l	< 0.50

Summary of Asbestos Analysis Soil Samples

Our Ref 21-23878

Client Ref 5986

Contract Title Heywood H4

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1931545	WS128 0.60	SOIL	NAD	none	Keith Wilson
1931546	WS126 0.35	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-23878
 Client Ref 5986
 Contract Heywood H4

Containers Received & Deviating Samples

Lab No	Sample ID	Date		Containers Received	Holding time exceeded for tests	Inappropriate container for tests
		Sampled				
1931545	WS128 0.60 SOIL	28/10/21		GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1931546	WS126 0.35 SOIL	28/10/21		GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days), pH + Conductivity (7 days)	
1931547	WS126 0.35 LEACHATE	28/10/21		GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :- Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-24686

Issued: 29-Nov-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-24686

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description 1 Soil sample, 1 Leachate sample.

Date Received 18-Nov-21

Date Started 18-Nov-21

Date Completed 29-Nov-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in blue ink, appearing to read "Adam Fenwick".

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-24686

Client Ref 5986

Contract Title Heywood H4

Lab No	1936477
Sample ID	WS107
Depth	0.20-0.70
Other ID	
Sample Type	SOIL
Sampling Date	12/11/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Arsenic	DETSC 2301#	0.2	mg/kg	6.5
Cadmium	DETSC 2301#	0.1	mg/kg	0.4
Chromium	DETSC 2301#	0.15	mg/kg	33
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	35
Lead	DETSC 2301#	0.3	mg/kg	65
Mercury	DETSC 2325#	0.05	mg/kg	0.11
Nickel	DETSC 2301#	1	mg/kg	10
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Zinc	DETSC 2301#	1	mg/kg	54
Inorganics				
pH	DETSC 2008#		pH	10.9
Calorific Value	DETSC 5008	1	MJ/kg	< 1.0
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1
Organic matter	DETSC 2002#	0.1	%	1.8
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.78
Chloride	DETSC 2055	0.001	g/kg	0.02
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	350
Sulphide	DETSC 2024*	10	mg/kg	35
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg	4390
PAHs				
Naphthalene	DETSC 3303#	0.03	mg/kg	1.5
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.91
Fluorene	DETSC 3303	0.03	mg/kg	0.62
Phenanthrene	DETSC 3303#	0.03	mg/kg	3.4
Anthracene	DETSC 3303	0.03	mg/kg	0.85
Fluoranthene	DETSC 3303#	0.03	mg/kg	3.1
Pyrene	DETSC 3303#	0.03	mg/kg	2.9
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.92
Chrysene	DETSC 3303	0.03	mg/kg	1.0
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.99
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.30
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.73
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.22
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.09
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.37
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	18
Phenols				
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.6

Summary of Chemical Analysis

Leachate Samples

Our Ref 21-24686

Client Ref 5986

Contract Title Heywood H4

Lab No	1936478
Sample ID	WS107
Depth	0.20-0.70
Other ID	
Sample Type	LEACHATE
Sampling Date	12/11/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
NRA Leachate Preparation	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.3
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.48
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.7
Lead, Dissolved	DETSC 2306	0.09	ug/l	2.5
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	1.3
Inorganics				
pH	DETSC 2008		pH	9.4
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	0.2
Sulphate as SO4	DETSC 2055	0.1	mg/l	13
PAHs				
Naphthalene	DETSC 3304	0.05	ug/l	0.52
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	0.24
Fluorene	DETSC 3304	0.01	ug/l	0.10
Phenanthrene	DETSC 3304	0.01	ug/l	0.08
Anthracene	DETSC 3304	0.01	ug/l	0.04
Fluoranthene	DETSC 3304	0.01	ug/l	0.08
Pyrene	DETSC 3304	0.01	ug/l	0.07
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.02
Chrysene	DETSC 3304	0.01	ug/l	0.03
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.02
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.02
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.01
PAH Total	DETSC 3304	0.2	ug/l	1.2
Phenols				
Total Phenol	DETSC 3451*	0.5	ug/l	0.52

Summary of Asbestos Analysis Soil Samples

Our Ref 21-24686

Client Ref 5986

Contract Title Heywood H4

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1936477	WS107 0.20-0.70	SOIL	Chrysotile	Chrysotile present as fibre bundles	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-24686
 Client Ref 5986
 Contract Heywood H4

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1936477	WS107 0.20-0.70 SOIL	12/11/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1936478	WS107 0.20-0.70 LEACHATE	12/11/21	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-25264

Issued: 03-Dec-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-25264

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description 4 Water samples.

Date Received 26-Nov-21

Date Started 26-Nov-21

Date Completed 03-Dec-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in black ink, appearing to read "Adam Fenwick".

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Water Samples

Our Ref 21-25264

Client Ref 5986

Contract Title Heywood H4

Lab No	1939713	1939714	1939715	1939716
Sample ID	DS/RC101	DS/RC105	WS109	WS125
Depth	3.00	5.00	1.00	1.50
Other ID				
Sample Type	WATER	WATER	WATER	WATER
Sampling Date	25/11/2021	25/11/2021	25/11/2021	25/11/2021
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.73	1.6	0.97	0.29
Cadmium, Dissolved	DETSC 2306	0.02	ug/l	0.04	< 0.02	< 0.02	0.16
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.53	0.61	0.62	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	0.5	1.9	3.0	0.6
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.26	< 0.09	0.18	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.12	0.72	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	1.7	4.2	3.0	14
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.57	0.29	0.37	1.2
Zinc, Dissolved	DETSC 2306	1.3	ug/l	9.3	4.4	12	8.7
Inorganics							
pH	DETSC 2008		pH	6.9	7.6	7.2	6.5
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Sulphate as SO4	DETSC 2055	0.1	mg/l	19	14	6.0	21
PAHs							
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	0.10	0.06
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.03	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	0.01	0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.01	0.02	< 0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	0.01	0.02	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.03	0.04	0.03	0.03
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20	< 0.20	< 0.20
Phenols							
Total Phenol	DETSC 3451*	0.5	ug/l	< 0.50	< 0.50	< 0.50	< 0.50

Information in Support of the Analytical Results

Our Ref 21-25264
 Client Ref 5986
 Contract Heywood H4

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1939713	DS/RC101 3.00 WATER	25/11/21	GB 1L, PB 1L		
1939714	DS/RC105 5.00 WATER	25/11/21	GB 1L, PB 1L		
1939715	WS109 1.00 WATER	25/11/21	GB 1L, PB 1L		
1939716	WS125 1.50 WATER	25/11/21	GB 1L, PB 1L		

Key: G-Glass P-Plastic B-Bottle

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Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-25400

Issued: 01-Dec-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-25400

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description One Soil sample.

Date Received 18-Nov-21

Date Started 29-Nov-21

Date Completed 01-Dec-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in blue ink, appearing to read "A Fenwick", is positioned above the printed name.

