



PHASE II GEO-ENVIRONMENTAL SITE ASSESSMENT

Land at Ashton Old Road,
Manchester,
M11 2NJ

Prepared for:

Mr Faisal Mahmood

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QUALITY ASSURANCE

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EXECUTIVE SUMMARY

Site Address	Land off Ashton Old Road, Manchester, M11 2NJ.
Grid Reference	E387962, N397404.
Site Area	c.0.10 Ha.
Current Site Use/Description	The subject site forms a roughly rectangular shaped parcel of vacant unoccupied land, located adjacent to Ashton Old Road, Openshaw in Eastern Manchester. The site is largely level though noted to include an elevated bund feature in the northern site area.
Proposed Development	ERGO understand that Mr Mahmood intends to construct 3no. commercial units within the northern site area with associated hardstanding parking and other infrastructure in the southern site area
Utility Locations	A full GPR survey has not been undertaken however service plans obtained for the site investigation indicate the presence of an electrical cable running from the centre of the site to the eastern boundary.

ERGO Intrusive Ground Investigation

Site Investigation Works	ERGO has completed an intrusive Ground Investigation comprising 6no. window sample boreholes, insitu geotechnical testing and laboratory testing.
Ground Conditions	Made Ground Made Ground was encountered within all advanced exploratory probeholes from thicknesses of between 0.50m and 2.05mbgl (WS101). Made Ground is shallower in the southern site area, outside of the bund area. Made Ground generally comprises a dark brown clayey topsoil overlying a brown clayey sandy gravel in turn overlying a firm brown gravelly sandy clay. Made Ground contained brick, glass, plastic and concrete. Drift Natural drift deposits were encountered within all exploratory probeholes from depths of between 0.50m to 2.10m bgl and proven down to maximum depths of at least 5.45mbgl. Drift deposits generally comprised a firm to very stiff sandy gravelly CLAY. Soft CLAY was encountered within WS101 and WS103 in the eastern site area to depths of between 2.05-4.85mbgl. Solid Solid geology was not encountered within any of the advanced probeholes. Groundwater Groundwater was not encountered within any of the advanced exploratory probeholes during the intrusive works.

Contaminated Land Assessment

Human Health	A Tier I Human Health Risk Assessment identified the presence of elevated Benzo(a)Pyrene, Benzo(b)Fluoranthene, Dibenzo(a,h)Anthracene within WS102 at 0.50mbgl and asbestos in the form of chrysotile asbestos cement within WS103 at 0.50mbgl. Potential risks from the identified PAH contaminants are somewhat negated given development proposals indicate the presence of hardstanding impermeable surface across the site which will remove the potential source-receptor pathway. Materials impacted by asbestos will need to be managed appropriately to ensure that materials pose no significant risk to future site users and adjacent site users, as per the developed asbestos conceptual site model. It is considered that materials to retained and reused onsite as part of the
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EXECUTIVE SUMMARY

Human Health (continued)	enabling works should be subjected to a confirmatory asbestos hand pick during the enabling works programme.
Controlled Waters	Low risk to controlled waters.
Ground Gas	A ground gas assessment was outside the scope of this report.

