

PHASE II GEO-ENVIRONMENTAL ASSESSMENT REPORT

Gibbons Way, Cornelli, Bridgend

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CIVIL | STRUCTURAL | GEOTECHNICAL & ENVIRONMENTAL | TRAFFIC AND TRANSPORT

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Proposed Marlas School, Gibbons Way, Cornelli

Phase II Geo-Environmental Assessment Report

This report was produced by HSP Consulting Engineers Ltd for Gleeds Management Services Ltd on behalf of the Local Authority and Department for Education (DfE) as the Phase II Geo-environmental Assessment Report for the proposed Marlas School to identify possible areas of contamination and provide an assessment of potential ground related development constraints to inform feasibility.

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Executive Summary

HSP Consulting has been commissioned by Gleeds Management Services Ltd on behalf of the Department for Education (DfE) to undertake an intrusive ground investigation at the site to confirm the existing ground conditions within a specific boundary and to provide information on likely constraints to the development, preliminary parameters for design and recommendations for any mitigation measures should they be required to inform a feasibility study.

The site is located off Gibbons Way in the north east of North Cornelly Village, approximately 9km north east of Bridgend. The approximate National Grid Reference for the centre of the site is (NGR) 282109, 181862.

The exploratory methods of investigation were seven windowless sample boreholes, two cable percussive boreholes and an infiltration (soakaway) test. The ground conditions encountered were generally made ground underlain by superficial deposits of Devensian Till and bedrock deposits of the Mercia Mudstone Group.

Traditional strip or pad footings may be appropriate and should be at a minimum depth of 0.75m. However, there are relative soft spots at shallow depth and areas of deeper made ground. Therefore, it is likely that deepening of foundations will be required to ensure they bear upon competent strata. At 2m depth begl an allowable bearing pressure of 150kN/m² should be readily achievable when utilising a 2mx2m pad foundation within the firm and medium dense deposits Where straddling of both fine and coarse soils within the foundations is unavoidable nominal mesh reinforcement will be required to limit differential settlement.

It is considered appropriate to adopt a basic Design Sulphate Class of DS-1 together with and Aggressive Chemical Environment for Concrete (ACEC) of AC-1.

Comparison of infiltration data with table 7.1 Permeability and Drainage Characteristics of Soils Terzaghi and Peck indicates the soils generally to be of poor drainage. Therefore it is considered that the natural soils in the area of SK01 are unlikely to be suitable for infiltration drainage.

The screening process for on-site human health receptors show that the GACs, representative of minimal risk for a residential without plant uptake setting were not exceeded. Ground gas concentrations have been monitored on four occasions in order to obtain an indication of the ground gas regime at the site. Comparison of the steady state gas screening value with Table 8.5 of the CIRIA document indicates the site falls in a Characteristic Situation 1 and therefore gas protection measures will not be required for the proposed development.

Based on the chemical analysis report it is considered that specialist materials will not be required for water supply pipes. However, confirmation of water supply pipes should be sought from utility providers.

The executive summary contains an overview of key findings and conclusions. However, no reliance should be placed on the executive summary until the whole of the report has been read. Other



sections of the report may contain information which puts into context the findings noted within the executive summary.

1. Introduction

1.1 Background

This report has been prepared to support a feasibility study, detailed development plans have not been provided, it is understood that the intention is for a one to two storey school with car parking and associated hard and soft landscaping.

1.2 Client Brief & Scope

HSP Consulting has been commissioned by Gleeds Management Services Ltd on behalf of the DfE to undertake an intrusive ground investigation at the site to investigate the existing ground conditions and provide information on likely constraints to the development, preliminary parameters for design and recommendations for any mitigation measures.

The report presents the following information:

- a summary of the previous Geo-environmental Reports (Section 1.5 below).
- details of the ground investigation undertaken and the ground conditions encountered.
- details and results of the geotechnical testing and contamination analysis.
- recommendations for mitigating constraints to the proposed redevelopment where appropriate and providing parameters for foundation design.

Where applicable, the fieldwork was undertaken in accordance with BS5930:2015 Code of Practice for Site Investigations and BS10175:2011+A1:2013 Investigation of Potentially Contaminated Sites.

1.3 Report Objectives

The objectives of this report are to:

- establish the geological and hydrogeological conditions using existing available/published information.
- summarise available information and identify site specific geotechnical and environmental hazards which may place a constraint upon the proposed site use.
- produce an updated Conceptual Site Model identifying potential pollution linkages between sources of contamination, pathways and receptors.

1.4 Limitations

The recommendations made in this report are based on the findings of the intrusive ground investigation undertaken by HSP Consulting Ltd on the 7th, 11th and 24th to 25th August 2020.

1.5 Previous Reports

HSP Consulting Engineers Ltd has previously produced a Phase I Desk Study report for the site, details of which can be found below:

- HSP Consulting Engineers Limited, Land off Gibbons Way - Phase I Geo-Environmental Desk Study Report, September 2020, Ref: C3341/PI.

2. Review of Existing Information & Geoenvironmental Setting

2.1 The Site

2.1.1 Location

The site is located off Gibbons Way in the north east of North Cornelly Village, approximately 9km north east of Bridgend. The approximate National Grid Reference for the centre of the site is (NGR) 282109, 181862. A Site Location Plan is included in Appendix I.

2.1.2 Description

The site is irregular in shape and approximately 2.06Ha in area. Two thirds of the site is open space bound by Gibbons Way beyond which the remaining third of the site is occupied by housing, a hard play MUGA court and a training centre (modular construction) with car park. The open space is mown grass with a central asphalt concrete square and footpaths linking the areas of housing. The levels across the site rise gently from the southwest to the north east with a rapid increase in elevation including terracing and low level retaining walls in the south east of the site.

2.1.3 Surrounding Land Use

The main features of interest identified are:

- North: Residential properties with roads and soft landscaping areas.
- East: Pill-Y-Cynffig & Ael-Y-Bryn (highways) with residential properties and gardens.
- South: Public open space with residential properties and gardens.
- West: Heol-Y-Parc (highways) with residential properties beyond.

2.1.4 Proposed End Use

The Test to Fit plan (Appendix I) indicates the proposed development will include a two storey school with car parking, extensive soft and hard play areas (grass playing fields and MUGA) surrounding the proposed school.

2.2 Geology

2.2.1 Made Ground

The BGS mapping does not indicate any made ground on the site. However, given the historical development on the site some made ground should be expected.

2.2.2 Superficial Deposits

The BGS mapping indicates the majority of the site to be underlain by superficial Till deposits. No superficial deposits are expected to be encountered in the south eastern corner of the site.

2.2.3 Bedrock Geology

BGS bedrock mapping indicates the majority of the site is underlain by the Mercia Mudstone Ground – Mudstone of the Triassic Period, described by the BGS as '*Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in*

some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present.'

The mapping indicates the south eastern corner of the site is underlain by the Blue Anchor Mudstone Formation of the Triassic Period. These deposits are described by the BGS as '*typically comprises pale green-grey, dolomitic silty mudstones and siltstones with thin arenaceous lenses and a few thin, commonly discontinuous beds of hard, dolomitic, pale yellowish-grey, porcellanous mudstone and siltstone.*'

2.2 Pertinent Site Sensitivity Information

Based on the information collated for the desk study, the geo-environmental setting of the site is summarised as follows:

- The site is recorded as part of three fields on the 1st Edition mapping (1881). Gibbons Way and residential housing are shown in the centre, east and south of the site by 1969. The buildings in the centre and south of the site are no longer shown by 2009 and 2013 respectively.
- Historically, the surrounding land use was predominantly agricultural with limited development until the mid 1960's when the village of North Cornelly expands, and the land uses becomes mainly residential.
- The BGS mapping does not indicate any made ground on the site. However, limited made ground may be present associated with the development in the centre, east and south of the site. Any Made Ground encountered would be of an unknown composition.
- The majority of the site is underlain by superficial Till deposits. No superficial deposits are expected to be encountered in the south east of the site.
- Bedrock geology of the Mercia Mudstone Group is expected to be encountered across the majority of the site, with the Blue Anchor Mudstone Formation expected in the south east of the site.
- The superficial deposits have been designated as a Secondary Undifferentiated Aquifer. The bedrock geology are both designated as Secondary B Aquifers.

Based on the above, the environmental sensitivity of the site can be considered to be Low to Moderate at this stage.

3. Fieldwork & Factual Information

Site work was carried out on the the 7th and 11th August 2020 soakaway testing undertaken between the 24th to 25th August 2020. Where applicable, the fieldwork was undertaken in accordance with BS5930:2015 Code of Practice for Site Investigations (Ref. 6) and BS10175:2011+A1:2013 Investigation of Potentially Contaminated Sites (Ref. 8).

The exploratory holes were positioned to provide spatial coverage across the site to provide information for preliminary foundation design and obtain representative soil samples for geotechnical and geo-environmental analysis.

3.1 Exploratory Methods

The exploratory methods are detailed in the table below.

Table 1 - Exploratory Methods

Type	Quantity	Maximum Depth (m)	Details
Windowless Sampling Borehole	7	5.00	WS01 to WS07
Cable Percussive Boreholes	2	6.40	BH01 – BH02
In-Situ Infiltration Tests (Soakaways)	1	3.50	SK01
Mexecone Probe Tests	5	0.60	MEXE01 to MEXE05

The exploratory holes were logged and sampled by an Engineer from HSP Consulting Ltd and the logs are presented in Appendix II. The exploratory hole locations are shown on the Ground Investigation Layout Plan presented in Appendix III.

Fragmentary bulk and disturbed samples were recovered from materials revealed within all the exploratory holes. Geo-environmental samples, placed in plastic tubs and glass jars supplied by the laboratory, were also obtained specifically for chemical analysis. The samples were taken to UKAS accredited laboratories for further examination and testing.

3.2 In-situ Testing

3.2.1 Standard Penetration Tests

Standard Penetration Tests (SPTs) were carried out at 1.00m intervals in the boreholes. The SPTs were undertaken in accordance with BS 1377:1990 and the results are included on the appended borehole logs (Appendix II).

3.2.2 Mexecone Probe Tests

Mexecone Probe Tests were positioned across the areas of the proposed MUGA Pitches to obtain an indication of the likely California Bearing Ratio within these areas. The results are included within Appendix VIII.

3.3 Laboratory Testing

The laboratory testing schedules were prepared by HSP Consulting Ltd.

3.3.1 Geotechnical Testing

Geotechnical testing has been undertaken by a UKAS accredited laboratory as part of the works at the site:

- Plasticity Index
- Particle Size Distributions
- Natural Moisture Contents

The laboratory testing was carried out by Professional Soils Laboratory (UKAS accredited, laboratory No.4043) and Apex Testing Solutions Laboratory (UKAS accredited, laboratory No.7771) in accordance with BS1377:1990 using calibrated equipment specifically for the British Standard.

3.3.2 Chemical Analysis

The geo-environmental samples retained specifically for chemical analysis were stored in cooled containers until delivery to the laboratory by courier.

Chemical analysis was scheduled on eight samples for the presence of a selected suite of potential contaminants as outlined in the tables below:

Table 2a – Chemical Analysis

Exploratory Hole Location & Depth	Sample Description
WS2 0.20m – 0.30m	MADE GROUND ^{1,2,4}
WS2 0.45m – 0.55m	MADE GROUND ^{1,3}
WS3 0.35m – 0.45m	CLAY ^{1,2,3,4}
WS4 0.45m – 0.55m	MADE GROUND ^{1,4}
WS5 0.35m – 0.45m	MADE GROUND ^{1,2,4}
WS6 0.30m – 0.40m	CLAY ¹
WS7 0.30m - 0.40m	CLAY ^{1,2}
WS7 0.60m – 0.70m	CLAY ^{1,4}
BH01 2.00m	GRAVEL ³
BH02 3.00m	GRAVEL ³
WS07	WATER ⁵

¹ HSP Standard Suite, ² Organic Matter, ³ BRE Sulphate Suite, ⁴ Asbestos Screen and ID ⁵ Water Soluble Sulphate and pH

Table 2b – Chemical Analysis

Metals	Cadmium	Chromium (III & VI)	Copper
	Lead	Mercury	Nickel
	Zinc		
Semi Metals and Non-metals	Arsenic	Boron	Selenium
Others	pH		
Inorganic Chemicals	Cyanide	Sulphate	Sulphide
Organic Chemicals	PAH (US EPA 16)	TPH (CWG)	

The contamination analysis was carried out by Chemtest Ltd (UKAS accredited, laboratory No. 2183) during the period 17th to 21st August 2020. With further testing undertaken between 15th and 18th September 2020. The results are presented in Appendix V.

3.4 Ground Conditions

3.4.1 Published Geology

The published geology indicates the site is underlain by superficial till deposits and bedrock geology of Mercia Mudstone Group and the Blue Anchor Formation, as described in Sections 2.2.2 and 2.2.3 respectively.

3.4.2 Ground Conditions on site or General Geology & Revealed Strata

The exploratory hole data confirms the published information. The strata generally comprises:

Table 3 – Encountered Ground Conditions

Strata		Depth Range (mbegl)	Max. Thickness (m)	Description
Anthropogenic	MADE GROUND	G.L - 0.04	0.04	MADE GROUND comprising grey weathered asphalt concrete.
		0.04 – 0.40	0.36	MADE GROUND comprising grey sandy gravel. (Sub-base material).
		G.L – 0.30	0.30	MADE GROUND comprising dark brown sandy gravelly clayey topsoil.
		0.20 – 2.30	2.10	MADE GROUND comprising dark brown to brown very sandy very gravelly clay.
Superficial	DEVENSIAN TILL	0.20 – 3.90	3.65	Firm to stiff dark brown to brown and orange mottled very sandy to slightly sandy very gravelly CLAY.
		1.80 – 5.00	2.50	Medium dense to very dense brown slightly clayey SAND and GRAVEL.
Bedrock	MERCIA MUDSTONE GROUP	4.50 – 6.40	1.00	Firm reddish brown slightly sandy slightly gravelly CLAY.
			0.90	Extremely weak weathered reddish brown MUDSTONE.

3.5 Groundwater Levels

Groundwater was not encountered during the intrusive works.

Groundwater levels have been monitored on four occasions during the ground gas monitoring visits. Groundwater levels were encountered at depths between 2.78m to 2.80 within WS01 (indicating dampness or limited water ingress at the base of the installation) and WS06 was dry. It must be noted that WS07 was encountered as flooded on one occurrence with subsequent visits noting water levels between 0.84m and 0.89m depth, these readings considered to be anomalous and the result of meteoric water entering the borehole and being unable to drain due to the fine nature of the soils).

3.6 Ground Gas Monitoring

Dual use gas and groundwater monitoring installations were constructed within three of the boreholes at the site (WS01, WS06 and WS07). Each well has been constructed using 50mm diameter HDPE pipe with the top one metre being plain and the remainder slotted. All of the borehole installations have a 6mm pea gravel surround to the slotted pipe with a bentonite

seal above and a gas tap. The covers are cemented flush with ground level and are round lockable stopcock covers.