Adam Fenwick
Contracts Manager



Summary of Asbestos Analysis Samples

Our Ref 21-25400

Client Ref 5986

Contract Title Heywood H4

Lab No	Sample ID	Sample Location	Material Type	Result	Comment*	Analyst
Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.						

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 21-25400

Client Ref 5986

Contract Title Heywood H4

Lab No	1940485
Sample ID	WS107
Depth	0.20-0.70
Other ID	
Sample Type	
Sampling Date	12/11/2021
Sampling Time	

Test	Method	Units	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	< 0.001
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	<0.001
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	592.07
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	<0.001
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
 % asbestos in Asbestos Containing Materials (ACMs) is determined by
 by reference to HSG 264.
 Recommended sample size for quantification is approximately 1kg
 # denotes deviating sample

Information in Support of the Analytical Results

Our Ref 21-25400
Client Ref 5986
Contract Heywood H4

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for	Inappropriate container for
				tests	tests
1940485	WS107 0.20-0.70 SOIL	12/11/21	No containers logged		Cannot evaluate
DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.					

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :- Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-25763

Issued: 07-Dec-21

Client JPG (Leeds) LTD
Civil & Structural Engineers
5 John Charles Way
Leeds
LS12 6QA

Our Reference 21-25763

Client Reference 5986

Order No (not supplied)

Contract Title Heywood H4

Description One Soil sample.

Date Received 09-Nov-21

Date Started 03-Dec-21

Date Completed 07-Dec-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of 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.

Approved By

A handwritten signature in black ink, appearing to read "Adam Fenwick".

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-25763

Client Ref 5986

Contract Title Heywood H4

Lab No	1943036
Sample ID	WS126
Depth	0.35
Other ID	
Sample Type	SOIL
Sampling Date	28/10/2021
Sampling Time	n/s

Test	Method	LOD	Units
Inorganics			
Acid / Alkali Reserve	DETSC 2011*	1	gNaOH/100g 1.5

Information in Support of the Analytical Results

Our Ref 21-25763
Client Ref 5986
Contract Heywood H4

Containers Received & Deviating Samples

Lab No	Sample ID	Date		Holding time exceeded for tests	Inappropriate container for tests
		Sampled	Containers Received		
1943036	WS126 0.35 SOIL	28/10/21	No containers logged		Cannot evaluate
DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.					

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :- Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

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)



DMS8U-UEQX6-3YOSG

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

Job name

5986 - H4 Heywood

Description/Comments

Project

Site

H4 Heywood

Classified by

Name: **John Parkinson**
Date: **14 Dec 2021 14:58 GMT**
Telephone: **0113 263 1155**
Company: **JPG (LEEDS) Ltd**
5 John Charles Way
Leeds
LS12 6QA

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
11 Mar 2020

Next 3 year Refresher due by Mar 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP118	0.55	Non Hazardous		3
2	TP119	0.70	Non Hazardous		5
3	TP115	0.50	Non Hazardous		7
4	TP110	0.40-0.90	Non Hazardous		9
5	TP103	0.35-0.70	Non Hazardous		11
6	TP111	0.50-1.00	Non Hazardous		13
7	TP112	0.70-1.00	Non Hazardous		15
8	TP109	0.00-0.50	Non Hazardous		17
9	TP104	0.10-0.60	Non Hazardous		19
10	WS101	0.25	Non Hazardous		21
11	WS103	0.20-0.50	Non Hazardous		23
12	WS105	0.20-0.50	Non Hazardous		25
13	WS106	0.50	Non Hazardous		27
14	WS113	0.80-1.15	Non Hazardous		29
15	WS123	0.20	Non Hazardous		31
16	WS109	0.10-0.20	Non Hazardous		33
17	WS121	0.10-0.20	Non Hazardous		35
18	WS125	0.00-0.20	Non Hazardous		37
19	WS128	0.60	Non Hazardous		39
20	WS126	0.35	Hazardous	HP 8	41
21	WS107	0.20-0.70	Non Hazardous		43

Related documents

#	Name	Description
1	JPG WASTE STREAM V21	waste stream template used to create this Job

Report

Created by: John Parkinson

Created date: 14 Dec 2021 14:58 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	45
Appendix B: Rationale for selection of metal species	46
Appendix C: Version	46

Classification of sample: TP118

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

Sample details

Sample name:	LoW Code:
TP118	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.55 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				21	mg/kg	1.32	27.727	mg/kg	0.00277 %		
	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 %		
	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	27.77	mg/kg	0.00278 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				40	mg/kg	1.126	45.036	mg/kg	0.0045 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	23	mg/kg	1.56	35.876	mg/kg	0.0023 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				0.09	mg/kg	1.16	0.104	mg/kg	0.0000104 %		
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				27	mg/kg	2.976	80.359	mg/kg	0.00804 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				39	mg/kg	2.774	108.192	mg/kg	0.0108 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				8.3	pH		8.3	pH	8.3 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
15	acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.06 mg/kg		0.06 mg/kg	0.000006 %		
20	pyrene	204-927-3	129-00-0		0.06 mg/kg		0.06 mg/kg	0.000006 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
Total:								0.0316 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP119

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

Sample details

Sample name:	LoW Code:
TP119	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.70 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				3.4 mg/kg	1.32	4.489 mg/kg	0.000449 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				5 mg/kg	1.462	7.308 mg/kg	0.000731 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				8.2 mg/kg	1.126	9.232 mg/kg	0.000923 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	5.8 mg/kg	1.56	9.047 mg/kg	0.00058 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.05 mg/kg	1.16	<0.058 mg/kg	<0.0000058 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				4.4 mg/kg	2.976	13.096 mg/kg	0.00131 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				15 mg/kg	2.774	41.612 mg/kg	0.00416 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.5 pH		7.5 pH	7.5 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	phenanthrene	201-581-5	85-01-8		0.04 mg/kg		0.04 mg/kg	0.000004 %			
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
19	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
20	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.00853 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP115

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

Sample details

Sample name:	LoW Code:
TP115	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				2.4	mg/kg	1.32	3.169	mg/kg	0.000317 %		
	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 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	9.6	mg/kg	1.56	14.974	mg/kg	0.00096 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				<0.05	mg/kg	1.16	<0.058	mg/kg	<0.0000058 %		<LOD
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				21	mg/kg	2.976	62.502	mg/kg	0.00625 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				39	mg/kg	2.774	108.192	mg/kg	0.0108 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.7	pH		6.7	pH	6.7 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
15	acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.03 mg/kg		0.03 mg/kg	0.000003 %		
20	pyrene	204-927-3	129-00-0		0.03 mg/kg		0.03 mg/kg	0.000003 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.023 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP110