Geotechnical Assessment

Underground Obstructions	Although no significant obstructions were encountered within the intrusive ground investigation their presence should not be ruled out. If present, buried obstruction should be excavated in their entirety.
Foundation Options	Given the presence of significant variable thicknesses of Made Ground which is underlain locally by significant thicknesses of soft clays down to depths of 4.85m, the use of traditional shallow foundations is not considered feasible. Therefore, it is considered that the most cost-effective option would be the use of a piled foundation solution. The presence of buried obstructions should be taken in to consideration by the contractor. An appropriate specialist contractor should be contacted to confirm the type and design of the piles required.
Building Floor Slabs	ERGO have not been provided with loadings to date and subject to receipt of loadings, it is considered that a ground bearing floor slab should be viable for the commercial structures; however, it will need to be constructed utilising a sub-base with the thickness designed by a structural engineer to ensure that settlement tolerances are taken into consideration.
Heave Precautions	The site has been proven to be underlain by clay soils which are deemed to be medium Volume Change Potential. Appropriate heave precautions are required to be incorporated in to the designs.
Sulphate Assessment	Concrete classification will be DS1 AC1.
CBR Design %	Granular soils can be re-engineered to ensure 5% within the sub-grade during favourable climatic conditions. Natural clay soils will provide a CBR in the order of 3-5% during drier climatic periods, however If water is allowed to shed onto the formation, the CBR will reduce to <2% which will require specialist engineering of the sub-grade.
Waste Characterisation	A preliminary assessment has indicated materials would predominantly be classified as non-hazardous waste. However, locally visible asbestos has been noted within WS103 which would result in the material being classified as hazardous waste. Where non-visible asbestos is present within soil matrices at quantified concentrations <0.1% these soils can be considered to be non-hazardous.
Recommendations	Based on the findings of the intrusive site investigation, the following additional works are recommended to be completed in due course:  Remediation & Enabling Works Strategy.

Table of Contents

1. INTRODUCTION	5
1.1 Background	5
1.2 Proposed Development	5
1.3 Objectives	6
1.4 Previous Reports	6
1.5 Limitations	6
1.6 Confidentiality	6
2. PREVIOUS REPORTS	7
2.1 ERGO Phase I Geo-Environmental Site Assessment Summary	7
2.1.1 Current site use	7
2.1.2 Site History	7
2.1.3 Geology	7
2.1.4 Environmental Risk Assessment	7
2.1.5 Preliminary Geotechnical Assessment	7
3. GROUND INVESTIGATION	9
3.1 General	9
3.2 In-Situ Standard Penetration Testing (SPT)	9
3.3 Laboratory Analysis	9
4. GROUND AND GROUNDWATER CONDITIONS	10
4.1 Ground and Groundwater Conditions	10
4.1.1 Summary of Ground Conditions	10
4.1.2 Made Ground	10
4.1.3 Drift Deposits	10
4.1.4 Solid Geology	10
4.1.5 Soil Consistency	10
4.1.6 Soil Plasticity	11
4.1.7 pH and Sulphate	13
4.1.8 California Bearing Ratio	13
4.2 Groundwater Conditions	13
4.3 Ground Gas	13
5. TIER I QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT	14
5.1 Human Health Risk Assessment	14
5.2 Controlled Waters Risk Assessment	16
5.3 Ground Gas	17
5.4 Preliminary Waste Classification Assessment	17
5.5 Revised Conceptual Site Model	18
6. GEOTECHNICAL ASSESSMENT	20
6.1 Proposed Development	20
6.2 Summary of Ground Conditions	20
6.3 Site Preparation	20
6.4 Foundation Conditions & Assessment of Potential Bearing Capacities	20
6.5 Ground Floor Slabs	21
6.6 Heave Precautions	21
6.7 Pavement Construction	22
6.8 Drainage	22
6.9 Concrete Durability	22
6.10 Excavations	22
6.11 Further Works	23
6.12 Construction Activity and Inspection	23

7. CONCLUSIONS AND RECOMMENDATIONS 24

APPENDICES

Appendix I Limitations

Appendix II Glossary

Appendix III Drawings

Drawing No 22-1146-001 – Site Location Plan

Drawing No 22-1146-002 – Proposed Development Plan

Drawing No 22-1146-003 – Exploratory Hole Location Plan

Appendix IV ERGO Exploratory Hole Logs

Appendix V Chemical Testing Results

Appendix VI Origin of Tier I Generic Assessment Criteria

Appendix VII Geotechnical Testing Results

1. INTRODUCTION

1.1 Background

ERGO has been commissioned by Mr Mahmood to undertake a detailed Phase II Geo-Environmental Site Investigation for a parcel of land off Ashton Old Road, Manchester.