HSP Consulting uses a GFM 430 Gas Analyser. Prior to its use a calibration check can be performed against gas readings in air. It is recommended that this check is undertaken once on each day the analyser is used. Annual calibration is undertaken on the unit and a copy of this certificate has been included within Appendix VII with the results of the ground gas and water level monitoring.

The results of the ground gas monitoring are discussed in Section 5.3 below.

3.7 Visual and Olfactory Evidence of Contamination

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

4. Geotechnical Assessment

4.1 Detailed Ground Model

For the purpose of this foundation assessment the information gained from the window sample boreholes and Cable Percussive Boreholes has been included. The exploratory logs are presented in Appendix II.

4.1.1 Made Ground

Made ground materials were encountered within all locations across the site and generally comprised Topsoil like material described as brown sandy gravelly clayey topsoil to a maximum depth of 0.30m depth. A single location (WS04) advanced through the hardstanding in the centre of site with concrete asphalt encountered to a maximum thickness of 0.04m depth. Made ground underlying the Topsoil and Hardstanding materials generally comprised brown very sandy very gravelly clay and was encountered at variable depths in the range of 0.25m to 2.30m depth within WS02.

4.1.2 Superficial Deposits

Superficial deposits of Devensian Till were encountered within all locations across the site. The deposits were variable in composition and comprised of both fine and coarse deposits. The fine deposits generally comprised firm to stiff brown and orange mottled very sandy very gravelly CLAY to a maximum depth of 3.90m with coarse deposits generally comprising medium dense to very dense slightly clayey to clayey SAND and GRAVEL to a maximum depth of 4.50m depth.

4.1.3 Bedrock Deposits

Bedrock deposits of the Mercia Mudstone were encountered within two exploratory locations (BH01 and BH02). These deposits generally comprised of firm reddish brown slightly sandy slightly gravelly CLAY to a maximum depth of 6.00m begl. Underlying these deposits, weathered mudstone was recorded and generally comprised extremely weak reddish brown MUDSTONE to a maximum depth of 6.40m begl, the base of the deposit was not penetrated. The Blue Anchor Mudstone Formation was not encountered during this investigation.

4.1.4 In-situ Testing and Assessment

A series of Standard Penetration Tests (SPT's) have been undertaken within all the boreholes. The following table summarises the N values at depth across the site.

Table 4 – SPT N Values

Depth (m)	Range of 'N' Values	Mean 'N' Value	Description
1.00	8 – 25	12	MADE GROUND / CLAY
1.50	19	19	MADE GROUND / CLAY
2.00	15 – 47	34	MADE GROUND / CLAY / GRAVEL
2.50	42	42	CLAY
3.00	22 - 50	42	CLAY / GRAVEL
4.00	13 - 29	21	CLAY / GRAVEL
5.00	13 - 50	32	CLAY / MUDSTONE
6.00 – 6.40	50	50	MUDSTONE

Two Particle Size Distribution and four Plasticity Index tests have been undertaken to confirm the visual description and engineering behaviour of the soils. The results are presented within Appendix IV.

The results indicate compliance with the definition of soils of low to intermediate plasticity (CL - CI) after the classification system of BS5930: 2015. Fine soils across the site are considered to be of a Low to Moderate Volume Change potential in accordance with the National House Building Council (NHBC) Standards, Chapter 4.2: 2007.

Table 5 - Plasticity and Volume Change Potential

Sample Ref:	Laboratory Material Descriptions	LL (%)	PL (%)	PI (%)	% passing 425µm	Modified PI (%)*	Soil Class	MC (%)
WS2 2.50m	Brown slightly gravelly CLAY.	33	17	16	97	16	CL	20.5
WS4 1.00m	Brown CLAY	28	14	14	100	14	CL	17.7
WS5 0.70m – 0.80m	Greyish brown slightly gravelly CLAY	41	21	20	99	20	CI	24.5
WS6 – 1.20m	Brown slightly gravelly CLAY	31	14	17	89	15	CL	22.3

* Rounded up

4.2 Earthworks

Current test to fit plans indicate a school in the north east of the site. The site is relatively flat, with the exception of a raised roundabout and embankment in the south east of the site, which it is at a higher topographical level compared to the remainder of the site. Therefore, it is envisaged that limited earthworks will be required.

Should any earthworks be required, further investigation and materials testing of site soils would be required to classify and make an assessment of the suitability for re-use as engineered fill.

4.3 Excavations

Excavations to proposed formation level for new foundations and infrastructure should be feasible using standard excavation plant and equipment. Random and potentially severe falls are anticipated from the faces of near vertically sided unsupported excavations carried out at the site. Therefore, where personnel are required to enter near vertically sided excavations, it is considered that support should be provided to the full depth of all excavations.

It is recommended that all support systems are continually assessed by fully trained or experienced personnel.

No groundwater entries encountered during the intrusive works, with subsequent monitoring encountered water between 2.78m and 2.80m, but these are not considered to be significant ground or perched water. Should shallow groundwater entries be encountered at the site during groundwork operations traditional sump and pump dewatering should be sufficient if required.

4.4 Foundations

The test to fit option (Appendix I) indicates a one to two storey school with car parking and associated hard and soft landscaping.

For the purpose of this foundation assessment the information gained from all exploratory locations have used for this foundation assessment.

The table below shows the indicative allowable bearing pressure (ABP) that could be achieved using strip or pad foundations across the building footprint. The ground conditions are variable across the site and therefore an ABP has been calculated using the worst case SPT at each depth interval.

Table 5 – Allowable Bearing Capacity

Depth (m)	SPT (N_{160}) Value	Eurocode 7 Soil Strength Description	Consistency (BS5930) Description	Approximate ABP (kN/m^2) – 0.60m wide strip footing	Approximate ABP (kN/m^2) – 2x2m pad footing
1.00	8	Medium Strength	Firm	60	60
2.00	16	Medium Strength	Firm / Medium Dense	145	150

Design loadings have not been provided. The Made Ground materials are not considered to be suitable as a formation layer, these were encountered to depths in the range of 0.25m to 2.30m begl across the site.

The natural superficial deposits encountered are considered to be a suitable formation layer where they are encountered in a firm condition from a minimum of 0.75m depth. However, care should be taken to deepen the foundations through any made ground materials at least 200mm into the competent natural soils.

Traditional strip or pad footings may be appropriate and should be at a minimum depth of 0.75m. However, there are relative soft spots at shallow depth (WS01, WS05 and WS06 SPT N value of 7-8 at 1.00m depth) and the ABP at 1m is unlikely to be sufficient for the likely loadings. Therefore, deepening of foundations will be required to ensure they bear upon competent strata. At 2m depth begl an allowable bearing pressure of 150kN/m² should be readily achievable when utilising a 2mx2m pad foundation within the firm and medium dense deposits Where straddling of both fine and coarse soils within the foundations is unavoidable nominal mesh reinforcement will be required to limit differential settlement. The foundation recommendations should be reassessed once the design loadings, layout and levels are more certain.

The soils on site are of low and medium volume change potential. Foundations should be deepened and designed in accordance with NHBC Chapter 4.2 Building near trees (Ref. 9) where appropriate.

4.5 Ground Floor Slab

A ground bearing slab may be appropriate for the school building due to the likely light loadings. However, there is deep made ground on site in the area of the test to fit building and made ground materials may require to be excavated and recompact or replaced with engineered fill or a suspended slab could be considered.

In addition to the above, the use of ground bearing floor slabs would also be dependent on any associated ground gas protection measures, see section 5.6 below. Reference should also be made to NHBC Standards Chapter 4.2 to confirm the floor slab type.

4.6 Concrete Classification

The results of sulphate and pH testing carried out on selected soil samples taken during this investigation have been compared with the recommendations outlined in BRE Special Digest 1, Part 1: 2005. (Ref 12)

The guidelines given in BRE Special Digest 1 are based upon a site classification relating to its previous usage. It is considered appropriate to define this site as a 'Brownfield Site' location for the purposes of concrete classification.

On the basis of the above, it is considered appropriate to adopt a basic Design Sulphate Class of DS-1 together with an Aggressive Chemical Environment for Concrete (ACEC) of AC-1 generally.

4.7 Pavement Design

MEXE probe tests were undertaken at five locations across the site. From this an indicative California Bearing Ratio (CBR) can be provided. The results are included in Appendix VIII.

Made Ground was encountered across the site and generally comprising of very sandy very gravelly clay, with gravels of brick and concrete. The MEXE Probe tests recorded results ranging between 6% and 14% at depths between 150mm and 300mm. The maximum results could be overstated due to the presence of anthropogenic materials.

Following guidance provided within 'Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 2' the CBR value chosen for design should be the minimum measured value, not the average. Due to the variability in the test results on relatively similar materials it is recommended that further testing is undertaken once the development is at formation level to confirm the design CBR value for the site. Until further testing is undertaken a CBR value of 1% should be adopted for design.

4.8 Soakaway Testing

Soakaway testing was undertaken at the site between the 24th and 25th August 2020 in a single location at a depth between 2.30m and 3.50m begl. The test pit were outside the proposed building footprint.

SK01 returned an infiltration rate of 7.71×10^{-6} m/s.

Comparison of this data with table 7.1 Permeability and Drainage Characteristics of Soils Terzaghi and Peck indicates the ground to be of poor drainage and it is therefore considered that the natural soils in the area of SK01 are unlikely to be suitable for infiltration drainage. The testing certificates can be found in Appendix IX.

5. Environmental Assessment

5.1 Introduction

The approach to the human health risk assessment reported here follows the principals given in CLR 11, i.e. application of the following assessment hierarchy:

- Tier 1 risk screening by establishment of potential pollutant linkages, i.e. the preliminary conceptual site model (PCSM), or
- Tier 2 generic quantitative assessment using generic assessment criteria (GACs) that represent 'acceptably low' risk, or
- Tier 3 quantitative risk assessment using site specific assessment criteria (SSACs) that represent 'unacceptable risk', or where generic assessment criteria are not available or they are not applicable to the CSM.

The results of laboratory analysis have been screened against GACs including the Defra Category 4 Screening Levels (C4SL) and LQM and CIEH S4ULs for Human Health Risk Assessment (Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3180. All rights reserved). (Refs 10 and 11 respectively).

In the absence of a standard scenario for a school environment the standard exposure scenario of residential without home grown produce has been used to identify potential exposure pathways for human health receptors. Controlled water, flora and fauna and property receptors have also been included within the CSM. Our Tier 2 HHRAs for school sites are screened against the GACs representative of minimal risk for residential without home grown produce end use, we believe this to be appropriate based on the precautionary principle the CLR guidance advocates.

It should be noted that organic contamination (PAH, TPH and BTEX) have been screened against the GAC for 1% Soil Organic Matter (SOM).

The assessment of PAHs is undertaken using the surrogate marker approach; recommended by Health Protection Agency (2010) guidance (Ref 17), providing the PAH profile is sufficiently similar to the coal tars tested by Culp et al (1998). Where PAH profile is not sufficiently coal tar like the TEF method is adopted using the LQM and CIEH S4ULs. Prior to assessment a PAH profile is generated for all samples analysed for PAH using the LQM PAH Profiling Tool v1.3, the graphical output is presented in Appendix V.

5.2 Assessment of Soil Analysis Results

Eight samples, as detailed in section 3.3.2, were scheduled for analysis from the development area. These provide a basis for characterising the soils to outline the potential impacts on human health and any environmental receptors from any contamination found.

The screening process for on-site human health receptors show that the GACs, representative of minimal risk for a residential without plant uptake setting were not exceeded.

5.3 Human Health Mitigation

The concentrations of potential contaminants recorded at the site indicates an acceptably low risk and therefore mitigation measures are not required as part of the development.

Should any obvious evidence of unexpected contamination be encountered during the redevelopment works it should be reported to HSP so that an inspection can be made and appropriate sampling and assessment work be carried out.

Appropriate health and safety precautions should be adopted during any excavation works to avoid exposure to contaminated soils and dust. Reference to the HSE document HSG 66 'Protection of workers and the General Public during Redevelopment of Contaminated Land'.

The approval of the local Environmental Health Officer should be sought with respect to the soil contamination assessment and mitigation proposals.

5.4 Ground Gas Risk Assessment

For the purpose of this assessment, the school is classified as Building Type B; as outlined in Table 3 of BS8485:2015 Code of Practice of the design of protective measures for methane and carbon dioxide ground gas for new buildings (Ref 14). This is a conservative assessment, subject to change once the building occupancy and maintenance controls are better defined.

Ground gas concentrations have been monitored on four occasions in order to obtain an indication of the ground gas regime at the site. The results indicate that methane has not been recorded above the monitor's limit of detection (<0.1%vol). Carbon dioxide has been recorded at a maximum concentration of 3.4% vol in air in WS01. Steady state gas have not been recorded on site. From the results of above, the maximum steady state gas screening value (GSV) for the site is 0.034l/hr.

The results have been assessed in line with the guidance provided in BS8485:2015+A1:2019 Code of Practice of the design of protective measures for methane and carbon dioxide ground gas for new buildings (Ref 14) and CIRIA Document C665 'Assessing Risks Posed by Hazardous Ground Gases to Buildings' (Ref 15). Comparison of the steady state gas screening value with Table 8.5 of the CIRIA document indicates that the site falls into a Characteristic Situation 1, and therefore ground gas protection measures are not required at this stage as part of a school development.

Depleted oxygen levels were occasionally observed within a number of the boreholes during the monitoring. This poses a risk of asphyxiation to construction and maintenance workers in confined spaces such as excavations or manhole chambers. A confined spaces risk assessment should be carried out prior to working in any buried structures or excavations.

The results of the ground gas monitoring can be found within Appendix VII.

5.5 Water Supply

The environmental analysis for the site has been compared to the following document in order to assess the most appropriate pipe material that should be used upon the site for mains water supply:

‘Guidance for the selection of water supply pipes to be used in Brownfield sites – UK Water Industry Research – Ref: 10/WM/03/21.’ (Ref. 20)

The chemical results show no exceedances of the threshold values for PE and PVC pipes. It is therefore considered that specialist materials are unlikely to be required for water supply pipes at the site. Confirmation of supply pipes should always be sought from utility providers.

5.6 Waste Classification

The results of the chemical testing have been assessed using web-based software for classifying hazardous waste, using HazWasteOnline™. The materials tested are likely to be classified as non-hazardous. The results are included in Appendix VI.

5.7 Updated Conceptual Site Model

The PCSM and Summary of plausible pollutant linkages was produced by undertaking a Source-Pathway-Receptor analysis of the site and is present in the Desk Study (Ref. 1). Based on the findings of this and the previous investigation the conceptual site model has been updated and is presented in the table below.