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

Sample details

Sample name:	LoW Code:
TP110	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.40-0.90 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				4.2 mg/kg	1.32	5.545 mg/kg	0.000555 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16 mg/kg	1.462	23.385 mg/kg	0.00234 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				19 mg/kg	1.126	21.392 mg/kg	0.00214 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	10 mg/kg	1.56	15.598 mg/kg	0.001 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.05 mg/kg	1.16	<0.058 mg/kg	<0.0000058 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				13 mg/kg	2.976	38.691 mg/kg	0.00387 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				30 mg/kg	2.774	83.224 mg/kg	0.00832 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				5.6 pH		5.6 pH	5.6 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
20	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0186 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP103

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

Sample details

Sample name:	LoW Code:
TP103	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.35-0.70 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				5.9	mg/kg	1.32	7.79	mg/kg	0.000779 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.1	mg/kg	1.142	0.114	mg/kg	0.0000114 %		
	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	19	mg/kg	0.0019 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				20	mg/kg	1.126	22.518	mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	19	mg/kg	1.56	29.636	mg/kg	0.0019 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				0.13	mg/kg	1.16	0.151	mg/kg	0.0000151 %		
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				16	mg/kg	2.976	47.62	mg/kg	0.00476 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				33	mg/kg	2.774	91.547	mg/kg	0.00915 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				10.9	pH		10.9	pH	10.9 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
		205-917-1	208-96-8									
15	acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.42 mg/kg		0.42 mg/kg	0.000042 %		
18	anthracene	204-371-1	120-12-7		0.13 mg/kg		0.13 mg/kg	0.000013 %		
19	fluoranthene	205-912-4	206-44-0		2.3 mg/kg		2.3 mg/kg	0.00023 %		
20	pyrene	204-927-3	129-00-0		2 mg/kg		2 mg/kg	0.0002 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		1.1 mg/kg		1.1 mg/kg	0.00011 %		
22	chrysene	601-048-00-0	205-923-4		0.99 mg/kg		0.99 mg/kg	0.000099 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.3 mg/kg		1.3 mg/kg	0.00013 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.36 mg/kg		0.36 mg/kg	0.000036 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.97 mg/kg		0.97 mg/kg	0.000097 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.4 mg/kg		0.4 mg/kg	0.00004 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.11 mg/kg		0.11 mg/kg	0.000011 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.44 mg/kg		0.44 mg/kg	0.000044 %		
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0222 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP111

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

Sample details

Sample name:	LoW Code:
TP111	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)
0.50-1.00 m	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				7.1 mg/kg	1.32	9.374 mg/kg	0.000937 %			
	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 %			
	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	27.77 mg/kg	0.00278 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				25 mg/kg	1.126	28.147 mg/kg	0.00281 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	23 mg/kg	1.56	35.876 mg/kg	0.0023 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.05 mg/kg	1.16	<0.058 mg/kg	<0.0000058 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				21 mg/kg	2.976	62.502 mg/kg	0.00625 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				51 mg/kg	2.774	141.481 mg/kg	0.0141 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7 pH		7 pH	7pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.1 mg/kg		0.1 mg/kg	0.00001 %		
20	pyrene	204-927-3	129-00-0		0.09 mg/kg		0.09 mg/kg	0.000009 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.04 mg/kg		0.04 mg/kg	0.000004 %		
22	chrysene	601-048-00-0	205-923-4		0.04 mg/kg		0.04 mg/kg	0.000004 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.06 mg/kg		0.06 mg/kg	0.000006 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.03 mg/kg		0.03 mg/kg	0.000003 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0296 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP112

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

Sample details

Sample name:	LoW Code:
TP112	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.70-1.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				24 mg/kg	1.32	31.688 mg/kg	0.00317 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %			
	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	30.693 mg/kg	0.00307 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				71 mg/kg	1.126	79.938 mg/kg	0.00799 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	220 mg/kg	1.56	343.159 mg/kg	0.022 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.37 mg/kg	1.16	0.429 mg/kg	0.0000429 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				23 mg/kg	2.976	68.454 mg/kg	0.00685 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				84 mg/kg	2.774	233.028 mg/kg	0.0233 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				6.6 pH		6.6 pH	6.6 pH			
12	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 }				0.4 mg/kg	1.884	0.754 mg/kg	0.0000754 %			
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.11 mg/kg		0.11 mg/kg	0.000011 %		
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.17 mg/kg		0.17 mg/kg	0.000017 %		
20	pyrene	204-927-3	129-00-0		0.15 mg/kg		0.15 mg/kg	0.000015 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.07 mg/kg		0.07 mg/kg	0.000007 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.07 mg/kg		0.07 mg/kg	0.000007 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.04 mg/kg		0.04 mg/kg	0.000004 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		0.6 mg/kg		0.6 mg/kg	0.00006 %		
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.067 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP109

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

Sample details

Sample name:	LoW Code:
TP109	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00-0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				6.7 mg/kg	1.32	8.846 mg/kg	0.000885 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %			
	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	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg	0.0027 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	23 mg/kg	1.56	35.876 mg/kg	0.0023 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.05 mg/kg	1.16	0.058 mg/kg	0.0000058 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				16 mg/kg	2.976	47.62 mg/kg	0.00476 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				43 mg/kg	2.774	119.288 mg/kg	0.0119 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.6 pH		7.6 pH	7.6 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
19	fluoranthene	205-912-4	206-44-0		0.03 mg/kg		0.03 mg/kg	0.000003 %			
20	pyrene	204-927-3	129-00-0		0.03 mg/kg		0.03 mg/kg	0.000003 %			
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.03 mg/kg		0.03 mg/kg	0.000003 %			
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
29	phenol	604-001-00-2	203-632-7		0.4 mg/kg		0.4 mg/kg	0.00004 %			
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0256 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP104

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

Sample details

Sample name:	LoW Code:
TP104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10-0.60 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				4.8	mg/kg	1.32	6.338	mg/kg	0.000634 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				20	mg/kg	1.126	22.518	mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	15	mg/kg	1.56	23.397	mg/kg	0.0015 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				<0.05	mg/kg	1.16	<0.058	mg/kg	<0.0000058 %		<LOD
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				14	mg/kg	2.976	41.668	mg/kg	0.00417 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				36	mg/kg	2.774	99.869	mg/kg	0.00999 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				7.4	pH		7.4	pH	7.4 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
15	acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.04 mg/kg		0.04 mg/kg	0.000004 %		
20	pyrene	204-927-3	129-00-0		0.04 mg/kg		0.04 mg/kg	0.000004 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0213 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS101