This report is required to determine potential contaminated land liabilities, remediation requirements and geotechnical engineering works that will be required as part of the proposed development of a the proposed low rise residential development.

The scope of work the following elements:

- *Window sample probeholes;*
- *In-situ geotechnical testing;*
- *Chemical & geotechnical laboratory analysis;*
- *Contamination risk assessment & conceptual site model;*
- *Geotechnical assessment & interpretation; and,*
- *Factual and interpretive reporting.*

1.2 Proposed Development

ERGO understand that Mr Mahmood intends to construct 3no. commercial units with peripheral landscaping within the northern site area with associated hardstanding and access in the central and southern site area.

Drawing 22-1164-002 (Appendix III) identifies the proposed development layout. A snapshot of the proposed development layout is indicated in Figure 1.1.

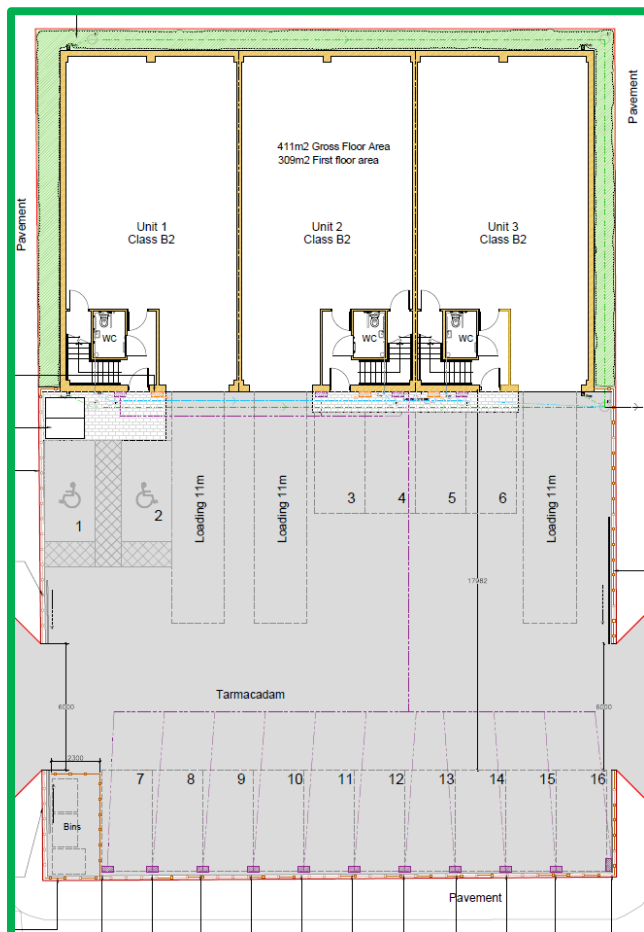


Figure 1.1 Snapshot of Proposed Development

1.3 Objectives

The objectives of the Geo-Environmental Investigation are to:

-  Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors;
-  Assess the site investigation information and where possible, provide preliminary recommendations in relation to foundations, pavement construction and floor slabs; and,
-  Provide recommendations regarding future works required and undertake a preliminary pre-construction cost appraisal.

1.4 Previous Reports

The following reports have previously been completed for the proposed development:

-  ERGO Environmental Ltd: Phase I Geo-Environmental Site Assessment (ref: 22-1146-PI, dated April 2022)

Pertinent points of the reports are summarised in Section 2.0, reference should be made to the original report for full details.

1.5 Limitations

The limitations of this report are presented in Appendix I.

For the avoidance of doubt, a ground gas risk assessment was beyond the scope of works.

1.6 Confidentiality

ERGO has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from ERGO; a charge may be levied against such approval.