Table 9 – Updated Conceptual Site Model

Source	Pathway	Receptor	Consequence	Probability	Risk	Comments
On site S1: Historical and Contemporary land use: Agricultural land, Historical Sandstone Quarry Off Site (within 250m) S2: Historical and Contemporary land use: Agricultural land, industrial processes relating to furniture production.	P1: Human uptake pathways <ul style="list-style-type: none"> • direct contact, • ingestion of soils and dust, • inhalation of fugitive dust. 	R1: End Users R2: Construction and maintenance workers	Minor	Low	Very Low	Concentrations of contaminants of concern were below the relevant GACs within the near surface deposits sampled across the site and therefore the risk is considered to be VERY LOW
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. P3: Migration of contaminants along preferential pathways (man- made). P4: Surface runoff.	R3: Controlled Water: Groundwater & Surface Water	Mild	Low	Very Low	Bedrock geology underlying the site are classified as a Secondary B Aquifer. No significant contamination was identified during the ground investigation and therefore the risk to controlled water is considered to be VERY LOW.
	P5: Vertical and lateral migration of ground gases and/or vapour	R1: End Users R5: Adjacent Residential Properties	Mild	Unlikely	Very Low	Ground gas concentrations have been monitored on four occasions, in order to obtain an indication of the ground gas regime at the site. The results indicate the site is characterised as CS1. Gas protection measures are therefore not considered necessary and the risk is considered to be VERY LOW.
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. P3: Migration of contaminants along preferential pathways (man- made). P4: Surface runoff.	R4: Property, services and substructures	Mild	Low	Very Low to Low	The natural soils may contain sulphates that present a risk to buried concrete. Testing indicates Design Sulphate Class of DS-1 together with an Aggressive Chemical Environment for Concrete (ACEC) of AC-1 for the majority of the soils sampled. The chemical analysis of the soils indicates specialist materials are unlikely to be required for water supply pipes at the site. However, confirmation of supply pipes should be sought from utility providers.
	P6: Root uptake.	R6: Proposed Flora and fauna	Minor	Low	Very Low	Extensive planting is unlikely therefore the risk of uptake to proposed flora and fauna is VERY LOW.

6. References

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3. British Geological Survey Lexicon Search - <http://www.bgs.ac.uk/lexicon/>
4. Department of the Environment Industry Profiles.
5. Site Investigation in Construction, Volume 3, Specification for Ground Investigation 2nd Edition.
6. BS 5930:2015 Code of Practice for Ground Investigations.
7. BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)
8. BS10175:2011 +A1:2013 Investigation of Potentially Contaminated Sites - Code of Practice.
9. NHBC Standards, Chapter 4.2, Building near trees.
10. Department for Environment, Food and Rural Affairs and Contaminated Land: Applications in Real Environments (CL:AIRE) (December 2013). SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination.
11. Nathanail, C.P., McCaffrey, C., Gillett, A.G., Ogden, R.C. and Nathanail, J.F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.
12. BRE Special Digest 1:Concrete in Aggressive Ground, 2005, Building Research Establishment.
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14. BS8485:2015 + A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
15. CIRIA C665 'Assessing Risks Posed by Hazardous Ground Gases to Buildings'
16. NHBC & RSK Group Plc, March 2007. Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present. Ed 4.
17. Department for Environment, Food and Rural Affairs and Contaminated Land: Applications in Real Environments (CL:AIRE) (December 2013). SP1010: Appendix E Provisional C4SLs for Benzo(a)pyrene as a surrogate marker for PAHs.
18. www.environment-agency.gov.uk
19. Environment Agency, Freshwater Environmental Quality Standards (EQS) contained in the Hydrogeological Risk Assessment for Landfills and the Derivation of Groundwater Control and Trigger Levels, 2015.
20. HMSO, Water Supply (Water Quality) Regulations, 2002.
21. Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 2
22. UK Water Industry Research, Guidance for the selection of water supply pipes to be used in Brownfield sites, Ref:10/WM/03/21.
23. BS3882:2015. Specification for Topsoil.
24. Terzaghi, K., Peck, R.B., Mesri, G. 1996. Soil Mechanics in Engineering Practices.

Appendix I

DO NOT SCALE
NOTES:



 - Approximate Site Red Line Boundary



Lawrence House, Meadowbank Way,
Eastwood, Nottingham, NG16 3SB
Tel: 01773 535 555 Fax: 0870 600 6091
www.hspconsulting.com

CLIENT:
Gleeds Management Services Ltd

PROJECT:
Gibbons Way, Cornelli

TITLE:
Site Location Plan

SCALE@SIZE :	ISSUE:
NTS	FINAL

DESIGN/DRAWN:	DATE:
HEB	June 2020

PROJECT No:	DRAWING No:
C3341	500

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Subterranean service

No structures within this zone - proximity to neighbouring properties

Red line boundary

Pedestrian Access

Vehicular Access

Current Access Points

Main Vehicular Route

Drainage Ditches

Existing Trees

Existing Hedgerow

Noise

Overhead Cables

Foot Bridge

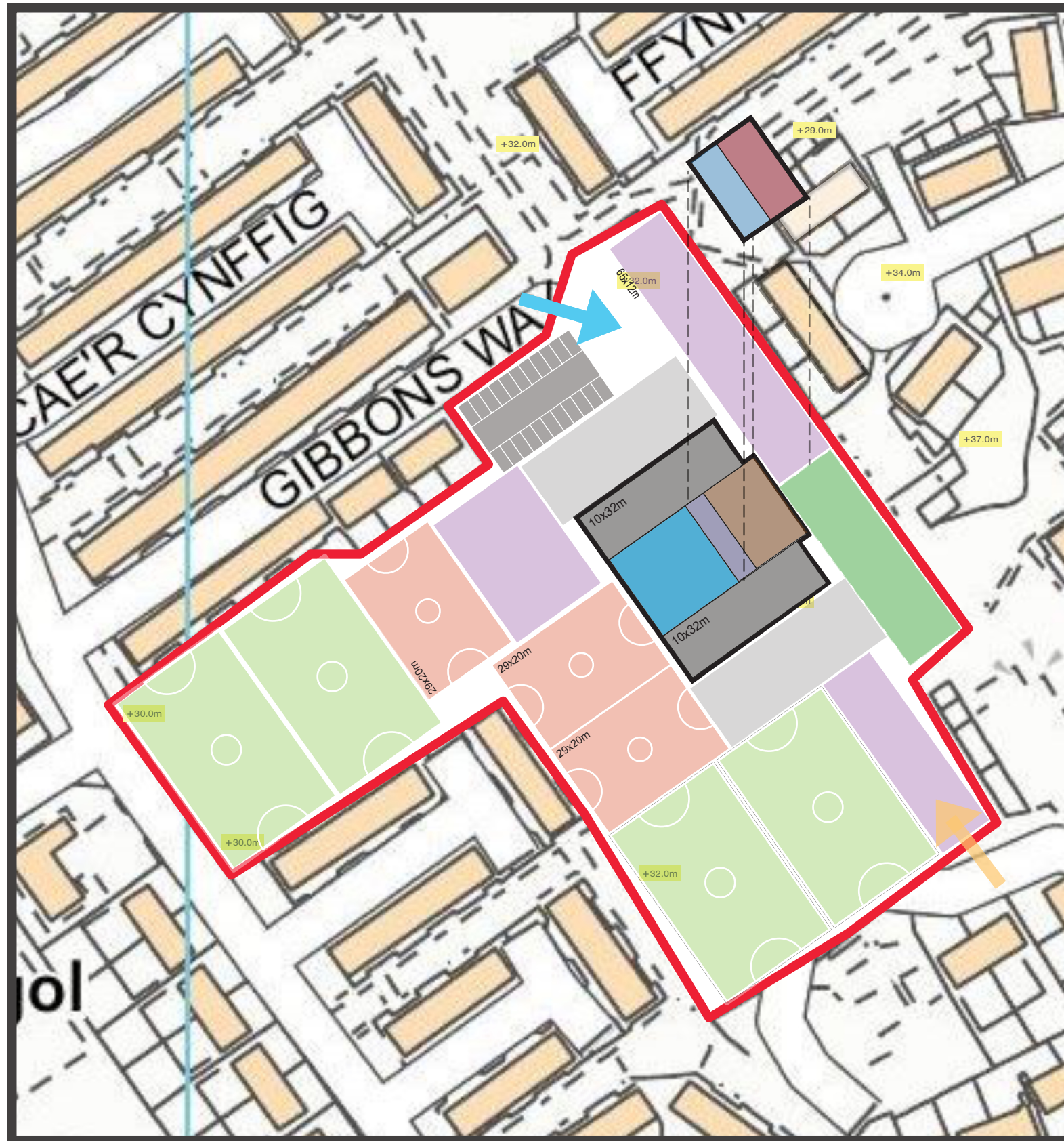
Existing Right of Way

Building for Demolition

Photo View

Gradient / Embankment

Level



Marlas Primary School			
School Specifics:			
No. of pupils	420		
FTE staff	19.2		
Total Building Area m2			
Generated from BB99	2,770	Test Scheme	Difference
Childcare	0	0	0
Basic Teaching	1267	1270	3
Hall	325	325	0
Learning resources	112	112	0
Staff & Admin	164	164	0
Storage	216	220	4
Float	147	151	4
Total	2,230	2,242	12
BB99 External Spaces m2			
Pitches	8,400	4000	-4,400
Soft play	1,850	1678	-172
Games courts	1,440	1740	300
Hard play	1,030	1036	6
Habitat	620	516	-104
Float	2,100	0	-2,100
Total Net	15,440	8970	-6470
Parking			
No. of Spaces	22	22	0
Min Other	2,360		
Max Other	4,820		
Childcare			
Min Total Gross	17,320		
Max Total Gross	19,300		

Points of Note.

- School located as far away from surrounding buildings as possible
- Site boundary amended to exclude the residential blocks for demolition, and extended to the south east.
- School areas shown are based on BB99 Gross Floor areas.
- Adjacencies have yet to be resolved.
- School based on a two storey design, in response to surrounding buildings. This looks like it needs to go two storey to achieve external areas.

Site Access.

- Vehicular access off Gibbons Way.
- Pedestrian access opportunities available from all sides.
- Propose pedestrian access on south east side, opposite main vehicular access.

Phasing and Delivery.

- To be considered in conjunction with the new school at Cornely.
- Marlas to be built, then facilitating decant from Cornely School from the other site, into this school.
- This site: demolition of existing vacant residential blocks at the north east end of the site to take place first.

Utilities:

- Not currently known.

Scale: 1:1000 @ A3



Appendix II


Borehole Log

Borehole No.

BH01

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type CP
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By HB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 1.00	B		0.25		MADE GROUND - Brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete.	
		1.00 1.00 - 1.40	B	N=25 (6,4/4,7,7,7)	1.40		MADE GROUND - Brownish grey sandy clayey gravel. Sand is fine to coarse. Gravel is angular of concrete and brick.	
		2.00 2.00 - 2.50	B	N=40 (7,8/8,10,11,11)	2.00		MADE GROUND - Grey sandy gravel. Sand is fine to coarse. Gravel is angular of concrete.	
		3.00 3.00 - 3.50 3.00 - 3.50	B T	N=22 (4,4/7,5,5,5)	3.00		Very stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to sub rounded of mixed lithologies and low cobble content.	
		4.00 4.00 - 5.00	B	N=13 (8,8/5,4,2,2)	4.00		Medium dense brownish grey gravelly clayey SAND. Sand is fine to coarse. Gravel is angular of mixed lithologies. Low cobble content.	
		5.00 5.00 - 6.00	B	N=13 (1,4/4,3,3,3)	5.00		Medium dense brownish grey sandy clayey GRAVEL. Sand is fine to coarse. Gravel is sub angular to rounded of mixed lithologies. Low cobble content.	
		6.00 6.00 - 6.40 6.00 - 6.40	B T	N=50 (6,3/50 for 265mm)	6.00 6.40		Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub angular of mudstone.	
							Extremely weak weathered reddish brown MUDSTONE. Recovered as a slightly sandy gravelly clay. Sand is fine to medium. Gravel is angular of mudstone. End of borehole at 6.40 m	

Remarks
Borehole terminated at 6.40m begl due to refusal. No groundwater encountered during the drilling.



Borehole Log

Borehole No.

BH02

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type CP
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By HB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
Well		0.00 - 0.50	B		0.15		MADE GROUND - Dark grey concrete asphalt.		
		0.50 - 1.00	B		0.50		MADE GROUND - Orange and grey with occasional black sandy gravel. Sand is fine to coarse. Gravel is angular of concrete.		
		1.00		N=10 (2,3/3,2,2,3)			Firm orangish brown slightly sandy CLAY. Sand is fine to coarse.	1	
		1.00 - 2.00	B						
		1.00 - 2.00	T						
		2.00		N=47 (9,11/9,9,14,15)	2.00		Very dense greyish brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular of mixed lithologies. Low cobble content.	2	
		2.00 - 2.50	B						
		3.00		N=52 (10,14/52 for 265mm)			...Becoming medium dense from 3.00m depth.	3	
		3.00 - 4.00	B						
		4.00		N=29 (8,11/10,7,8,4)					
	4.00 - 4.50	B							
	4.00 - 4.50	T							
	4.50 - 4.80	T		4.50		Extremely weak weathered reddish brown and grey mottled MUDSTONE. Recovered as a slightly sandy gravelly clay. Sand is fine to medium. Gravel is angular of mudstone.	5		
	5.00		N=50 (1,3/50 for 255mm)						
	5.20 - 5.30	T		5.40		End of borehole at 5.40 m			

Remarks
Borehole terminated at 6540m begl due to refusal. No groundwater encountered during the drilling.



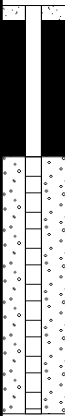
Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By HEB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	TJ		0.30		MADE GROUND - Brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete.	
		0.70	TJ		0.95		MADE GROUND - Dark brown sandy slightly gravelly clay. Gravel is fine to medium and sub rounded to angular of mixed lithology and brick gravel.	
		1.00		N=8 (2,1/2,2,2,2)	1.25		MADE GROUND - Dark brown sandy slightly gravelly clay. Gravel is fine to medium and sub rounded to sub angular of mixed lithology and clinker.	
		1.30	B		2.00		Firm to stiff brown slightly gravelly sandy CLAY. Gravel is fine to coarse sub rounded to sub angular of mixed lithology.	
		1.50	D		2.50		Very dense slightly clayey sandy GRAVEL (possible cobble). Gravel is fine to coarse and angular of limestone. End of borehole at 2.70 m	
		2.00		N=20 (2,4/4,5,5,6)	2.70			
			2.70		50 (8,9/50 for 195mm)			

Remarks
Borehole terminated at 2.70m begl due to refusal. No groundwater encountered during the drilling.



Borehole Log

Borehole No.

WS02

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By HEB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
Well		0.20 - 0.30	TJ		0.20		MADE GROUND - Brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete.		
		0.45 - 0.55	TJ						
		1.00		N=15 (4,3/4,4,3,4)				MADE GROUND - Brown very sandy very gravelly clay. Gravel is fine to medium and sub angular to angular of brick, concrete and mortar. <i>... With concrete obstruction at 1.00m depth.</i>	
		1.50		N=19 (13,10/6,3,5,5)				<i>... No recovery from 1.00m to 2.30m depth.</i>	
		2.50	B		2.30			Firm brown and orange mottled very sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub angular to sub rounded of mixed lithologies.	
					2.90			No recovery. <i>...With a limestone cobble at 2.90m depth.</i>	
		3.50		N=42 (7,5/10,10,12,10)	3.50			Stiff brown orange grey very sandy CLAY. Sand is fine to coarse.	
					3.80				Dense brown slightly clayey SAND and GRAVEL (possible cobble). Sand is fine to coarse. Gravel is angular of limestone.
					4.00				<i>End of borehole at 4.00 m</i>

Remarks
No groundwater encountered during the drilling.