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

Sample details

Sample name:	LoW Code:
WS101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.25 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727 mg/kg	0.00277 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.5 mg/kg	1.142	0.571 mg/kg	0.0000571 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				35 mg/kg	1.462	51.154 mg/kg	0.00512 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				57 mg/kg	1.126	64.176 mg/kg	0.00642 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	97 mg/kg	1.56	151.302 mg/kg	0.0097 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.22 mg/kg	1.16	0.255 mg/kg	0.0000255 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				21 mg/kg	2.976	62.502 mg/kg	0.00625 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.6 mg/kg	1.405	0.843 mg/kg	0.0000843 %			
	034-002-00-8										
10	zinc { zinc chromate }				77 mg/kg	2.774	213.609 mg/kg	0.0214 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				6.6 pH		6.6 pH	6.6 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.15 mg/kg		0.15 mg/kg	0.000015 %		
18	anthracene	204-371-1	120-12-7		0.03 mg/kg		0.03 mg/kg	0.000003 %		
19	fluoranthene	205-912-4	206-44-0		0.27 mg/kg		0.27 mg/kg	0.000027 %		
20	pyrene	204-927-3	129-00-0		0.25 mg/kg		0.25 mg/kg	0.000025 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.1 mg/kg		0.1 mg/kg	0.00001 %		
22	chrysene	601-048-00-0	205-923-4		0.09 mg/kg		0.09 mg/kg	0.000009 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.09 mg/kg		0.09 mg/kg	0.000009 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.04 mg/kg		0.04 mg/kg	0.000004 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.06 mg/kg		0.06 mg/kg	0.000006 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		0.4 mg/kg		0.4 mg/kg	0.00004 %		
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0522 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS103

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

Sample details

Sample name:	LoW Code:
WS103	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				9.3	mg/kg	1.32	12.279	mg/kg	0.00123 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.1	mg/kg	1.142	0.114	mg/kg	0.0000114 %		
	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	30.693	mg/kg	0.00307 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				37	mg/kg	1.126	41.658	mg/kg	0.00417 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	37	mg/kg	1.56	57.713	mg/kg	0.0037 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				0.08	mg/kg	1.16	0.0928	mg/kg	0.00000928 %		
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				19	mg/kg	2.976	56.549	mg/kg	0.00565 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				56	mg/kg	2.774	155.352	mg/kg	0.0155 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.8	pH		6.8	pH	6.8 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
15	acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.08 mg/kg		0.08 mg/kg	0.000008 %		
18	anthracene	204-371-1	120-12-7		0.03 mg/kg		0.03 mg/kg	0.000003 %		
19	fluoranthene	205-912-4	206-44-0		0.13 mg/kg		0.13 mg/kg	0.000013 %		
20	pyrene	204-927-3	129-00-0		0.11 mg/kg		0.11 mg/kg	0.000011 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	chrysene	601-048-00-0	205-923-4		0.06 mg/kg		0.06 mg/kg	0.000006 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.04 mg/kg		0.04 mg/kg	0.000004 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0338 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS105

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

Sample details

Sample name:	LoW Code:
WS105	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				7.6 mg/kg	1.32	10.034 mg/kg	0.001 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %			
	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	27.77 mg/kg	0.00278 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				30 mg/kg	1.126	33.777 mg/kg	0.00338 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	27 mg/kg	1.56	42.115 mg/kg	0.0027 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.05 mg/kg	1.16	0.058 mg/kg	0.0000058 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				21 mg/kg	2.976	62.502 mg/kg	0.00625 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				56 mg/kg	2.774	155.352 mg/kg	0.0155 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.9 pH		7.9 pH	7.9 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.04 mg/kg		0.04 mg/kg	0.000004 %		
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.06 mg/kg		0.06 mg/kg	0.000006 %		
20	pyrene	204-927-3	129-00-0		0.05 mg/kg		0.05 mg/kg	0.000005 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.032 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS106

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

Sample details

Sample name:	LoW Code:
WS106	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				7 mg/kg	1.32	9.242 mg/kg	0.000924 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16 mg/kg	1.462	23.385 mg/kg	0.00234 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				27 mg/kg	1.126	30.399 mg/kg	0.00304 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.05 mg/kg	1.16	<0.058 mg/kg	<0.0000058 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				17 mg/kg	2.976	50.597 mg/kg	0.00506 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				51 mg/kg	2.774	141.481 mg/kg	0.0141 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.9 pH		7.9 pH	7.9 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.04 mg/kg		0.04 mg/kg	0.000004 %		
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.07 mg/kg		0.07 mg/kg	0.000007 %		
20	pyrene	204-927-3	129-00-0		0.07 mg/kg		0.07 mg/kg	0.000007 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.03 mg/kg		0.03 mg/kg	0.000003 %		
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.03 mg/kg		0.03 mg/kg	0.000003 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0283 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS113

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

Sample details

Sample name:	LoW Code:
WS113	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.80-1.15 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				7.4	mg/kg	1.32	9.77	mg/kg	0.000977 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.1	mg/kg	1.142	0.114	mg/kg	0.0000114 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				26	mg/kg	1.126	29.273	mg/kg	0.00293 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	23	mg/kg	1.56	35.876	mg/kg	0.0023 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				0.06	mg/kg	1.16	0.0696	mg/kg	0.00000696 %		
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				18	mg/kg	2.976	53.573	mg/kg	0.00536 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				50	mg/kg	2.774	138.707	mg/kg	0.0139 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				10.6	pH		10.6	pH	10.6 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
15	acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
20	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
21	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
22	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.028 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS123

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

Sample details

Sample name:	LoW Code:
WS123	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				7.3	mg/kg	1.32	9.638	mg/kg	0.000964 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.4	mg/kg	1.142	0.457	mg/kg	0.0000457 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				34	mg/kg	1.462	49.693	mg/kg	0.00497 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				23	mg/kg	1.126	25.895	mg/kg	0.00259 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	42	mg/kg	1.56	65.512	mg/kg	0.0042 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				0.07	mg/kg	1.16	0.0812	mg/kg	0.00000812 %		
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				14	mg/kg	2.976	41.668	mg/kg	0.00417 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				51	mg/kg	2.774	141.481	mg/kg	0.0141 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.7	pH		6.7	pH	6.7 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				0.27	mg/kg		0.27	mg/kg	0.000027 %		
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
		205-917-1	208-96-8									
15	acenaphthene				5	mg/kg		5	mg/kg	0.0005 %		
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		1.5 mg/kg		1.5 mg/kg	0.00015 %		
17	phenanthrene	201-581-5	85-01-8		2.5 mg/kg		2.5 mg/kg	0.00025 %		
18	anthracene	204-371-1	120-12-7		0.54 mg/kg		0.54 mg/kg	0.000054 %		
19	fluoranthene	205-912-4	206-44-0		2.4 mg/kg		2.4 mg/kg	0.00024 %		
20	pyrene	204-927-3	129-00-0		2.3 mg/kg		2.3 mg/kg	0.00023 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.86 mg/kg		0.86 mg/kg	0.000086 %		
22	chrysene	601-048-00-0	205-923-4		0.89 mg/kg		0.89 mg/kg	0.000089 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.84 mg/kg		0.84 mg/kg	0.000084 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.32 mg/kg		0.32 mg/kg	0.000032 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.72 mg/kg		0.72 mg/kg	0.000072 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.22 mg/kg		0.22 mg/kg	0.000022 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.06 mg/kg		0.06 mg/kg	0.000006 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.29 mg/kg		0.29 mg/kg	0.000029 %		
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0333 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS109