2. PREVIOUS REPORTS

The pertinent points of the previous Phase 1 desk study completed by ERGO are summarised below:

2.1 ERGO Phase I Geo-Environmental Site Assessment Summary

2.1.1 Current site use

The subject site forms a roughly rectangular shaped parcel of vacant unoccupied land, located adjacent to Ashton Old Road, Openshaw in Eastern Manchester. The site is largely level though noted to include an elevated bund feature in the northern site area.

2.1.2 Site History

Historical mapping indicates that the site comprised agricultural land prior the development of terraced housing between c.1892-1981. The site was subsequently cleared and remains undeveloped to date.

The wider area has been subject utilised for various industrial use with engineering works and a foundry with associated tanks and travelling cranes in close proximity to the site boundary.

2.1.3 Geology

The site is noted to be underlain by Glacial Till – Sand, Gravel & Clay to depths of c.18mbgl. overlying the Chester Pebble Bed Formation – Sandstone.

The BGS mapping records the presence of significant made ground to the east of the site boundary.

2.1.4 Environmental Risk Assessment

Human Health

Given that the site has been developed previously and the surrounding historic and current industrial land use, Made Ground is likely present on the site and considered a potential source of heavy metal, TPH, VOC and PAH compound contamination within the subsurface. Whilst unidentified to date, ACM may also be present within onsite Made Ground deposits associated with previous historic site development.

Based on the available information and given the proposed development comprises predominately hardstanding impermeable surfaces, potential risks to receptors the potential risks are considered to be low.

Controlled Waters

The presence of significant potentially mobile contaminants are not anticipated; however, onsite Made Ground and adjacent historic industrial land uses may represent possible sources of mobile contamination.

Based on information available to date, the risk are considered low at this stage.

Ground Gas

Onsite and adjacent Made Ground including the recorded area of undivided Made Ground represent potentially significant sources of gas generation.

Based on the information currently available there is considered to be a moderate risk and should be confirmed by subsequent intrusive investigation works. However, it may be possible to agree to install ground gas protection measures with the Regulators in lieu of completing a ground gas risk assessment at the site.

2.1.5 Preliminary Geotechnical Assessment

Based on the desk study information, the following geotechnical assessment has been made:

- Given that the site has been developed previously, depending upon the extent of demolition/below ground turnover, it is possible that there may be Made Ground fill deposits and foundation obstructions encountered. The existing building will require

demolition with all relic foundations grubbed out, prior to the construction of the proposed development.

-  Investigation will be required in order to assess the underlying Made Ground and natural deposits and undertake in-situ geotechnical testing to determine the likely foundation solution;
-  The site is located within an area at Moderate risk from UXO, appropriate consideration and assessment of the risks is recommended to be undertaken as part of any proposed intrusive investigation or groundworks package.

3. GROUND INVESTIGATION

3.1 General

A Ground Investigation has been designed based on the specification from the structural engineer, findings of the completed Phase I investigation and based on the development proposals with exploratory holes advanced to assess ground conditions within the footprint of the proposed structures and hardstanding area. The investigation has also been used to collect geotechnical information to assist in the design and construction of the proposed development.

Exploratory fieldwork was undertaken on the 10th March 2022. The works are summarised in Table 3.1 below.

Table 3.1 **Summary of Fieldwork**

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAX DEPTH (mbgl)
General Ground Conditions including the presence / nature of obstructions beneath the proposed units and bunded material to the north	WS101	Window Sample Probehole	4.40
	WS103		5.45
General Ground Conditions including the presence / nature of obstructions beneath the proposed units	WS102		3.30
General Ground Conditions including the presence / nature of obstructions beneath the proposed hardstanding	WS104		2.40
	WS105		2.30
	WS106		2.30

Window sample probeholes were advanced to undertaken in-situ detailed geotechnical testing and obtain environmental samples.

The sampling locations are illustrated in Drawing 22-1146-003 (Appendix III). The ground conditions encountered are indicated on the logs which are provided in Appendix VI.