Borehole Log

Borehole No.

WS03

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By LAB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.35 - 0.45	TJ		0.20 0.35		MADE GROUND - Brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete.	
		1.00		N=16 (1,2/3,3,5,5)	1.50		MADE GROUND - Brown very sandy very gravelly clay. Sand is fine to coarse. Gravel is sub angular to sub rounded of brick and concrete. Firm to stiff brown orange very sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is sub rounded to sub angular of mixed lithology. End of borehole at 1.50 m	



Remarks
No groundwater encountered during the drilling.



Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By LAB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
Well		0.04			0.04		MADE GROUND - Weathered concrete asphalt. MADE GROUND - Sub base material.	
		0.45 - 0.55	TJ		0.40		MADE GROUND - Brown very sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub angular to sub rounded of brick, concrete and organic materials.	
		1.00 1.00	B	N=10 (3,2/2,2,2,4)	0.70		Firm brown orange very sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub angular to sub rounded of mixed lithologies.	1
		2.00		N=47 (4,11/15,10,10,12)	1.80 2.00		Very dense brown slightly clayey SAND and GRAVEL (possible cobble). Sand is fine to coarse. Gravel is angular of limestone. End of borehole at 2.00 m	2

Remarks
No groundwater encountered during the drilling.



Borehole Log

Borehole No.

WS05

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By LAB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
Well		0.35 - 0.45	TJ		0.25		MADE GROUND - Grass overlying brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete. MADE GROUND - Brown orange very sandy slightly gravelly clay. Sand is fine to coarse. Gravel is angular to sub rounded of stone, brick, coal and concrete asphalt fragments. Soft to firm brown orange very sandy CLAY. Sand is fine to coarse. Medium dense to dense brown slightly clayey SAND and GRAVEL (possible cobble). Sand is fine to coarse. Gravel is angular of limestone.	
		0.70 - 0.80	B		0.70			
		1.00		N=7 (0,0/0,2,2,3)				
		2.00		N=40 (4,6/11,12,10,7)	2.20			
		3.00		N=50 (6,7/11,16,12,11)	3.00		End of borehole at 3.00 m	

Remarks
Borehole terminated at 3.00m begl due to refusal. No groundwater encountered during the drilling.

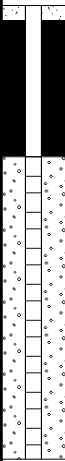

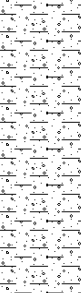

Borehole Log

Borehole No.

WS06

Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By LAB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.40	TJ		0.25		MADE GROUND - Grass overlying brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete.		
		1.00		N=8 (2,2/2,1,3,2)			Soft becoming stiff brown orange very sandy CLAY. Sand is fine to medium. Gravel is sub rounded to sub angular of mixed lithology.	1	
		1.20	B						
		2.00		N=25 (2,2/3,4,8,10)					2
		2.00		N=25 (2,2/3,4,8,10)	2.50				
		3.00		N=50 (9,11/50 for 275mm)	3.00		Medium dense to dense brown slightly clayey SAND and GRAVEL (possible cobble). Sand is fine to coarse. Gravel is angular of limestone.	3	
							End of borehole at 3.00 m	4	
								5	
								6	
								7	
								8	
								9	
								10	

Remarks
Borehole terminated at 3.00m begl due to refusal. No groundwater encountered during the drilling.



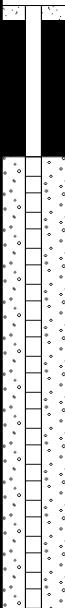
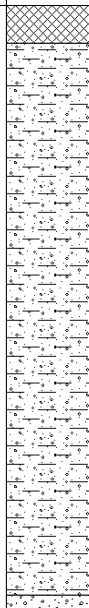
Borehole Log

Borehole No.

WS07

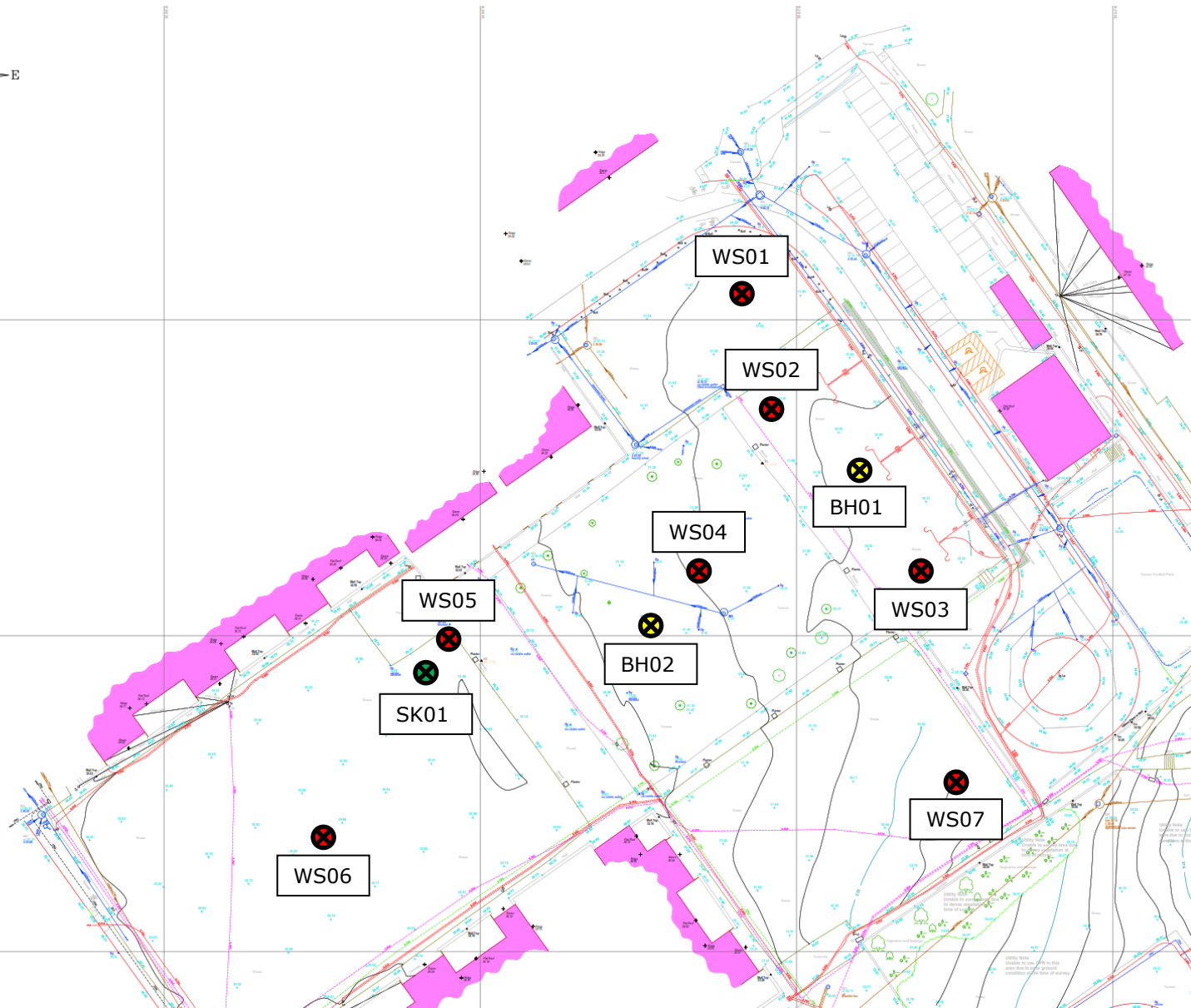
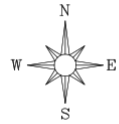
Sheet 1 of 1

Project Name: Gibbons Way, North Cornelly	Project No. C3341	Co-ords: -	Hole Type WS
Location: Gibbons Way, North Cornelly		Level:	Scale 1:50
Client: Gleeds Management Services Ltd		Dates: -	Logged By LAB

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.40	TJ		0.25		MADE GROUND - Grass overlying brown sandy gravelly clayey topsoil. Gravel is fine to coarse and sub rounded to angular of mixed lithology, brick and concrete.	
		0.60 - 0.70	TJ				Firm to stiff brown orange very sandy very gravelly CLAY. Sand is fine to medium. Gravel is sub rounded to sub angular of mixed lithology.	
		1.00		N=13 (2,3/3,4,3,3)				
		2.00		N=15 (3,3/4,4,4,3)				
		3.00		N=27 (3,4/8,7,6,6)				
					3.90 4.00		Very dense brown slightly clayey SAND and GRAVEL (possible cobble). Sand is fine to coarse. Gravel is angular of limestone. End of borehole at 4.00 m	




Remarks
No groundwater encountered during the drilling.

Appendix III



DO NOT SCALE
NOTES:



-  - Approximate Window Sample Borehole Location
-  - Approximate Cable Percussive Borehole Location
-  - Approximate Infiltration Test Location



Lawrence House, Meadowbank Way,
Eastwood, Nottingham, NG16 3SB
Tel: 01773 535 555 Fax: 0870 600 6091
www.hspconsulting.com

CLIENT:

Gleeds Management
Services Ltd

PROJECT:

Gibbons Way, North
Cornelly

TITLE:

Exploratory Location
Plan

SCALE@SIZE :

NTS

ISSUE:

-

DESIGN/DRAWN:

HEB

DATE:

Sept. 2020

PROJECT No:

C3341

DRAWING No:

502

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Appendix IV



LABORATORY REPORT



4043

Contract Number: PSL20/4513

Report Date: 18 September 2020

Client's Reference: C3341

Client Name: HSP Consulting
Lawrence House
4 Meadowbank Way
Eastwood
Nottingham
NG16 3SB

For the attention of: Hallam Brown

Contract Title: Gibbons Way

Date Received: 28/8/2020

Date Commenced: 28/8/2020

Date Completed: 18/9/2020

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:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)

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Page 1 of

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D20266	Client: HSP Consulting
Project Name: Gibbons Way	Address: Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
ATS Sample No: 21241	

Site Ref / Hole ID: WS2	Depth (m): 2.50
Sample No:	Sample Type: Bulk
Sampling Certificate Received: No	Material Description: Brown slightly gravelly CLAY
Location in Works: Unknown	Material Source: N/A
Date Sampled: 11 August 2020	Material Supplier: N/A
Sampled By: HSP	Specification:
Date Received: 12 August 2020	Date Tested: 17 August 2020

Test Results

Moisture Content (%)	20.5
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Remarks:

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS EN ISO 17892-12:2018 Clauses 5.3/5.5/6.5

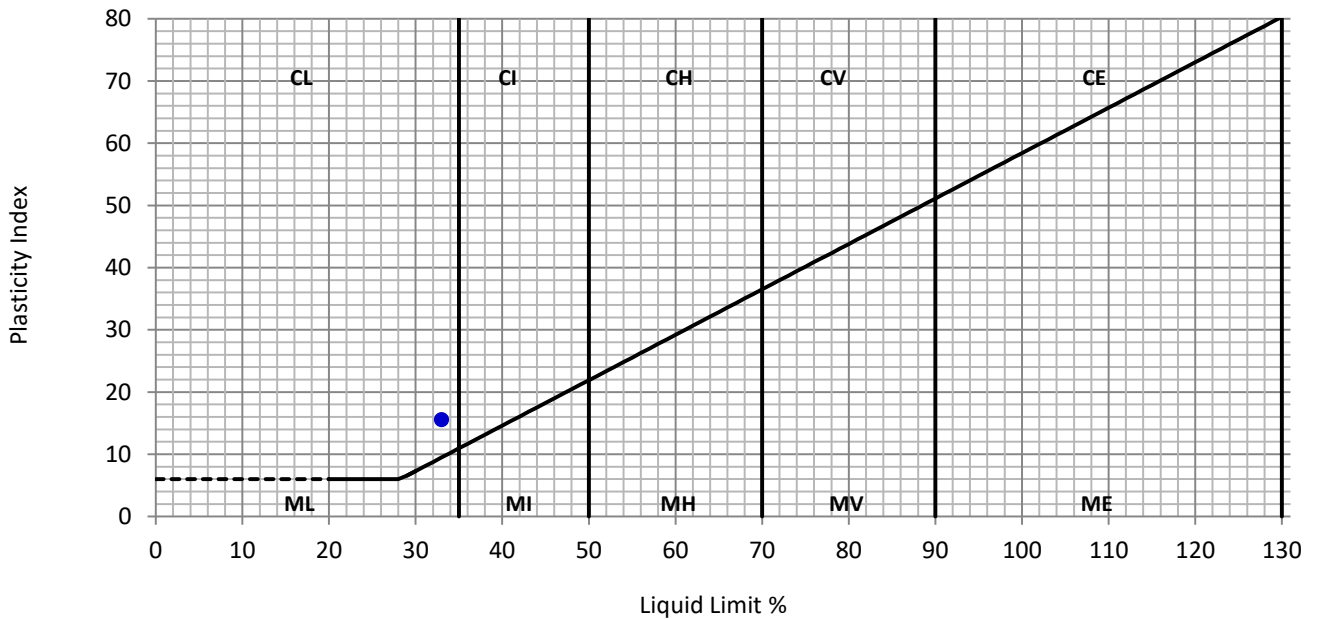
Project No:	D20266	Client:	HSP Consulting
Project Name:	Gibbons Way	Address	Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
ATS Sample No:	21241		

Site Ref / Hole ID:	WS2	Depth (m):	2.50
Sample No:		Sample Type:	Bulk
Sampling Certificate Received:	No	Material Description:	Brown slightly gravelly CLAY
Location in Works:	Unknown	Material Source:	N/A
Date Sampled:	11 August 2020	Material Supplier:	N/A
Sampled By:	HSP	Specification:	
Date Received:	12 August 2020	Date Tested:	17 August 2020

Test Results

Liquid Limit	33	%
Plastic Limit	17	%
Plasticity Index	16	%

Preparation:	4.2.3 Natural Specimen
Proportion retained on 425µm sieve:	3 %



Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D20266 Project Name: Gibbons Way ATS Sample No: 21242	Client: HSP Consulting Address: Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
--	--

Site Ref / Hole ID: WS4 Sample No: Sampling Certificate Received: No Location in Works: Unknown Date Sampled: 11 August 2020 Sampled By: HSP Date Received: 12 August 2020	Depth (m): 1.00 Sample Type: Bulk Material Description: Brown CLAY Material Source: N/A Material Supplier: N/A Specification: Date Tested: 17 August 2020
---	--

Test Results

Moisture Content (%)	17.7
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Remarks:

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX
BS EN ISO 17892-12:2018 Clauses 5.3/5.5/6.5