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

Sample details

Sample name:	LoW Code:
WS109	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10-0.20 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				50 mg/kg	1.126	56.294 mg/kg	0.00563 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	120 mg/kg	1.56	187.178 mg/kg	0.012 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.25 mg/kg	1.16	0.29 mg/kg	0.000029 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				16 mg/kg	2.976	47.62 mg/kg	0.00476 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				110 mg/kg	2.774	305.156 mg/kg	0.0305 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7 pH		7 pH	7pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	phenanthrene	201-581-5	85-01-8		0.2 mg/kg		0.2 mg/kg	0.00002 %			
18	anthracene	204-371-1	120-12-7		0.03 mg/kg		0.03 mg/kg	0.000003 %			
19	fluoranthene	205-912-4	206-44-0		0.25 mg/kg		0.25 mg/kg	0.000025 %			
20	pyrene	204-927-3	129-00-0		0.25 mg/kg		0.25 mg/kg	0.000025 %			
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.08 mg/kg		0.08 mg/kg	0.000008 %			
22	chrysene	601-048-00-0	205-923-4		0.09 mg/kg		0.09 mg/kg	0.000009 %			
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.07 mg/kg		0.07 mg/kg	0.000007 %			
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.03 mg/kg		0.03 mg/kg	0.000003 %			
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.06 mg/kg		0.06 mg/kg	0.000006 %			
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
29	phenol	604-001-00-2	203-632-7		0.9 mg/kg		0.9 mg/kg	0.00009 %			
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0582 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS121

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

Sample details

Sample name:	LoW Code:
WS121	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10-0.20 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				8.2 mg/kg	1.32	10.827 mg/kg	0.00108 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13 mg/kg	1.462	19 mg/kg	0.0019 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg	0.0027 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	43 mg/kg	1.56	67.072 mg/kg	0.0043 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.09 mg/kg	1.16	0.104 mg/kg	0.0000104 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				16 mg/kg	2.976	47.62 mg/kg	0.00476 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.405	<0.703 mg/kg	<0.0000703 %			<LOD
	034-002-00-8										
10	zinc { zinc chromate }				64 mg/kg	2.774	177.545 mg/kg	0.0178 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				6.8 pH		6.8 pH	6.8 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				0.03 mg/kg		0.03 mg/kg	0.000003 %			
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.33 mg/kg		0.33 mg/kg	0.000033 %		
18	anthracene	204-371-1	120-12-7		0.07 mg/kg		0.07 mg/kg	0.000007 %		
19	fluoranthene	205-912-4	206-44-0		0.95 mg/kg		0.95 mg/kg	0.000095 %		
20	pyrene	204-927-3	129-00-0		0.91 mg/kg		0.91 mg/kg	0.000091 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.34 mg/kg		0.34 mg/kg	0.000034 %		
22	chrysene	601-048-00-0	205-923-4		0.41 mg/kg		0.41 mg/kg	0.000041 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.49 mg/kg		0.49 mg/kg	0.000049 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.18 mg/kg		0.18 mg/kg	0.000018 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.35 mg/kg		0.35 mg/kg	0.000035 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.15 mg/kg		0.15 mg/kg	0.000015 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.04 mg/kg		0.04 mg/kg	0.000004 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.18 mg/kg		0.18 mg/kg	0.000018 %		
29	phenol	604-001-00-2	203-632-7		0.5 mg/kg		0.5 mg/kg	0.00005 %		
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0333 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS125

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

Sample details

Sample name:	LoW Code:
WS125	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00-0.20 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				20 mg/kg	1.462	29.231 mg/kg	0.00292 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				57 mg/kg	1.126	64.176 mg/kg	0.00642 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	75 mg/kg	1.56	116.986 mg/kg	0.0075 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				0.18 mg/kg	1.16	0.209 mg/kg	0.0000209 %			
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				17 mg/kg	2.976	50.597 mg/kg	0.00506 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.7 mg/kg	1.405	0.983 mg/kg	0.0000983 %			
	034-002-00-8										
10	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg	0.0277 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.9 pH		7.9 pH	7.9 pH			
12	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 }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				0.04 mg/kg		0.04 mg/kg	0.000004 %			
		201-469-6	83-32-9								

#	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	fluorene	201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.22 mg/kg		0.22 mg/kg	0.000022 %		
18	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %		
19	fluoranthene	205-912-4	206-44-0		0.48 mg/kg		0.48 mg/kg	0.000048 %		
20	pyrene	204-927-3	129-00-0		0.47 mg/kg		0.47 mg/kg	0.000047 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.18 mg/kg		0.18 mg/kg	0.000018 %		
22	chrysene	601-048-00-0	205-923-4		0.17 mg/kg		0.17 mg/kg	0.000017 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.18 mg/kg		0.18 mg/kg	0.000018 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.07 mg/kg		0.07 mg/kg	0.000007 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.14 mg/kg		0.14 mg/kg	0.000014 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.05 mg/kg		0.05 mg/kg	0.000005 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.06 mg/kg		0.06 mg/kg	0.000006 %		
29	phenol	604-001-00-2	203-632-7		0.6 mg/kg		0.6 mg/kg	0.00006 %		
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0524 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS128

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

Sample details

Sample name:	LoW Code:
WS128	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.60 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				7.1	mg/kg	1.32	9.374	mg/kg	0.000937 %		
	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 %		
	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	17.539	mg/kg	0.00175 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				29	mg/kg	1.126	32.651	mg/kg	0.00327 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	120	mg/kg	1.56	187.178	mg/kg	0.012 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				<0.05	mg/kg	1.16	<0.058	mg/kg	<0.0000058 %		<LOD
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				15	mg/kg	2.976	44.644	mg/kg	0.00446 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				60	mg/kg	2.774	166.449	mg/kg	0.0166 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				10.9	pH		10.9	pH	10.9 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				0.46	mg/kg		0.46	mg/kg	0.000046 %		
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
		205-917-1	208-96-8									
15	acenaphthene				3.9	mg/kg		3.9	mg/kg	0.00039 %		
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		2.5 mg/kg		2.5 mg/kg	0.00025 %		
17	phenanthrene	201-581-5	85-01-8		18 mg/kg		18 mg/kg	0.0018 %		
18	anthracene	204-371-1	120-12-7		5.6 mg/kg		5.6 mg/kg	0.00056 %		
19	fluoranthene	205-912-4	206-44-0		27 mg/kg		27 mg/kg	0.0027 %		
20	pyrene	204-927-3	129-00-0		24 mg/kg		24 mg/kg	0.0024 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		7.7 mg/kg		7.7 mg/kg	0.00077 %		
22	chrysene	601-048-00-0	205-923-4		5.8 mg/kg		5.8 mg/kg	0.00058 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		4.2 mg/kg		4.2 mg/kg	0.00042 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		2 mg/kg		2 mg/kg	0.0002 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		3.9 mg/kg		3.9 mg/kg	0.00039 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		1.4 mg/kg		1.4 mg/kg	0.00014 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.42 mg/kg		0.42 mg/kg	0.000042 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		1.7 mg/kg		1.7 mg/kg	0.00017 %		
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0503 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS126