3.2 In-Situ Standard Penetration Testing (SPT)

In-situ geotechnical testing was conducted using the Standard Penetration Test (SPT) and where the ground is granular, a 60° cone (SPT(C)) was used instead of the sampling tube. The results are shown in the probehole logs in Appendix VI and presented in Table 4.3 and discussed in Section 6.0.

3.3 Laboratory Analysis

Selected soil samples were submitted for a range of chemical analysis comprising, metals, pH, total sulphate, water soluble sulphate (2:1 extract), total and speciated poly-aromatic hydrocarbons (PAHs), asbestos and total and speciated petroleum hydrocarbon (TPH).

Chemtech Environmental and Chemtest undertook the analytical work and the testing results are included in Appendix V and discussed in Section 5.0.

Selected samples were submitted to an accredited geotechnical testing laboratory where the following geotechnical tests were undertaken:

Atterberg Limits Determinations

Laboratory analysis sheets are included in Appendix VII and are summarised in Section 6.0.

4. GROUND AND GROUNDWATER CONDITIONS

4.1 Ground and Groundwater Conditions

4.1.1 Summary of Ground Conditions

The Ground Investigation generally confirms the published geology and identifies the strata set out in Table 4.1 below.

Table 4.1 Summary of Strata

STRATA	GENERAL DESCRIPTION	TYPICAL DEPTH (mbgl):				LOCATION
		TOP:		BASE:		
		MIN:	MAX:	MIN:	MAX:	
MADE GROUND	MG: Dark brown clayey topsoil.	0.00	-	0.05	0.25	WS101-WS106
MADE GROUND	MG: Brown gravelly clayey sandy gravel.	0.15	0.25	0.65	1.70	WS101-WS103
MADE GROUND	MG: Firm brown gravelly sandy clay.	0.05	1.40	0.50	2.05	WS101, WS104-106
MADE GROUND	MG: Orangish brown clayey gravelly sand.	1.60	-	2.10	-	WS103
CLAY	Soft grey sandy silty CLAY	2.05	2.10	3.20	4.85	WS101, WS103
CLAY	Firm to very stiff brown mottled grey sandy gravelly CLAY	0.50	4.85	1.60	5.45	WS101-WS106

4.1.2 Made Ground

Made Ground was encountered within all advanced exploratory probeholes to maximum recorded depths of 2.10mbgl. Made Ground was noted to be shallower in the southern site area outside of the bunded site area.

Made Ground was noted to comprise a dark brown clayey topsoil to maximum depths of 0.25mbgl overlying a brown clayey sandy gravel to depths of 0.65-1.70mbgl. with rare slag, clinker, brick and concrete noted.

A firm brown gravelly sandy clay was noted within WS101, WS104-106 between 0.50-2.05mbgl. with frequent brick and concrete noted.

A localised orangish brown clayey gravelly sand was noted within WS103 to the north, between 1.60-2.10mbgl.

4.1.3 Drift Deposits

Drift deposits were encountered within all exploratory probeholes to maximum proven depths of 5.45mbgl. and noted to generally comprise a firm to very stiff sandy gravelly CLAY.

A soft grey sandy silty CLAY was encountered within WS101 and WS103 in the eastern site area between depths 2.05-4.85mbgl.

4.1.4 Solid Geology

Solid bedrock geology was not encountered within any of the advanced exploratory probehole locations.

4.1.5 Soil Consistency

Undrained shear strength values were measured using field hand shear vane tests. Results of the tests are presented in Table 4.2 (overleaf), which indicate the clay soils to vary between soft and very stiff. Strength test data is generally consistent with the field descriptions of the soils given above.

Table 4.2 Summary of Hand Shear Vane Tests

LOCATION	SHEAR STRENGTH (KPA)
0.00-1.00	42
1.00-2.00	80-132
2.00-3.00	24-120
3.00-4.00	136-150
4.00-5.00	35-98

Results of the Standard Penetration Tests, including undrained shear strengths derived from SPTs are included on Table 4.3 (overleaf).