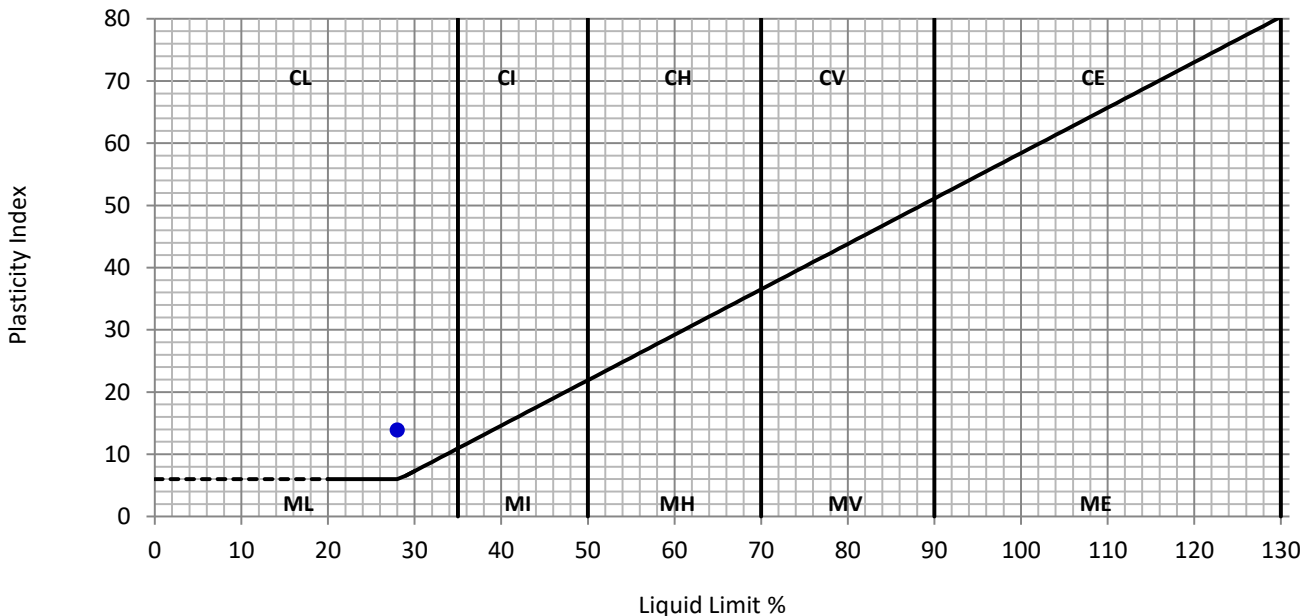
Project No:	D20266	Client:	HSP Consulting
Project Name:	Gibbons Way	Address	Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
ATS Sample No:	21242		

Site Ref / Hole ID:	WS4	Depth (m):	1.00
Sample No:		Sample Type:	Bulk
Sampling Certificate Received:	No	Material Description:	Brown CLAY
Location in Works:	Unknown	Material Source:	N/A
Date Sampled:	11 August 2020	Material Supplier:	N/A
Sampled By:	HSP	Specification:	
Date Received:	12 August 2020	Date Tested:	17 August 2020

Test Results

Liquid Limit	28	%
Plastic Limit	14	%
Plasticity Index	14	%

Preparation:	4.2.3 Natural Specimen
Proportion retained on 425µm sieve:	0 %



Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D20266 Project Name: Gibbons Way ATS Sample No: 21243	Client: HSP Consulting Address: Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
--	--

Site Ref / Hole ID: WS5 Sample No: Sampling Certificate Received: No Location in Works: Unknown Date Sampled: 11 August 2020 Sampled By: HSP Date Received: 12 August 2020	Depth (m): 0.70 - 0.80 Sample Type: Bulk Material Description: Greyish brown slightly gravelly CLAY Material Source: N/A Material Supplier: N/A Specification: Date Tested: 17 August 2020
---	---

Test Results

Moisture Content (%)	24.5
----------------------	------

Remarks:

QA Ref.		Apex Testing Solutions <small>Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ</small> <small>Tel: 01656 746762 Fax: 01656 749096</small>		Approver <i>L. Davis</i>	Date 18/08/2020	Fig MC
EN ISO 17892-1:2014 E		7771	L Davis, Quality Manager			

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS EN ISO 17892-12:2018 Clauses 5.3/5.5/6.5

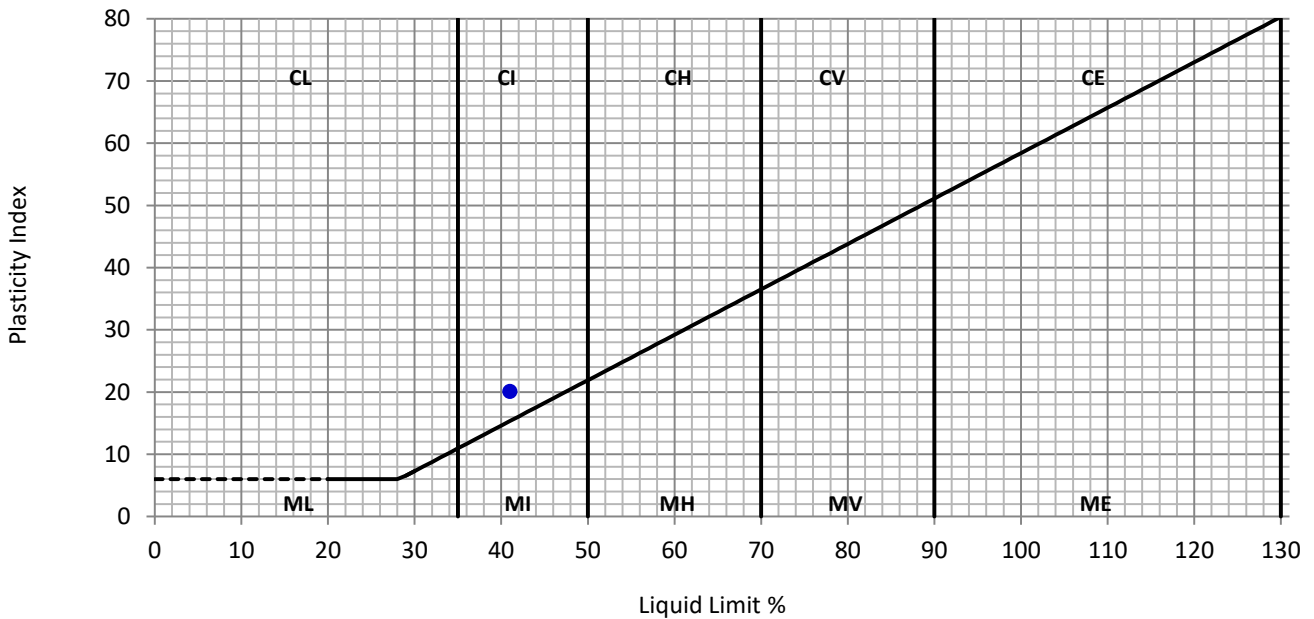
Project No:	D20266	Client:	HSP Consulting
Project Name:	Gibbons Way	Address	Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
ATS Sample No:	21243		

Site Ref / Hole ID:	WS5	Depth (m):	0.70 - 0.80
Sample No:		Sample Type:	Bulk
Sampling Certificate Received:	No	Material Description:	Greyish brown slightly gravelly CLAY
Location in Works:	Unknown	Material Source:	N/A
Date Sampled:	11 August 2020	Material Supplier:	N/A
Sampled By:	HSP	Specification:	
Date Received:	12 August 2020	Date Tested:	17 August 2020

Test Results

Liquid Limit	41	%
Plastic Limit	21	%
Plasticity Index	20	%

Preparation:	4.2.3 Natural Specimen
Proportion retained on 425µm sieve:	1 %



Remarks:

TEST REPORT
Determination Of Water Content
ISO 17892-1: 2014

Project No: D20266 Project Name: Gibbons Way ATS Sample No: 21244	Client: HSP Consulting Address: Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
--	--

Site Ref / Hole ID: WS6 Sample No: Sampling Certificate Received: No Location in Works: Unknown Date Sampled: 11 August 2020 Sampled By: HSP Date Received: 12 August 2020	Depth (m): 1.20 Sample Type: Bulk Material Description: Brown slightly gravelly CLAY Material Source: N/A Material Supplier: N/A Specification: Date Tested: 18 August 2020
---	--

Test Results

Moisture Content (%)	22.3
----------------------	------

Remarks:

QA Ref.		Apex Testing Solutions <small>Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ</small> <small>Tel: 01656 746762 Fax: 01656 749096</small>	 <small>7771</small>	Approver <i>L. Davis</i>	Date 18/08/2020	Fig MC
EN ISO 17892-1:2014 E					L Davis, Quality Manager	

TEST REPORT
LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS EN ISO 17892-12:2018 Clauses 5.3/5.5/6.5

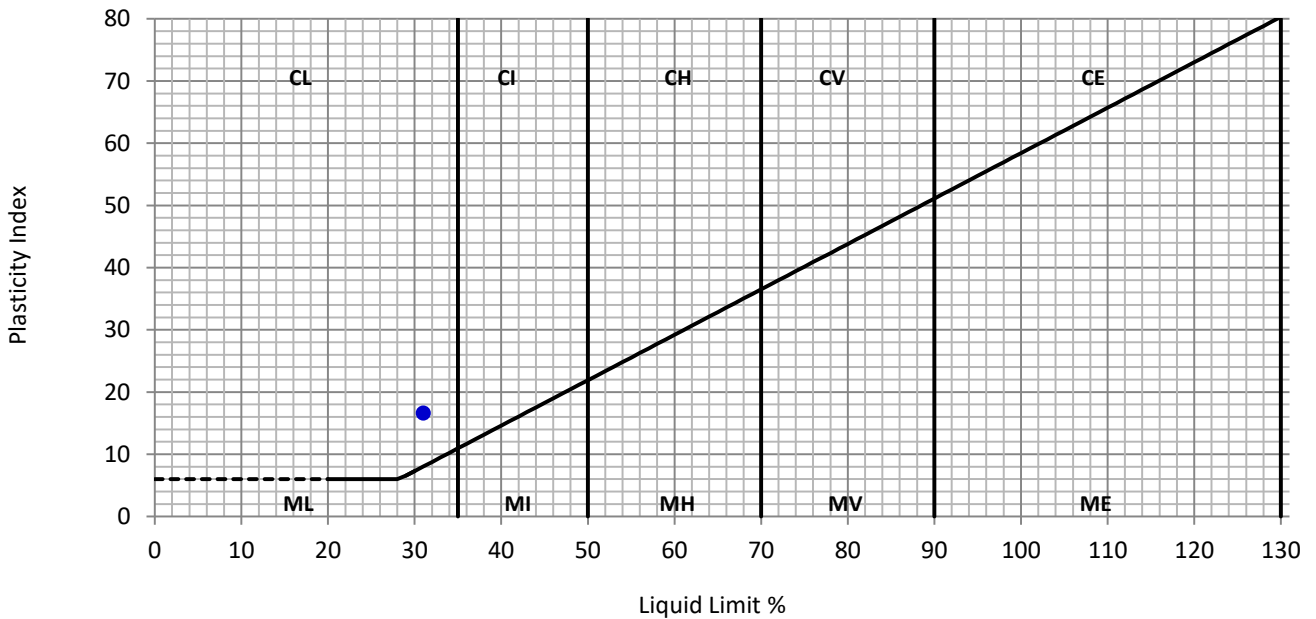
Project No: D20266	Client: HSP Consulting
Project Name: Gibbons Way	Address: Lawrence House, Meadowbank Way, Nottingham, NG16 3SB
ATS Sample No: 21244	

Site Ref / Hole ID: WS6	Depth (m): 1.20
Sample No:	Sample Type: Bulk
Sampling Certificate Received: No	Material Description: Brown slightly gravelly CLAY
Location in Works: Unknown	Material Source: N/A
Date Sampled: 11 August 2020	Material Supplier: N/A
Sampled By: HSP	Specification:
Date Received: 12 August 2020	Date Tested: 17 August 2020

Test Results

Liquid Limit	31	%
Plastic Limit	14	%
Plasticity Index	17	%

Preparation:	4.2.4 Sieved Specimen
Proportion retained on 425µm sieve:	11 %



Remarks:

Appendix V



Final Report

Report No.: 20-21705-1
Initial Date of Issue: 24-Aug-2020
Client: HSP Consulting Engineers Limited
Client Address: Lawrence House
Meadowbank Way
Eastwood
Nottinghamshire
NG16 3SB
Contact(s): Linden Baker
Project: C3341 Gibbons Way
Quotation No.: **Date Received:** 17-Aug-2020
Order No.: **Date Instructed:** 17-Aug-2020
No. of Samples: 8
Turnaround (Wkdays): 5 **Results Due:** 21-Aug-2020
Date Approved: 24-Aug-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: C3341 Gibbons Way

Client: HSP Consulting Engineers Limited		Chemtest Job No.:		20-21705	20-21705	20-21705	20-21705	20-21705	20-21705	20-21705	20-21705	20-21705
Quotation No.:	Chemtest Sample ID.:		1049659	1049660	1049661	1049662	1049663	1049664	1049665	1049666		
	Sample Location:		WS2	WS2	WS3	WS4	WS5	WS6	WS7	WS7		
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
	Top Depth (m):		0.20	0.45	0.35	0.45	0.35	0.30	0.30	0.60		
	Bottom Depth (m):		0.30	0.55	0.45	0.55	0.45	0.40	0.40	0.70		
	Date Sampled:		11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020		
	Asbestos Lab:		COVENTRY		COVENTRY	COVENTRY	COVENTRY					COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-		-	-	-			-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected			No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-		-	-	-			-
Moisture	N	2030	%	0.020	8.5	13	12	17	15	48	16	17
pH	U	2010		4.0	8.1	8.4	8.3	7.8	7.8	7.7	8.2	8.4
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.51	0.48	0.47	0.64	0.46	0.75	0.58	0.56
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.011	< 0.010	< 0.010	0.010	< 0.010	0.22	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010		0.021	0.023	0.029				
Sulphur (Elemental)	U	2180	mg/kg	1.0	1.8	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	1.4
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	3.1	1.1	1.4	0.88	1.1	8.1	1.0	2.2
Sulphate (Acid Soluble)	U	2430	%	0.010		0.040	0.048	0.058				
Arsenic	U	2450	mg/kg	1.0	20	14	19	17	15	20	19	18
Cadmium	U	2450	mg/kg	0.10	0.48	0.32	0.47	0.54	0.34	0.46	0.46	0.42
Chromium	U	2450	mg/kg	1.0	25	19	26	23	22	36	25	23
Copper	U	2450	mg/kg	0.50	20	18	26	23	19	24	24	22
Mercury	U	2450	mg/kg	0.10	0.11	< 0.10	0.17	0.13	0.12	0.13	0.12	< 0.10
Nickel	U	2450	mg/kg	0.50	19	19	21	20	20	25	20	20
Lead	U	2450	mg/kg	0.50	46	42	54	49	42	77	51	46
Selenium	U	2450	mg/kg	0.20	< 0.20	0.45	0.58	0.62	0.56	0.64	0.57	0.68
Zinc	U	2450	mg/kg	0.50	83	98	130	120	99	110	110	110
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	2.4		2.1		1.9		2.9	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: C3341 Gibbons Way