 **Hazardous Waste**
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:
WS126	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 03 * (Soil and stones containing hazardous substances)
0.35 m	

Hazard properties

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.7 pH)

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				1.4	mg/kg	1.32	1.848	mg/kg	0.000185 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.1	mg/kg	1.142	0.114	mg/kg	0.0000114 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				5.7	mg/kg	1.462	8.331	mg/kg	0.000833 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				10	mg/kg	1.126	11.259	mg/kg	0.00113 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	4.9	mg/kg	1.56	7.643	mg/kg	0.00049 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				<0.05	mg/kg	1.16	<0.058	mg/kg	<0.0000058 %		<LOD
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				4.5	mg/kg	2.976	13.393	mg/kg	0.00134 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				20	mg/kg	2.774	55.483	mg/kg	0.00555 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				11.7	pH		11.7	pH	11.7 pH		
12	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 }				0.1	mg/kg	1.884	0.188	mg/kg	0.0000188 %		
	006-007-00-5											
13	naphthalene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
	601-052-00-2	202-049-5	91-20-3									

#	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							
14	• acenaphthylene	205-917-1	208-96-8		0.14 mg/kg		0.14 mg/kg	0.000014 %		
15	• acenaphthene	201-469-6	83-32-9		0.62 mg/kg		0.62 mg/kg	0.000062 %		
16	• fluorene	201-695-5	86-73-7		1 mg/kg		1 mg/kg	0.0001 %		
17	• phenanthrene	201-581-5	85-01-8		1.2 mg/kg		1.2 mg/kg	0.00012 %		
18	• anthracene	204-371-1	120-12-7		0.28 mg/kg		0.28 mg/kg	0.000028 %		
19	• fluoranthene	205-912-4	206-44-0		1.6 mg/kg		1.6 mg/kg	0.00016 %		
20	• pyrene	204-927-3	129-00-0		1.5 mg/kg		1.5 mg/kg	0.00015 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.21 mg/kg		0.21 mg/kg	0.000021 %		
22	chrysene	601-048-00-0	205-923-4		0.3 mg/kg		0.3 mg/kg	0.00003 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.2 mg/kg		0.2 mg/kg	0.00002 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.08 mg/kg		0.08 mg/kg	0.000008 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.16 mg/kg		0.16 mg/kg	0.000016 %		
26	• indeno[123-cd]pyrene	205-893-2	193-39-5		0.08 mg/kg		0.08 mg/kg	0.000008 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	• benzo[ghi]perylene	205-883-8	191-24-2		0.09 mg/kg		0.09 mg/kg	0.000009 %		
29	phenol	604-001-00-2	203-632-7		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0106 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
•	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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS107

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

Sample details

Sample name:	LoW Code:
WS107	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.70 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				6.5	mg/kg	1.32	8.582	mg/kg	0.000858 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.4	mg/kg	1.142	0.457	mg/kg	0.0000457 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				33	mg/kg	1.462	48.231	mg/kg	0.00482 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				35	mg/kg	1.126	39.406	mg/kg	0.00394 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	65	mg/kg	1.56	101.388	mg/kg	0.0065 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury(II) sulfide }				0.11	mg/kg	1.16	0.128	mg/kg	0.0000128 %		
		215-696-3	1344-48-5									
8	nickel { nickel chromate }				10	mg/kg	2.976	29.763	mg/kg	0.00298 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.405	<0.703	mg/kg	<0.0000703 %		<LOD
	034-002-00-8											
10	zinc { zinc chromate }				54	mg/kg	2.774	149.804	mg/kg	0.015 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				10.9	pH		10.9	pH	10.9 pH		
12	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 }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
	006-007-00-5											
13	naphthalene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
	601-052-00-2	202-049-5	91-20-3									
14	acenaphthylene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
		205-917-1	208-96-8									
15	acenaphthene				0.91	mg/kg		0.91	mg/kg	0.000091 %		
		201-469-6	83-32-9									

#	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	fluorene	201-695-5	86-73-7		0.62 mg/kg		0.62 mg/kg	0.000062 %		
17	phenanthrene	201-581-5	85-01-8		3.4 mg/kg		3.4 mg/kg	0.00034 %		
18	anthracene	204-371-1	120-12-7		0.85 mg/kg		0.85 mg/kg	0.000085 %		
19	fluoranthene	205-912-4	206-44-0		3.1 mg/kg		3.1 mg/kg	0.00031 %		
20	pyrene	204-927-3	129-00-0		2.9 mg/kg		2.9 mg/kg	0.00029 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.92 mg/kg		0.92 mg/kg	0.000092 %		
22	chrysene	601-048-00-0	205-923-4		1 mg/kg		1 mg/kg	0.0001 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.99 mg/kg		0.99 mg/kg	0.000099 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.3 mg/kg		0.3 mg/kg	0.00003 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.73 mg/kg		0.73 mg/kg	0.000073 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.22 mg/kg		0.22 mg/kg	0.000022 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.09 mg/kg		0.09 mg/kg	0.000009 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.37 mg/kg		0.37 mg/kg	0.000037 %		
29	phenol	604-001-00-2	203-632-7		0.6 mg/kg		0.6 mg/kg	0.00006 %		
30	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0363 %		

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
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

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

• **mercury(II) sulfide** (EC Number: 215-696-3, CAS Number: 1344-48-5)

Description/Comments: Data from ECHA's C&L and SDS Sigma Aldrich V6 dated 17/9/2019 Threshold for EUH031 based on calculation method in WM3 Box C12.1

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/8530>

Data source date: 14 May 2020

Hazard Statements: EUH031 >= 1 % , EUH031 , Skin Sens. 1; H317 , STOT RE 2; H373

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

• **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

• **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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

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.

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.

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight.

mercury {mercury(II) sulfide}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight.

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

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

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight.