4.1.6 Soil Plasticity

The Liquid and Plastic Limits of samples of natural in-situ clay are determined using the cone penetrometer method and the rolling thread test. These tests enable determination of an average Plasticity Index (PI) for each “type” of clay, although judgement is applied where variable results are reported.

PI can be related to shrinkability (low, medium or high) and then to minimum founding depth. ERGO typically only consider a soil to be shrinkable if the proportion finer than 63µm is >35%.

PI results are compared against guidance given in the NHBC Standards, Chapter 4.2 (revised January 2014), which advocates the use of modified Plasticity Index (I_p), defined as:

$$I'_p = I_p * (\% < 425\mu\text{m} / 100)$$

ie if PI is 30%, but the soil contains 80% < 425µm, then: I_p = 30 * 80/100 = 24%.

It should be noted that in accordance with the requirements of BS 1377, the % passing the 425µm sieve is routinely reported by testing labs.

ERGO apply engineering judgment where PI results are spread over a range of classifications. Consideration is given to the average values for each particular soil type (ie differentiate between residual soil and alluvium), the number of results in each class and the actual values.

The Atterberg Limits determinations, summarised in Table 4.4 below, show the clay to be of predominantly moderate to high plasticity clay.

Table 4.4 Summary of Plasticity Index Test Results

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PERCENTAGE PASSING 425µm SIEVE (%)	MODIFIED PLASTICITY INDEX
WS101	2.50	50	28	62	34	100	34
WS102	1.00	26	24	62	38	100	38
WS103	2.50	32	30	47	17	100	17
WS104	1.80	18	20	40	20	91	18.20

The results of the Atterberg Limits testing confirmed that the soils would be deemed to be low to medium Volume Change Potential (medium should be used for design purposes) in accordance with the classification system utilised by the LABC industry guidance.

Table 4.3 Standard/Cone Penetration Test Results

BOREHOLES	DEPTH (mbgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE (N ₁) ₆₀	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m ²)
WS101	1.20	MG: clayey sandy gravel	8	7.31	Loose	N/A	N/A	N/A
WS101	2.00	Sandy silty CLAY	7	6.87	N/A	Low strength	Firm	34.34
WS101	3.00	Sandy silty CLAY	19	17.36	N/A	High strength	Very Stiff	86.79
WS101	4.00	Sandy gravelly CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21
WS102	1.20	Sandy gravelly CLAY	10	9.81	N/A	Medium strength	Stiff	49.06
WS102	2.00	Sandy gravelly CLAY	38	34.71	N/A	Very high strength	Very Stiff	173.57
WS102	3.00	Sandy gravelly CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41
WS103	1.20	Clayey sandy gravel	7	6.09	Loose	N/A	N/A	N/A
WS103	2.00	Clayey gravelly sand	9	8.83	Loose	N/A	N/A	N/A
WS103	3.00	Sandy silty CLAY	7	6.09	N/A	Low strength	Firm	30.44
WS103	4.00	Sandy silty CLAY	12	10.14	N/A	Medium strength	Stiff	50.69
WS103	5.00	Sandy gravelly CLAY	50	39.82	N/A	Very high strength	Very Stiff	199.11
WS104	1.20	Sandy gravelly CLAY	12	11.77	N/A	Medium strength	Stiff	58.87
WS104	2.00	Sandy gravelly CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38
WS105	1.20	Sandy gravelly CLAY	15	14.72	N/A	Medium strength	Stiff	73.59
WS105	2.00	Sandy gravelly CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38
WS106	1.20	Sandy gravelly CLAY	8	7.85	N/A	Low strength	Firm	39.25
WS106	2.00	Sandy gravelly CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38

4.1.7 pH and Sulphate

Chemical analyses for pH and soluble sulphate content contained in Appendix VII (summarised below in Table 4.5), shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with BRE Special Digest 1 (2005).