Client: HSP Consulting Engineers Limited		Chemtest Job No.:		20-21705	20-21705	20-21705	20-21705	20-21705	20-21705	20-21705	20-21705	20-21705
Quotation No.:		Chemtest Sample ID.:		1049659	1049660	1049661	1049662	1049663	1049664	1049665	1049666	
		Sample Location:		WS2	WS2	WS3	WS4	WS5	WS6	WS7	WS7	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.20	0.45	0.35	0.45	0.35	0.30	0.30	0.60	
		Bottom Depth (m):		0.30	0.55	0.45	0.55	0.45	0.40	0.40	0.70	
		Date Sampled:		11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	11-Aug-2020	
		Asbestos Lab:		COVENTRY		COVENTRY	COVENTRY	COVENTRY			COVENTRY	
Determinand	Accred.	SOP	Units	LOD								
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	0.49	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.: 20-24676-1

Initial Date of Issue: 18-Sep-2020

Client HSP Consulting Engineers Limited

Client Address: Lawrence House
Meadowbank Way
Eastwood
Nottinghamshire
NG16 3SB

Contact(s): Hallam Brown

Project C3341 Gibbons Way


Quotation No.: **Date Received:** 15-Sep-2020

Order No.: **Date Instructed:** 15-Sep-2020

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 21-Sep-2020

Date Approved: 18-Sep-2020

Approved By:


Details: Glynn Harvey, Technical Manager

Results - Soil

Project: C3341 Gibbons Way

Client: HSP Consulting Engineers Limited	Chemtest Job No.:		20-24676	20-24676		
Quotation No.:	Chemtest Sample ID.:		1064344	1064345		
	Sample Location:		BH01	BH02		
	Sample Type:		SOIL	SOIL		
	Top Depth (m):		2.00	3.00		
	Date Sampled:		23-Jul-2020	23-Jul-2020		
Determinand	Accred.	SOP	Units	LOD		
Moisture	N	2030	%	0.020	9.2	8.4
pH	U	2010		4.0	[B] 9.3	[B] 8.7
Sulphate (2:1 Water Soluble) as SO ₄	U	2120	g/l	0.010	[B] 0.11	[B] 0.015
Total Sulphur	U	2175	%	0.010	[B] 0.044	[B] 0.024
Sulphate (Acid Soluble)	U	2430	%	0.010	[B] 0.058	[B] < 0.010

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1064344			BH01	23-Jul-2020	B	Plastic Tub 500g
1064345			BH02	23-Jul-2020	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Report Information

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N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.: 20-24937-1
Initial Date of Issue: 17-Sep-2020
Client: HSP Consulting Engineers Limited
Client Address: Lawrence House
Meadowbank Way
Eastwood
Nottinghamshire
NG16 3SB
Contact(s): Hallam Brown
Project: C3341 Gibbons Way
Quotation No.: **Date Received:** 17-Sep-2020
Order No.: SC13440 **Date Instructed:** 17-Sep-2020
No. of Samples: 1
Turnaround (Wkdays): 5 **Results Due:** 23-Sep-2020
Date Approved: 17-Sep-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: C3341 Gibbons Way

Client: HSP Consulting Engineers Limited	Chemtest Job No.: 20-24937				
Quotation No.:	Chemtest Sample ID.: 1065904				
	Sample Location: WS07				
	Sample Type: WATER				
	Date Sampled: 15-Sep-2020				
Determinand	Accred.	SOP	Units	LOD	
pH	U	1010		N/A	7.1
Sulphate	U	1220	mg/l	1.0	12

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.

Report Information

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U/S	Unsuitable Sample
N/E	not evaluated
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>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
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- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix VI

Waste Classification Report



MQQJE-58KBX-T3SAQ

Job name

C3341 Gibbons Way

Description/Comments

Project

C3341 Gibbons Way

Site

Gibbons Way

Related Documents

#	Name	Description
1	HWOL_20-21705-20200824 102356.hwol	.hwol file used to create the Job

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name: Howard Daley	Company: HSP Consulting Engineers Limited Lawrence House 4 Meadowbank Way Eastwood	HazWasteOnline™ Training Record:	
Date: 11 Sep 2020 09:41 GMT	4 Meadowbank Way, Eastwood	Course	Date
Telephone: 01773 535555	Nottingham	Hazardous Waste Classification	11 Feb 2020
	NG16 3SB	Advanced Hazardous Waste Classification	12 Feb 2020

Report

Created by: Howard Daley
Created date: 11 Sep 2020 09:41 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS2 0.20m	0.20-0.30	Non Hazardous		3
2	WS2 0.45m	0.45-0.55	Non Hazardous		6
3	WS3 0.35m	0.35-0.45	Non Hazardous		9
4	WS4 0.45m	0.45-0.55	Non Hazardous		12
5	WS5 0.35m	0.35-0.45	Non Hazardous		15
6	WS6 0.30m	0.30-0.40	Non Hazardous		18
7	WS7 0.30m	0.30-0.40	Non Hazardous		21
8	WS7 0.60m	0.60-0.70	Non Hazardous		24

Appendices

Appendix A: Classifier defined and non CLP determinands

Page

27



Appendices	Page
Appendix B: Rationale for selection of metal species	28
Appendix C: Version	29

Classification of sample: WS2 0.20m

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

Sample details

Sample Name:	LoW Code:	
WS2 0.20m	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)
0.20-0.30 m		
Moisture content:		
8.5%		
(wet weight correction)		

Hazard properties

None identified





Determinands

Moisture content: 8.5% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	24.162 mg/kg	0.00242 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.51 mg/kg	3.22	1.503 mg/kg	0.00015 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				0.48 mg/kg	1.142	0.502 mg/kg	0.0000502 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				25 mg/kg	1.462	33.433 mg/kg	0.00334 %	✓	
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	20.604 mg/kg	0.00206 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	46 mg/kg	1.56	65.653 mg/kg	0.00421 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.11 mg/kg	1.353	0.136 mg/kg	0.0000136 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				19 mg/kg	2.976	51.742 mg/kg	0.00517 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
11	zinc { zinc chromate }				83 mg/kg	2.774	210.683 mg/kg	0.0211 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH				8.1 pH		8.1 pH	8.1 pH		
			PH							
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				1.8 mg/kg		1.647 mg/kg	0.000165 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0401 %		

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: WS2 0.45m

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

Sample details

Sample Name:	WS2 0.45m	LoW Code:	
Sample Depth:	0.45-0.55 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	13% (wet weight correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

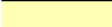



Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				14 mg/kg	1.32	16.082 mg/kg	0.00161 %		✔	
	033-003-00-0	215-481-4	1327-53-3								
2	boron { diboron trioxide; boric oxide }				0.48 mg/kg	3.22	1.345 mg/kg	0.000134 %		✔	
	005-008-00-8	215-125-8	1303-86-2								
3	cadmium { cadmium oxide }				0.32 mg/kg	1.142	0.318 mg/kg	0.0000318 %		✔	
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				19 mg/kg	1.462	24.16 mg/kg	0.00242 %		✔	
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
6	copper { dicopper oxide; copper (I) oxide }				18 mg/kg	1.126	17.631 mg/kg	0.00176 %		✔	
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	42 mg/kg	1.56	56.996 mg/kg	0.00365 %		✔	
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				19 mg/kg	2.976	49.198 mg/kg	0.00492 %		✔	
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				0.45 mg/kg	2.554	1.0 mg/kg	0.0001 %		✔	
	034-002-00-8										
11	zinc { zinc chromate }				98 mg/kg	2.774	236.524 mg/kg	0.0237 %		✔	
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH				8.4 pH		8.4 pH	8.4 pH		
			PH							
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				0.49 mg/kg		0.426 mg/kg	0.0000426 %	✓	
		205-883-8	191-24-2							
36	sulfur { sulfur }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0398 %		

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: WS3 0.35m

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

Sample details

Sample Name:	LoW Code:	
WS3 0.35m	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)
0.35-0.45 m		
Moisture content:		
12%		
(wet weight correction)		

Hazard properties

None identified

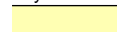



Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				19 mg/kg	1.32	22.076 mg/kg	0.00221 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.47 mg/kg	3.22	1.332 mg/kg	0.000133 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				0.47 mg/kg	1.142	0.472 mg/kg	0.0000472 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				26 mg/kg	1.462	33.44 mg/kg	0.00334 %	✓	
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	25.76 mg/kg	0.00258 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	54 mg/kg	1.56	74.122 mg/kg	0.00475 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.17 mg/kg	1.353	0.202 mg/kg	0.0000202 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				21 mg/kg	2.976	55.001 mg/kg	0.0055 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.58 mg/kg	2.554	1.303 mg/kg	0.00013 %	✓	
	034-002-00-8									
11	zinc { zinc chromate }				130 mg/kg	2.774	317.362 mg/kg	0.0317 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH		PH		8.3 pH		8.3 pH	8.3 pH		
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0519 %		

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: WS4 0.45m

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

Sample details

Sample Name:	WS4 0.45m	LoW Code:	
Sample Depth:	0.45-0.55 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	17%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
	(wet weight correction)		

Hazard properties

None identified





Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				17	mg/kg	1.32	18.63	mg/kg	0.00186 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	boron { diboron trioxide; boric oxide }				0.64	mg/kg	3.22	1.71	mg/kg	0.000171 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
3	cadmium { cadmium oxide }				0.54	mg/kg	1.142	0.512	mg/kg	0.0000512 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23	mg/kg	1.462	27.901	mg/kg	0.00279 %	✓	
		215-160-9	1308-38-9									
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
6	copper { dicopper oxide; copper (I) oxide }				23	mg/kg	1.126	21.493	mg/kg	0.00215 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	49	mg/kg	1.56	63.438	mg/kg	0.00407 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
8	mercury { mercury dichloride }				0.13	mg/kg	1.353	0.146	mg/kg	0.0000146 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				20	mg/kg	2.976	49.406	mg/kg	0.00494 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.62	mg/kg	2.554	1.314	mg/kg	0.000131 %	✓	
	034-002-00-8											
11	zinc { zinc chromate }				120	mg/kg	2.774	276.305	mg/kg	0.0276 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH				7.8 pH		7.8 pH	7.8 pH		
			PH							
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0453 %		

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: WS5 0.35m

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

Sample details

Sample Name:	LoW Code:	
WS5 0.35m	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)
0.35-0.45 m		
Moisture content:		
15%		
(wet weight correction)		

Hazard properties

None identified

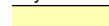



Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				15 mg/kg	1.32	16.834 mg/kg	0.00168 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.46 mg/kg	3.22	1.259 mg/kg	0.000126 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				0.34 mg/kg	1.142	0.33 mg/kg	0.000033 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				22 mg/kg	1.462	27.331 mg/kg	0.00273 %	✓	
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }				19 mg/kg	1.126	18.183 mg/kg	0.00182 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	42 mg/kg	1.56	55.685 mg/kg	0.00357 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.12 mg/kg	1.353	0.138 mg/kg	0.0000138 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				20 mg/kg	2.976	50.597 mg/kg	0.00506 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.56 mg/kg	2.554	1.216 mg/kg	0.000122 %	✓	
	034-002-00-8									
11	zinc { zinc chromate }				99 mg/kg	2.774	233.444 mg/kg	0.0233 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH		PH		7.8 pH		7.8 pH	7.8 pH		
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.04 %		

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: WS6 0.30m

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

Sample details

Sample Name:	WS6 0.30m	LoW Code:	
Sample Depth:	0.30-0.40 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	48%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
	(wet weight correction)		

Hazard properties

None identified





Determinands

Moisture content: 48% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	13.731 mg/kg	0.00137 %	✓		
	033-003-00-0	215-481-4	1327-53-3								
2	boron { diboron trioxide; boric oxide }				0.75 mg/kg	3.22	1.256 mg/kg	0.000126 %	✓		
	005-008-00-8	215-125-8	1303-86-2								
3	cadmium { cadmium oxide }				0.46 mg/kg	1.142	0.273 mg/kg	0.0000273 %	✓		
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				36 mg/kg	1.462	27.36 mg/kg	0.00274 %	✓		
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD	
	024-001-00-0	215-607-8	1333-82-0								
6	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	14.051 mg/kg	0.00141 %	✓		
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	77 mg/kg	1.56	62.455 mg/kg	0.004 %	✓		
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.13 mg/kg	1.353	0.0915 mg/kg	0.00000915 %	✓		
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				25 mg/kg	2.976	38.691 mg/kg	0.00387 %	✓		
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.64 mg/kg	2.554	0.85 mg/kg	0.000085 %	✓		
	034-002-00-8										
11	zinc { zinc chromate }				110 mg/kg	2.774	158.681 mg/kg	0.0159 %	✓		
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD	
			TPH								
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD	
	603-181-00-X	216-653-1	1634-04-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH				7.7 pH		7.7 pH	7.7 pH		
			PH							
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				1.2 mg/kg		0.624 mg/kg	0.0000624 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0309 %		

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: WS7 0.30m

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

Sample details

Sample Name:	LoW Code:	
WS7 0.30m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30-0.40 m		
Moisture content:		
16%		
(wet weight correction)		

Hazard properties

None identified

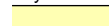



Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				19 mg/kg	1.32	21.072 mg/kg	0.00211 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.58 mg/kg	3.22	1.569 mg/kg	0.000157 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				0.46 mg/kg	1.142	0.441 mg/kg	0.0000441 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				25 mg/kg	1.462	30.693 mg/kg	0.00307 %	✓	
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	22.698 mg/kg	0.00227 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	51 mg/kg	1.56	66.822 mg/kg	0.00428 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.12 mg/kg	1.353	0.136 mg/kg	0.0000136 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				20 mg/kg	2.976	50.001 mg/kg	0.005 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.57 mg/kg	2.554	1.223 mg/kg	0.000122 %	✓	
	034-002-00-8									
11	zinc { zinc chromate }				110 mg/kg	2.774	256.331 mg/kg	0.0256 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH				8.2 pH		8.2 pH	8.2 pH		
			PH							
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0442 %		

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: WS7 0.60m

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

Sample details

Sample Name:	WS7 0.60m	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.60-0.70 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	17%			
(wet weight correction)				