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]

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2021.347.4961.9421 (13 Dec 2021)

HazWasteOnline Database: 2021.347.4961.9421 (13 Dec 2021)

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



Appendix E Gas and Groundwater Monitoring Results

GAS AND GROUNDWATER MONITORING RESULTS

Site: LPL8 - H4 Heywood
Job No: 5986
Visit No: 1

Client: Black Cat Building Consultancy Limited
Date: 18/11/2021



	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady		Highest	Highest	Lowest					
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour			
	% lcl	%v/v	%	% lcl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl	
WS101	NR	0.0	1.2	0.0	0.0	0.7	0	1	18.6	-0.5	-0.1	0.52	4.47
WS103	NR	48.4	23.3	82.0	4.1	2.6	0	0	0.5	1.3	0.3	0.79	0.97
WS109	NR	0.0	0.1	0.0	0.0	0.1	0	0	21.2	0.0	0.0	0.72	3.10
WS110	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.87
WS111	NR	2.2	11.4	26.0	1.3	8.0	0	2	12.1	-3.0	-2.9	1.02	3.80
WS122	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
WS125	NR	0.0	9.1	0.0	0.0	6.6	0	2	17.1	-4.4	-2.6	1.25	4.79
BH101	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	NR
BH103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DSRC101	NR	0.0	0.1	0.0	0.0	0.1	10	222	20.7	-0.4	-0.2	2.57	10.80
DSRC103	NR	0.1	0.1	2.0	0.1	0.1	0	4	20.6	-3.6	-1.8	0.56	8.84
DSRC105	NR	1.5	0.9	0.0	0.0	0.2	0	9	19.6	0.0	0.0	2.83	14.63
DSRC108	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ambient Concentration (% volume):				CH ₄	0.1	%v/v	CO ₂			0.1	%v/v		
				O ₂	21.4	%v/v							
Barometric Pressure:		Start	1013					Monitoring Equipment:		GA5000			
		End	1015					Serial Number of Equipment:		G505491			
Barometric Pressure Trend:		Rising							Date of Last Calibration:		02.September.2021		
Weather:		Drizzle and rain.							Operator:		JRP		
Key		Remarks											
NR - Not Recorded NA - Not Applicable		BH103, DSRC108 and WSDPT110 - Flooded. WS122, BH101 - No access.											
Checked:					Approved:								

GAS AND GROUNDWATER MONITORING RESULTS

Site: LPL8 - H4 Heywood
Job No: 5986
Visit No: 2

Client: Black Cat Building Consultancy Limited
Date: 25/11/2021



	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe	
	Peak			Steady		Highest	Highest	Lowest						
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour				
	% lcl	%v/v	%	% lcl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl		
WS101	NR	0.1	2.3	0.0	0.0	1.5	0	0	20.3	0.0	0.0	1.37	4.47	
WS103	NR	0.1	0.2	0.0	0.0	0.1	0	0	21.9	0.0	0.0	0.87	0.97	
WS109	NR	0.0	0.1	0.0	0.0	0.1	0	0	21.6	0.0	0.0	0.68	3.10	
WSDPT110	NR	36.0	16.5	464.0	23.2	10.4	0	0	11.9	0.0	0.0	0.53	0.87	
WSDPT111	NR	0.3	1.7	6.0	0.3	1.7	0	1	20.5	-21.2	-1.5	1.29	3.80	
WS122	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
WS125	NR	0.0	6.4	0.0	0.0	6.2	0	1	18.5	3.4	2.4	1.72	4.79	
BH101	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
BH103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
DSRC101	NR	0.1	0.2	2.0	0.1	0.2	0	1	21.8	-0.1	-0.1	3.24	10.80	
DSRC103	NR	0.2	0.1	4.0	0.2	0.0	1	6	20.5	-10.7	-0.7	1.35	8.84	
DSRC105	NR	0.0	0.1	0.0	0.0	0.1	0	0	21.9	0.4	0.4	10.16	14.63	
DSRC108	NR	0.0	0.1	0.0	0.0	0.0	0	15	21.6	0.1	0.1	NR	NR	
Ambient Concentration (% volume):				CH ₄	0.1	%v/v	CO ₂				21.5	%v/v		
				O ₂	0.1	%v/v								
Barometric Pressure:		Start	1007					Monitoring Equipment:				GA5000		
		End	1008					Serial Number of Equipment:				G505491		
Barometric Pressure Trend:		Rising locally, falling regionally.						Date of Last Calibration:				02.September.2021		
Weather:		Sunny and chilly.						Operator:				JRP		
Key		Remarks												
NR - Not Recorded NA - Not Applicable		BH103 - Flooded. DSRC108 - Bung stuck. WS122, BH101 - No access.												
		Checked:				Approved:								

GAS AND GROUNDWATER MONITORING RESULTS

Site: LPL8 - H4 Heywood
Job No: 5986
Visit No: 3

Client: Black Cat Building Consultancy Limited
Date: 01/12/2021



	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady			Highest	Highest	Lowest				
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour			
	% lcl	%v/v	%	% lcl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl	
WS101	NR	0.0	2.6	0.0	0.0	1.5	0	0	20.6	0.5	0.3	1.08	4.47
WS103	NR	49.2	23.0	364.0	18.2	10.4	0	0	0.4	2.4	2.0	0.38	0.97
WS109	NR	0.1	0.5	2.0	0.1	0.5	0	0	21.3	0.1	0.1	0.53	3.10
WSDPT110	NR	0.1	0.1	2.0	0.1	0.1	0	0	21.4	0.3	0.2	0.38	0.87
WSDPT111	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
WS122	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
WS125	NR	0.0	7.7	0.0	0.0	7.6	0	1	16.8	11.5	7.0	1.62	4.79
BH101	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
BH103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DSRC101	NR	0.1	0.4	0.0	0.0	0.2	0	1	21.3	0.1	0.1	3.12	10.80
DSRC103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DSRC105	NR	0.1	0.4	2.0	0.1	0.4	0	1	20.9	4.3	4.0	8.05	14.63
DSRC108	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ambient Concentration (% volume):				CH ₄	0.1	%v/v	CO ₂			0.1	%v/v		
				O ₂	21.5	%v/v							
Barometric Pressure:		Start	982					Monitoring Equipment:		GA5000			
		End	988					Serial Number of Equipment:		G505491			
Barometric Pressure Trend:		Rising locally, falling regionally.						Date of Last Calibration:		02.September.2021			
Weather:		Cloudy, sun and rain.						Operator:		AJS			
Key		Remarks											
NR - Not Recorded NA - Not Applicable		WSDPT111, BH101, BH103, DSRC103 and DSRC108- Flooded.											
		Checked:				Approved:							