Table 4.5 *Summary of pH and Sulphate Data*

LOCATION	DEPTH (m)	SO ₄ IN 2:1 WATER / SOIL (mg/l)	pH VALUE	CLASSIFICATION
WS101	0.20	24	7.5	DS-1 AC-1s
WS101	1.50	39	8.3	DS-1 AC-1s
WS101	2.50	33	8.1	DS-1 AC-1s
WS102	0.50	38	8.1	DS-1 AC-1s
WS102	1.00	10	8.3	DS-1 AC-1s
WS103	0.50	36	8.4	DS-1 AC-1s
WS103	2.50	71	8.2	DS-1 AC-1s
WS104	0.10	22	6.7	DS-1 AC-1s
WS104	1.80	12	8.4	DS-1 AC-1s
WS105	0.10	18	8.6	DS-1 AC-1s

4.1.8 California Bearing Ratio

The California Bearing Ratio (CBR) for the soils were measured using an in-situ mexi-probe at depths between 500mm and 1000mmbgl to intercept with likely formation levels.

Results were found to vary between 3% and >15%. It is considered likely that high readings represent buried obstructions/gravels.

It should be noted that the CBR's reported herein were obtained from soils in a highly undisturbed state, however if the topsoil and surface cover is removed during periods of wetter climatic condition, the formation will soften reducing the CBR.

4.2 Groundwater Conditions

Groundwater was not encountered within any of the advanced exploratory probeholes.

4.3 Ground Gas

A ground gas risk assessment was beyond the scope of the investigation.

5. TIER I QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

ERGO has undertaken a Tier 1 qualitative risk assessment to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

5.1 Human Health Risk Assessment

At a Tier 1 stage the long term (chronic) human health toxicity of the soil has been assessed by comparing the on-site concentrations of organic and inorganic compounds with reference values published in LQM / CIEH S4UL (S4UL3747). The results of this comparison have been summarised within Table 5.1.

Table 5.1 Summary of Toxicity Assessment for a Commercial End Use

DETERMINANT	UNIT	GAC	N	MC	LOC. OF EX	PATHWAY	ASSESSMENT
Arsenic	mg/kg	640	7	23	-	1	No Further Action
Cadmium	mg/kg	190	7	1.60	-	1	No Further Action
Chromium (VI)	mg/kg	33	7	<1	-	1	No Further Action
Lead	mg/kg	1100	7	393	-	1	No Further Action
Mercury	mg/kg	1100	7	4.6	-	2	No Further Action
Nickel	mg/kg	980	7	52	-	1	No Further Action
Selenium	mg/kg	12000	7	1.40	-	1	No Further Action
Copper	mg/kg	68000	7	133	-	1	No Further Action
Zinc	mg/kg	730000	7	300	-	1	No Further Action
Asbestos	Fibres	NAD	7	Chrysotile	WS103 0.50	4	Further Action
Naphthalene	mg/kg	190	5	1.48	-	2	No Further Action
Acenaphthylene	mg/kg	83000	5	0.25	-	3	No Further Action
Acenaphthene	mg/kg	84000	5	25.79	-	1	No Further Action
Fluorene	mg/kg	63000	5	13.45	-	1	No Further Action
Phenanthrene	mg/kg	22000	5	154.91	-	3	No Further Action
Anthracene	mg/kg	520000	5	37.45	-	3	No Further Action
Fluoranthene	mg/kg	23000	5	289.29	-	3	No Further Action
Pyrene	mg/kg	54000	5	248.69	-	3	No Further Action
Benzo(a)Anthracene	mg/kg	170	5	108.67	-	3	No Further Action
Chrysene	mg/kg	350	5	111.70	-	3	No Further Action
Benzo(b)Fluoranthene	mg/kg	44	5	121.94	WS102 0.50	3	Further Action
Benzo(k)Fluoranthene	mg/kg	1200	5	45.67	-	3	No Further Action
Benzo(a)Pyrene	mg/kg	35	5	107.01	WS102 0.50	3	Further Action
Indeno(123-cd)Pyrene	mg/kg	500	5	74.11	-	3	No Further Action
Dibenzo(a,h)Anthracene	mg/kg	3.5	5	17.22	WS102 0.50	3	Further Action
Benzo(ghi)Perylene	mg/kg	3900	5	70.99	-	3	No Further Action
TPH C5-C6 (aliphatic)	mg/kg	3200	4	<1	-	2	No Further Action
TPH C6-C8 (aliphatic)	mg/kg	7800	4	<1	-	2	No Further Action
TPH C8-C10 (aliphatic)	mg/kg	2000	4	<1	-	2	No Further Action
TPH C10-C12 (aromatic)	mg/kg	16000	4	4	-	2	No Further Action
TPH C12-C16 (aromatic)	mg/kg	36000	4	11	-	2	No Further Action
TPH C16-C21 (aromatic)	mg/kg	28000	4	65	-	1	No Further Action
TPH C21-C35 (aromatic)	mg/kg	28000	4	289	-	1	No Further Action