Hazard properties

None identified

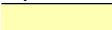



Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	19.726 mg/kg	0.00197 %		✓	
	033-003-00-0	215-481-4	1327-53-3								
2	boron { diboron trioxide; boric oxide }				0.56 mg/kg	3.22	1.497 mg/kg	0.00015 %		✓	
	005-008-00-8	215-125-8	1303-86-2								
3	cadmium { cadmium oxide }				0.42 mg/kg	1.142	0.398 mg/kg	0.0000398 %		✓	
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23 mg/kg	1.462	27.901 mg/kg	0.00279 %		✓	
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
6	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	20.559 mg/kg	0.00206 %		✓	
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	46 mg/kg	1.56	59.554 mg/kg	0.00382 %		✓	
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				20 mg/kg	2.976	49.406 mg/kg	0.00494 %		✓	
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.68 mg/kg	2.554	1.441 mg/kg	0.000144 %		✓	
	034-002-00-8										
11	zinc { zinc chromate }				110 mg/kg	2.774	253.28 mg/kg	0.0253 %		✓	
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group		TPH		<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
15	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
16	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
17	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
18	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
19	pH				8.4 pH		8.4 pH	8.4 pH		
			PH							
20	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
21	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8							
22	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
23	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
24	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-581-5	85-01-8							
25	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7							
26	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-912-4	206-44-0							
27	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		204-927-3	129-00-0							
28	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
29	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
30	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
31	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
32	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
33	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-893-2	193-39-5							
34	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
35	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		205-883-8	191-24-2							
36	sulfur { sulfur }				1.4 mg/kg		1.162 mg/kg	0.000116 %	✓	
	016-094-00-1	231-722-6	7704-34-9							
Total:								0.0427 %		

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 CLP determinands

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

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

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

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

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

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

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

CLP index number: 006-007-00-5

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

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

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

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

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

Data source date: 21 Aug 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2 H351

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

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

Data source date: 23 Jul 2015

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cadmium {cadmium oxide}

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

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

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

chromium in chromium(VI) compounds {chromium(VI) 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 (edit as required)

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {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. (edit as required)

zinc {zinc chromate}

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

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

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

sulfur {sulfur}

Elemental sulfur most likely to be worst case scenario hazardous

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.1, May 2018**

HazWasteOnline Classification Engine Version: 2020.241.4455.8692 (28 Aug 2020)

HazWasteOnline Database: 2020.241.4455.8692 (28 Aug 2020)

This classification utilises the following guidance and legislation:

- WM3 v1.1 - Waste Classification** - 1st Edition v1.1 - May 2018
- 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 Wastes 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
- POPs Regulation 2004** - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation** - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation** - Regulation 757/2010/EU of 24 August 2010

Appendix VII

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS01

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1		2.79	2.78
00:15	<0.1	<0.1	<0.1	18.0	3.3	1	<1			
00:30	<0.1	<0.1	<0.1	17.0	3.3	<1	1			
00:45	<0.1	<0.1	<0.1	16.9	3.3	<1	1			
01:00	<0.1	<0.1	<0.1	16.9	3.3	1	<1			
01:15	<0.1	<0.1	<0.1	16.9	3.3	1	1			
01:30	<0.1	<0.1	<0.1	16.9	3.3	<1	1			
01:45	<0.1	<0.1	<0.1	16.9	3.3	<1	<1			
02:00	<0.1	<0.1	<0.1	16.9	3.3	<1	<1			
02:15	<0.1	<0.1	<0.1	16.8	3.3	<1	<1			
02:30	<0.1	<0.1	<0.1	16.8	3.4	1	1			
02:45	<0.1	<0.1	<0.1	16.8	3.4	<1	<1			
03:00	<0.1	<0.1	<0.1	16.8	3.4	<1	<1			
03:15	<0.1	<0.1	<0.1	16.8	3.4	<1	<1			
03:30	<0.1	<0.1	<0.1	16.8	3.4	<1	<1			
03:45		<0.1	<0.1	16.8	3.4	<1	<1			
04:00		<0.1	<0.1	16.8	3.4	<1	<1			
04:15		<0.1	<0.1	16.8	3.4	<1	<1			
04:30		<0.1	<0.1	16.8	3.4	<1	<1			
04:45		<0.1	<0.1	16.8	3.4	<1	<1			
05:00		<0.1	<0.1	16.8	3.4	1	1			
Steady	<0.1	<0.1	<0.1	16.8	3.4	1.0	1.0	#####	2.79	2.78
Peak	0.0	0.0	0.0	20.9	3.4	1.0	1.0	0.0	2.79	2.78

Date	Notes:		
27.08.2020	Engineer	HB	Barometric Pressure, mbar
			Pressure Trend
	Equipment	GFM430	Air Temp (°C)

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS06

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbg)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	21.1	<0.1	<1	<1		2.90	DRY
00:15	<0.1	<0.1	<0.1	19.2	1.0	<1	1			
00:30	<0.1	<0.1	<0.1	18.9	1.1	1	1			
00:45	<0.1	<0.1	<0.1	18.8	1.1	<1	1			
01:00	<0.1	<0.1	<0.1	18.8	1.1	<1	<1			
01:15	<0.1	<0.1	<0.1	18.8	1.1	<1	<1			
01:30	<0.1	<0.1	<0.1	18.8	1.1	<1	<1			
01:45	<0.1	<0.1	<0.1	18.8	1.1	<1	<1			
02:00	<0.1	<0.1	<0.1	18.7	1.2	1	1			
02:15	<0.1	<0.1	<0.1	18.7	1.2	<1	<1			
02:30	<0.1	<0.1	<0.1	18.6	1.3	<1	<1			
02:45	<0.1	<0.1	<0.1	18.6	1.3	<1	<1			
03:00	<0.1	<0.1	<0.1	18.6	1.3	<1	<1			
03:15	<0.1	<0.1	<0.1	18.6	1.3	<1	<1			
03:30	<0.1	<0.1	<0.1	18.6	1.3	<1	<1			
03:45	<0.1	<0.1	<0.1	18.6	1.3	<1	<1			
04:00	<0.1	<0.1	<0.1	18.6	1.3	1	2			
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	18.6	1.3	1.0	2.0	#####	2.90	DRY
Peak	0.0	0.0	0.0	21.1	1.3	1.0	2.0	0.0	2.90	0.00

Date	Notes:			
27.08.2020	Engineer	HB	Barometric Pressure, mbar	0
			Pressure Trend	0
	Equipment	GFM430	Air Temp (°C)	0

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS07

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00		Borehole Flooded - Unable to monitor								
00:15										
00:30										
00:45										
01:00										
01:15										
01:30										
01:45										
02:00										
02:15										
02:30										
02:45										
03:00										
03:15										
03:30										
03:45										
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	#####	Borehole Flooded - Un	#####	#####	#####	#####	#####	#####	#####	#####
Peak	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00

Date	Notes:			0
27.08.2020	Engineer	HB	Barometric Pressure, mbar	0
	Equipment	GFM430	Pressure Trend	0
			Air Temp (°C)	0

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS01

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.7	<0.1	<1	<1		2.83	2.80
00:15	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
00:30	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
00:45	<0.1	<0.1	<0.1	20.9	<0.1	<1	1			
01:00	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
01:15	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
01:30	<0.1	<0.1	<0.1	20.8	<0.1	<1	<1			
01:45	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
02:00	<0.1	<0.1	<0.1	20.8	<0.1	<1	<1			
02:15	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
02:30	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
02:45	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
03:00	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
03:15	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
03:30	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1			
03:45										
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	20.9	<0.1	<1	<1	#####	2.83	2.80
Peak	0.0	0.0	0.0	20.9	0.0	0.0	1.0	0.0	2.83	2.80

Date	Notes:			
03.09.2020	Engineer	DRS	Barometric Pressure, mbar	1011
			Pressure Trend	Rising
	Equipment	GFM430	Air Temp (°C)	18

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS06

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbg)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.6	0.1	<1	<1		2.90	DRY
00:15	<0.1	<0.1	<0.1	21.0	0.1	<1	1			
00:30	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
00:45	<0.1	<0.1	<0.1	20.9	0.1	<1	3			
01:00	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
01:15	<0.1	<0.1	<0.1	20.9	0.1	<1	3			
01:30	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
01:45	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
02:00	<0.1	<0.1	<0.1	20.9	0.1	<1	<1			
02:15	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
02:30	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
02:45	<0.1	<0.1	<0.1	20.9	0.1	<1	1			
03:00	<0.1	<0.1	<0.1	20.9	0.1	<1	<1			
03:15										
03:30										
03:45										
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	20.9	0.1	<1	<1	#####	2.90	DRY
Peak	0.0	0.0	0.0	21.0	0.1	0.0	3.0	0.0	2.90	0.00

Date	Notes:			
03.09.2020	Engineer	DRS	Barometric Pressure, mbar	1011
			Pressure Trend	Rising
	Equipment	GFM430	Air Temp (°C)	18

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS07

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.8	<0.1	<1	<1		3.72	0.84
00:15	<0.1	<0.1	<0.1	20.8	<0.1	<1	<1			
00:30	<0.1	<0.1	<0.1	20.6	0.1	<1	<1			
00:45	<0.1	<0.1	<0.1	20.6	0.1	<1	<1			
01:00	<0.1	<0.1	<0.1	20.2	0.1	<1	<1			
01:15	<0.1	<0.1	<0.1	20.1	0.2	<1	<1			
01:30	<0.1	<0.1	<0.1	20.0	0.2	<1	1			
01:45	<0.1	<0.1	<0.1	19.9	0.2	<1	<1			
02:00	<0.1	<0.1	<0.1	19.9	0.2	<1	<1			
02:15	<0.1	<0.1	<0.1	19.8	0.2	<1	1			
02:30	<0.1	<0.1	<0.1	19.8	0.2	<1	<1			
02:45	<0.1	<0.1	<0.1	19.8	0.2	<1	<1			
03:00	<0.1	<0.1	<0.1	19.8	0.2	<1	<1			
03:15	<0.1	<0.1	<0.1	19.8	0.2	<1	<1			
03:30	<0.1	<0.1	<0.1	19.8	0.2	<1	<1			
03:45										
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	19.8	0.2	<1	<1	#####	3.72	0.84
Peak	0.0	0.0	0.0	20.8	0.2	0.0	1.0	0.0	3.72	0.84

Date	Notes:			
03.09.2020	Engineer	DRS	Barometric Pressure, mbar	1011
			Pressure Trend	Rising
	Equipment	GFM430	Air Temp (°C)	18

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS01

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.4	0.1	<1	<1		2.83	2.80
00:15	<0.1	<0.1	<0.1	18.9	1.6	1	1			
00:30	<0.1	<0.1	<0.1	18.8	1.6	<1	<1			
00:45	<0.1	<0.1	<0.1	18.7	1.6	<1	1			
01:00	<0.1	<0.1	<0.1	18.6	1.7	<1	<1			
01:15	<0.1	<0.1	<0.1	18.6	1.7	<1	<1			
01:30	<0.1	<0.1	<0.1	18.5	1.7	<1	<1			
01:45	<0.1	<0.1	<0.1	18.5	1.7	<1	<1			
02:00	<0.1	<0.1	<0.1	18.5	1.8	<1	1			
02:15	<0.1	<0.1	<0.1	18.4	1.8	<1	1			
02:30	<0.1	<0.1	<0.1	18.4	1.8	<1	1			
02:45	<0.1	<0.1	<0.1	18.4	1.8	<1	<1			
03:00	<0.1	<0.1	<0.1	18.3	1.9	<1	<1			
03:15		<0.1	<0.1	18.3	1.9	<1	<1			
03:30		<0.1	<0.1	18.3	1.9	<1	<1			
03:45		<0.1	<0.1	18.3	1.9	<1	<1			
04:00		<0.1	<0.1	18.2	2.0	<1	<1			
04:15		<0.1	<0.1	18.2	2.0	<1	<1			
04:30		<0.1	<0.1	18.2	2.0	<1	<1			
04:45		<0.1	<0.1	18.2	2.0	<1	<1			
05:00		<0.1	<0.1	18.2	2.0	<1	<1			
Steady	<0.1	<0.1	<0.1	18.2	2.0	<1	<1	#####	2.83	2.80
Peak	0.0	0.0	0.0	20.4	2.0	1.0	1.0	0.0	2.83	2.80

Date	Notes:		Barometric Pressure, mbar	1019
10.09.2020	Engineer	DRS	Pressure Trend	Falling
	Equipment	GFM430	Air Temp (°C)	16

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS06

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbg)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.5	<0.1	<1	<1		2.90	DRY
00:15	<0.1	<0.1	<0.1	18.8	2.2	<1	<1			
00:30	<0.1	<0.1	<0.1	18.5	2.2	<1	<1			
00:45	<0.1	<0.1	<0.1	18.4	2.2	<1	<1			
01:00	<0.1	<0.1	<0.1	18.4	2.2	<1	<1			
01:15	<0.1	<0.1	<0.1	18.4	2.3	<1	<1			
01:30	<0.1	<0.1	<0.1	18.4	2.3	<1	<1			
01:45	<0.1	<0.1	<0.1	18.3	2.3	<1	<1			
02:00	<0.1	<0.1	<0.1	18.3	2.3	<1	<1			
02:15	<0.1	<0.1	<0.1	18.2	2.3	<1	<1			
02:30	<0.1	<0.1	<0.1	18.2	2.4	<1	<1			
02:45	<0.1	<0.1	<0.1	18.2	2.4	<1	<1			
03:00	<0.1	<0.1	<0.1	18.2	2.4	<1	<1			
03:15		<0.1	<0.1	18.2	2.4	<1	<1			
03:30		<0.1	<0.1	18.2	2.4	<1	<1			
03:45		<0.1	<0.1	18.1	2.5	<1	<1			
04:00		<0.1	<0.1	18.1	2.5	<1	<1			
04:15		<0.1	<0.1	18.1	2.6	<1	<1			
04:30		<0.1	<0.1	18.1	2.6	<1	<1			
04:45		<0.1	<0.1	18.0	2.7	<1	<1			
05:00		<0.1	<0.1	18.0	2.7	<1	<1			
Steady	<0.1	<0.1	<0.1	18.0	2.7	<1	<1	#####	2.90	DRY
Peak	0.0	0.0	0.0	20.5	2.7	0.0	0.0	0.0	2.90	0.00

Date	Notes:			
10.09.2020	Engineer	DRS	Barometric Pressure, mbar	1019
			Pressure Trend	Falling
	Equipment	GFM430	Air Temp (°C)	16

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS07

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.2	<0.1	<1	<1		3.70	0.89
00:15	<0.1	<0.1	<0.1	20.8	0.1	<1	<1			
00:30	<0.1	<0.1	<0.1	20.8	0.2	<1	1			
00:45	<0.1	<0.1	<0.1	20.7	0.2	<1	<1			
01:00	<0.1	<0.1	<0.1	20.6	0.2	<1	1			
01:15	<0.1	<0.1	<0.1	20.5	0.2	<1	<1			
01:30	<0.1	<0.1	<0.1	20.4	0.2	<1	<1			
01:45	<0.1	<0.1	<0.1	20.4	0.2	<1	<1			
02:00	<0.1	<0.1	<0.1	20.3	0.2	<1	1			
02:15	<0.1	<0.1	<0.1	20.3	0.2	<1	1			
02:30	<0.1	<0.1	<0.1	20.3	0.3	<1	<1			
02:45	<0.1	<0.1	<0.1	20.2	0.3	<1	<1			
03:00	<0.1	<0.1	<0.1	20.2	0.3	<1	<1			
03:15		<0.1	<0.1	20.2	0.3	<1	<1			
03:30		<0.1	<0.1	20.2	0.3	<1	1			
03:45		<0.1	<0.1	20.2	0.3	<1	1			
04:00		<0.1	<0.1	20.2	0.3	<1	<1			
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	20.2	0.3	<1	<1	#####	3.70	0.89
Peak	0.0	0.0	0.0	20.8	0.3	0.0	1.0	0.0	3.70	0.89