GAS AND GROUNDWATER MONITORING RESULTS

Site: LPL8 - H4 Heywood
Job No: 5986
Visit No: 4

Client: Black Cat Building Consultancy Limited
Date: 09/12/2021



	Gas Concentration							Highest	Lowest	Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady			Highest						
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S			CO	O ₂		
	% lcl	%v/v	%	% lcl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl	
WS101	NR	0.0	4.1	0.0	0.0	3.6	0	0	19.8	3.7	0.1	1.05	4.47
WS103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.97
WS109	NR	0.0	0.8	0.0	0.0	0.1	0	0	21.4	0.0	0.0	0.49	3.10
WSDPT110	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.29	0.87
WSDPT111	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.91	3.80
WS122	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
WS125	NR	0.0	0.0	0.0	0.0	8.8	0	0	16.1	7.4	0.2	1.39	4.79
BH101	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
BH103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	NR
DSRC101	NR	0.0	1.0	0.0	0.0	0.9	0	0	20.8	-1.9	-1.7	2.99	10.80
DSRC103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	8.84
DSRC105	NR	0.0	0.7	0.0	0.0	0.7	0	2	20.8	0.0	0.0	6.62	14.63
DSRC108	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	NR
Ambient Concentration (% volume):				CH ₄	0.1	%v/v	CO ₂			0.1	%v/v		
				O ₂	21.6	%v/v							
Barometric Pressure:		Start	985	Monitoring Equipment:						GA5000			
		End	NR	Serial Number of Equipment:						G505491			
Barometric Pressure Trend:		Falling regional						Date of Last Calibration:					
Weather:		Partly Cloudy						Operator:					
Operator:								JRP					
Key		Remarks											
NR - Not Recorded NA - Not Applicable		WS103, WS111, DSRC103, WS110, BH103 - Flooded. DSRC108 - Bung stuck and flooded. WS122, BH101 - No access.											
		Checked:				Approved:							

GAS AND GROUNDWATER MONITORING RESULTS

Site: LPL8 - H4 Heywood
Job No: 5986
Visit No: 5

Client: Black Cat Building Consultancy Limited
Date: 20/12/2021



	Gas Concentration							Highest	Lowest	Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady			Highest						
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S			CO	O ₂		
	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady		
WS101	NR			NR	0.0	0.7	0	0	21.7	0.0	0.0	0.29	4.47
WS103	NR	0.3	1.1	2.0	0.1	0.5	0	0	19.1	0.1	0.1	0.63	0.97
WS109	NR	0.2	0.8	2.0	0.1	0.3	0	0	19.4	0.0	0.0	0.67	3.10
WSDPT110	NR	70.9	14.6	1418.0	70.9	14.6	0	0	2.2	-5.5	-5.5	0.31	0.87
WSDPT111	NR	0.1	9.2	2.0	0.1	9.2	0	1	11.3	-23.0	-23.0	1.10	3.80
WS122	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
WS125	NR	0.1	4.8	0.0	0.0	4.8	0	0	18.5	0.3	0.3	1.33	4.79
BH101	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
BH103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DSRC101	NR	0.1	0.5	0.0	0.0	0.1	0	0	21.7	0.1	0.1	3.22	10.80
DSRC103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	8.84
DSRC105	NR	0.3	1.0	4.0	0.2	1.0	0	0	20.7	23.1	23.1	5.48	14.63
DSRC108	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ambient Concentration (% volume):				CH ₄	0.2	%v/v	CO ₂			0.2	%v/v		
				O ₂	21.5	%v/v							
Barometric Pressure:		Start	1017					Monitoring Equipment:				GA5000	
		End	1017					Serial Number of Equipment:				G505491	
Barometric Pressure Trend:		Steady locally, falling regionally.						Date of Last Calibration:				02.September.2021	
Weather:		Dry and cloudy						Operator:				AJS	
Key		Remarks											
NR - Not Recorded NA - Not Applicable		BH101- No access, BH103- Flooded, DSRC103- Tap won't turn and bung stuck in well, DSRC108- Flooded											
		Checked:				Approved:							

GAS AND GROUNDWATER MONITORING RESULTS

Site: LPL8 - H4 Heywood
Job No: 5986
Visit No: 6

Client: Black Cat Building Consultancy Limited
Date: 06/01/2022



	Gas Concentration							Highest	Lowest	Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady			Highest						
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour			
	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl	
WS101	NR	0.0	1.8	0.0	0.0	1.4	2	1	20.4	0.0	0.0	1.20	4.47
WS103	NR	43.1	18.1	862.0	43.1	18.1	2	1	15.0	1.6	1.5	0.61	0.97
WS109	NR	0.0	0.1	0.0	0.0	0.1	2	1	21.7	0.0	0.0	0.57	3.10
WSDPT110	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.20	0.87
WSDPT111	NR	0.4	8.4	0.0	0.0	8.4	2	1	11.6	1.6	1.4	1.90	3.80
WS122	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
WS125	NR	0.0	8.8	0.0	0.0	5.2	2	0	18.0	1.3	0.6	1.34	4.79
BH101	NR	0.0	0.1	0.0	0.0	0.1	2	1	20.6	-1.4	-0.1	0.30	6.14
BH103	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.00	NR
DSRC101	NR	0.0	0.4	0.0	0.0	0.4	2	1	20.7	0.0	0.0	3.18	10.80
DSRC103	NR	0.2	1.4	4.0	0.2	1.4	2	7	18.4	-0.4	-0.4	NR	8.84
DSRC105	NR	1.4	1.2	2.0	0.1	1.2	2	2	20.4	14.1	0.4	4.34	14.63
DSRC108	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.00	NR
Ambient Concentration (% volume):				CH ₄	0.0	%v/v	CO ₂			0.1	%v/v		
				O ₂	20.9	%v/v							
Barometric Pressure:		Start	1000	Monitoring Equipment:				GA5000					
		End	997	Serial Number of Equipment:				G505491					
Barometric Pressure Trend:		Falling locally, rising regionally.				Date of Last Calibration:				02.September.2021			
Weather:		Heavy snow and rain showers.				Operator:				JRP			
Key		Remarks											
NR - Not Recorded NA - Not Applicable		BH103, DSRC108 and WSDPT110 - Flooded. WS122 - No access. DSRC103 - bung stuck.											
		Checked:				Approved:							



Appendix F Notes on Limitations



General

JPG (Leeds) Limited have prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from JPG (Leeds) Limited; a charge may be levied against such approval.

JPG (Leeds) Limited accepts no responsibility or liability for:

- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) this document to any third party with whom an agreement has not been executed.

Phase I Desk Study Reports

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, JPG (Leeds) Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Geo-Environmental Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics and ground and groundwater conditions to allow a reasonable assessment of the environmental risks together with engineering and development implications. The objectives of the investigation have been limited to establishing the risks associated with potential human targets, building materials, the environment (including adjacent land), and to surface and groundwater.

The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to the areas unoccupied by the building(s) on the site and by buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues may need to be resolved.

For these reasons if costs have been included in relation to site remediation these must be considered as tentative only and must, in any event, be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site of each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather-related effects.

The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

5 John Charles Way
LEEDS
LS12 6QA

Tel: 0113 263 1155
admin@jpg.group
www.jpg.group