Date	Notes:			
10.09.2020	Engineer	DRS	Barometric Pressure, mbar	1019
			Pressure Trend	Falling
	Equipment	GFM430	Air Temp (°C)	16

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS01

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	<0.1	<0.1	<0.1	20.6	<0.1	<1	<1		2.83	2.79
00:15	<0.1	<0.1	<0.1	20.9	<0.1	<1	1			
00:30	<0.1	<0.1	<0.1	20.8	<0.1	<1	<1			
00:45	<0.1	<0.1	<0.1	20.8	<0.1	<1	1			
01:00	<0.1	<0.1	<0.1	20.8	<0.1	<1	1			
01:15	<0.1	<0.1	<0.1	20.8	<0.1	<1	1			
01:30	<0.1	<0.1	<0.1	20.8	<0.1	<1	<1			
01:45	<0.1	<0.1	<0.1	20.8	<0.1	<1	1			
02:00	<0.1	<0.1	<0.1	20.7	<0.1	<1	<1			
02:15	<0.1	<0.1	<0.1	20.7	0.1	<1	<1			
02:30	<0.1	<0.1	<0.1	20.7	0.1	<1	1			
02:45	<0.1	<0.1	<0.1	20.7	0.1	<1	3			
03:00	<0.1	<0.1	<0.1	20.7	0.1	<1	<1			
03:15	<0.1	<0.1	<0.1	20.7	0.1	<1	<1			
03:30	<0.1	<0.1	<0.1	20.7	0.1	<1	1			
03:45										
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	20.7	0.1	<1	1.0	#####	2.83	2.79
Peak	0.0	0.0	0.0	20.9	0.1	0.0	3.0	0.0	2.83	2.79

Date	Notes:			
15.09.2020	Engineer	DRS	Barometric Pressure, mbar	
			Pressure Trend	
	Equipment	GFM430	Air Temp (°C)	
			1015	Rising
				20

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS06

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mbg)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)		
00:00	-3.2	<0.1	<0.1	20.7	<0.1	<1	<1		2.91	DRY
00:15	<0.1	<0.1	<0.1	18.5	2.3	<1	1			
00:30	<0.1	<0.1	<0.1	18.6	2.1	<1	<1			
00:45	<0.1	<0.1	<0.1	18.6	2.0	<1	1			
01:00	<0.1	<0.1	<0.1	18.6	2.0	<1	1			
01:15	<0.1	<0.1	<0.1	18.6	2.0	<1	<1			
01:30	<0.1	<0.1	<0.1	18.6	2.0	<1	1			
01:45	<0.1	<0.1	<0.1	18.6	2.0	<1	1			
02:00	<0.1	<0.1	<0.1	18.5	2.0	<1	1			
02:15	<0.1	<0.1	<0.1	18.5	2.1	<1	1			
02:30	<0.1	<0.1	<0.1	18.5	2.1	<1	<1			
02:45	<0.1	<0.1	<0.1	18.4	2.1	<1	1			
03:00	<0.1	<0.1	<0.1	18.4	2.1	<1	<1			
03:15	<0.1	<0.1	<0.1	18.4	2.1	<1	<1			
03:30	<0.1	<0.1	<0.1	18.4	2.1	<1	1			
03:45	<0.1	<0.1	<0.1	18.4	2.1	<1	3			
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	18.4	2.1	<1	3.0	#####	2.91	DRY
Peak	-3.2	0.0	0.0	20.7	2.3	0.0	3.0	0.0	2.91	0.00

Date	Notes:			
15.09.2020	Engineer	DRS	Barometric Pressure, mbar	1015
			Pressure Trend	Rising
	Equipment	GFM430	Air Temp (°C)	20

Gas Monitoring Certificate



Project Number C3341
 Project Name Giddons Way, Bridgend
 Client Gleeds Management Services Ltd

WS07

Time	Gas Flow Rate. (l/hr)	Detection Limit							Depth of Installation. (mbgl)	Depth of Groundwater (mb)
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
		Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (pp)		
00:00	-5.7	<0.1	<0.1	20.4	0.1	<1	<1		3.71	0.84
00:15	-3.3	<0.1	<0.1	20.6	0.2	1	<1			
00:30	-3.0	<0.1	<0.1	20.5	0.3	<1	<1			
00:45	-3.0	<0.1	<0.1	20.5	0.3	<1	<1			
01:00	-2.8	<0.1	<0.1	20.5	0.3	<1	<1			
01:15	-2.8	<0.1	<0.1	20.5	0.3	1	<1			
01:30	-2.8	<0.1	<0.1	20.5	0.3	2	1			
01:45	-2.1	<0.1	<0.1	20.5	0.3	1	<1			
02:00	-2.8	<0.1	<0.1	20.5	0.3	2	1			
02:15	-0.6	<0.1	<0.1	20.5	0.3	<1	1			
02:30	<0.1	<0.1	<0.1	20.5	0.3	<1	<1			
02:45	<0.1	<0.1	<0.1	20.5	0.3	1	1			
03:00	<0.1	<0.1	<0.1	20.5	0.3	1	<1			
03:15	<0.1									
03:30	<0.1									
03:45	<0.1									
04:00	<0.1									
04:15										
04:30										
04:45										
05:00										
Steady	<0.1	<0.1	<0.1	20.5	0.3	1.0	<1	#####	3.71	0.84
Peak	-0.6	0.0	0.0	20.6	0.3	2.0	1.0	0.0	3.71	0.84

Date	Notes:			1015
15.09.2020	Engineer	DRS	Barometric Pressure, mbar	Rising
			Pressure Trend	
	Equipment	GFM430	Air Temp (°C)	20

Appendix VIII

CBR Test Results (MEXE Probe)



Job No.	C3341
Job Name	Gibbons Way, North Cornelli
Date	7th August 2020

MP1				
Position	Depth (mm)			
	150	300	450	600
P1	6	14		
P2	7	14		
P3	13	14		
P4	14			
P5	10	14		
Minimum CBR Value	6.0	14.0		

MP2				
Position	Depth (mm)			
	150	300	450	600
P1	8	14		
P2	8	14		
P3	14			
P4	14			
P5	14			
Minimum CBR Value	8.0	14.0		

MP3				
Position	Depth (mm)			
	150	300	450	600
P1	14			
P2	10	14		
P3	8	14		
P4	14			
P5	14			
Minimum CBR Value	8.0	14.0		

MP4				
Position	Depth (mm)			
	150	300	450	600
P1	7	14		
P2	12	14		
P3	6	14		
P4	14			
P5	12	14		
Minimum CBR Value	6.0	14.0		

If Empty - Means unable to penetrate further due to strata strength

CBR Test Results (MEXE Probe)

Job No.	C3341
Job Name	Gibbons Way, North Cornelli
Date	7th August 2020



MP5				
Position	Depth (mm)			
	150	300	450	600
P1	14			
P2	7	14		
P3	9	14		
P4	8	14		
P5	12	14		
Minimum CBR Value	7.0	14.0		

If Empty - Means unable to penetrate further due to strata strength

Appendix IX

INSITU SOAKAWAY TEST RESULTS

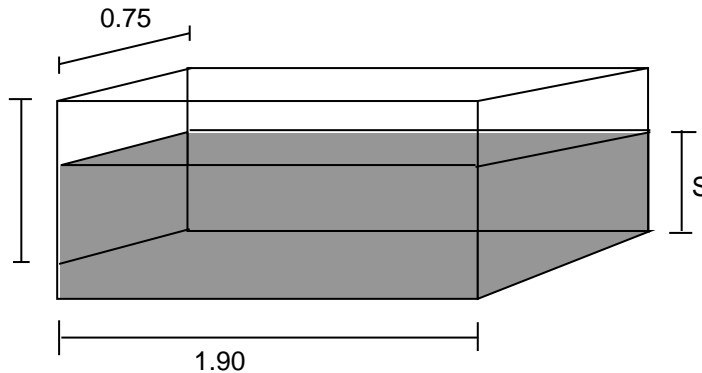
Trialpit No.: SK01

Soil Profile:

Depth (m)	Description
From: 0.00 To: 0.25	MADE GROUND - Brown sandy gravelly clayey topsoil.
0.25 To: 0.70	MADE GROUND - Brown and occasionally grey mottled sandy slightly gravelly clay.
0.70 To: 2.30	Firm brown slightly gravelly sandy CLAY.
2.30 To: 3.50	Medium dense greyish brown slightly clayey sandy GRAVEL.

Sketch plan of test zone

Not to scale
All dimensions in metres.



porosity (N) = 0.42
(measured in laboratory)
S= Storage depth (m) 3.50
Water level from 2.41m to 3.50m
No Groundwater was encountered

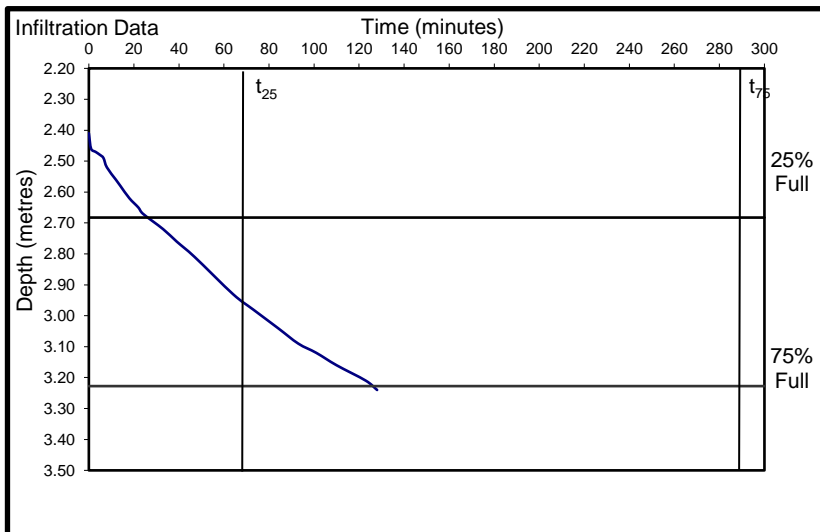
Gives the Figures

S= 1.09 m
a_{p50}= 4.31 m²
V_{p75-25}= 0.78 m³

Soakaway Test Run 1

Test Date: 24/08/2020

Time (minutes)	Depth (m)
0	2.410
1	2.460
3	2.47
5	2.48
7	2.49
8	2.52
12	2.56
14	2.580
18	2.62
22	2.65
24	2.67
33	2.72
39	2.76
47	2.810
64	2.93
73	2.98
84	3.04
93	3.09
101	3.12
110	3.16
123	3.21
128	3.24



From the above graph,

t_{p25}= 70 (min) t_{p75}= 290 (min)

Soil Infiltration Rate: $f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.17E-05$ $f_{run1} = \underline{1.17 \times 10^{-5}} \text{ m/s}$

Test and analysis carried out in general accordance with BRE Digest 365 : 2003

Job No.: C3341
Site: Gibbons Way
Client: Gleeds Management Services Ltd



INSITU SOAKAWAY TEST RESULTS

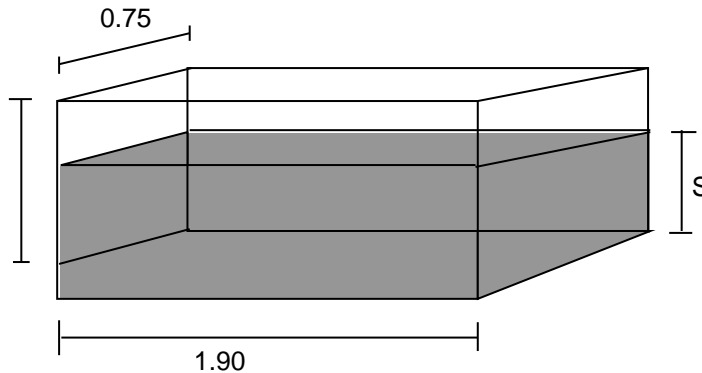
Trialpit No.: SK01

Soil Profile:

Depth (m)	Description
From: 0.00 To: 0.25	MADE GROUND - Brown sandy gravelly clayey topsoil.
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0.70 To: 2.30	Firm brown slightly gravelly sandy CLAY.
2.30 To: 3.50	Medium dense greyish brown slightly clayey sandy GRAVEL.

Sketch plan of test zone

Not to scale
All dimensions in metres.



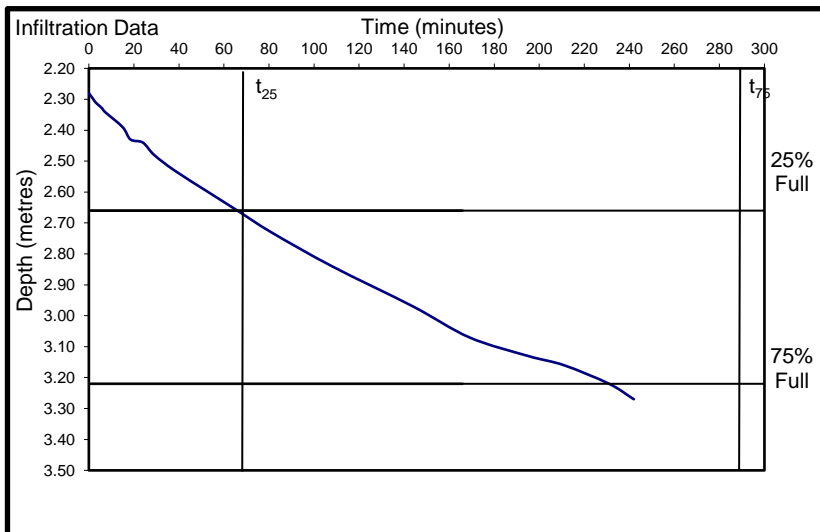
porosity (N) = 0.42
(measured in laboratory)
S= Storage depth (m) = 3.50
Water level from 2.41m to 3.50m
No Groundwater was encountered

Gives the Figures

S= 1.12 m
 $a_{p50} = 4.39 \text{ m}^2$
 $V_{p75-25} = 0.80 \text{ m}^3$

Soakaway Test Run 2

Test Date: 25/08/2020



Time (minutes)	Depth (m)
0	2.280
1	2.290
2	2.30
3	2.31
5	2.32
6	2.33
7	2.34
15	2.390
19	2.43
24	2.44
29	2.48
38	2.53
53	2.60
66	2.660
81	2.73
108	2.84
144	2.97
169	3.07
195	3.13
211	3.16
231	3.22
242	3.27

From the above graph,

$t_{p25} = 70$ (min) $t_{p75} = 290$ (min)

Soil Infiltration Rate: $f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 7.71E-06$ $f_{run1} = \underline{7.71 \times 10^{-6}} \text{ m/s}$

Test and analysis carried out in general accordance with BRE Digest 365 : 2003

Job No.: C3341
Site: Gibbons Way
Client: Gleeds Management Services Ltd





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