Notes

Main Exposure Pathways: 1 = Soil Ingestion, 2 = Vapour Inhalation (indoor), 3 = Dermal Contact & Ingestion, 4 = Dust Inhalation.
Abbreviations: GAC = General Assessment Criteria, n = number of samples, MC = Maximum Concentration; Loc of Ex = Location of Exceedance; NFD = No Fibres Detected

* The Tier 1 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons Criteria Working Group (CWG) for both aliphatic and aromatic compounds. ERGO has utilised the Tier 1 values for aliphatic compounds for the volatile and semi volatile fractions (C₅-C₁₂) and the Tier 1 values for aromatic compound for the non-volatile fractions (C₁₂-C₃₅). The comparison of a total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.

Referring to Table 5.1, the results of this direct comparison indicates that the data exceeds the screening criteria for a commercial end use for the following contaminants:

-  Benzo(a)Pyrene
-  Benzo(b)Fluoranthene
-  Dibenzo(a,h)Anthracene
-  Asbestos – Chrysotile cement

Asbestos in the form of Chrysotile cement has been identified in the granular Made Ground in WS103 at 0.50mbgl.

Soils were analysed onsite for VOCs using a photo-ionisation detector, no significant concentrations of VOCs were identified.

In relation to these exceedances, the following can be determined:

-  The main exposure pathways based on the Tier I exceedances are:
 - 3. Dermal Contact and Ingestion
 - 4. Inhalation
-  The exceedances for all contaminants are associated with shallow localised Made Ground deposits within WS102 and WS103 at 0.50mbgl.

Given the elevated nature of the PAH results within WS102, a double ratio plot assessment was undertaken to suggest the potential source of these contaminants. From this assessment the concentration were determined to likely be associated with combustion products, The assessment is presented within Appendix V.

Risk Assessment and Mitigation

The identified elevated concentrations of PAH contaminants have primary exposure pathways related to dermal contact and ingestion of soils. The risk to chronic human health associated with the elevated concentrations of non-volatile PAH compounds can be mitigated through the installation of a suitable cover system in areas of proposed landscaping where impacted soils have been identified to remove any potential for direct exposure to impacted soils. However, development proposals indicate the presence of hardstanding impermeable surface across the site which will remove the potential source-receptor pathway. Subject to the appropriate management of these soils during construction no further assessment is therefore considered to be necessary.

Visible asbestos in the form of Chrysotile cement has been identified within localised made ground deposits. Given development proposals comprise hardstanding impermeable surfaces, the risks to future site users will be low following completion of the development, however the site will be subject to a significant phase of Remediation and Enabling Works, and it is considered that as part of these works, all asbestos be managed appropriately to ensure unsuitable materials do not pose a potential risk to future site users and adjacent site users, as per the asbestos conceptual model presented in Figure 5.1, overleaf. It is considered that materials to retained onsite as part of the enabling works should be subjected to a confirmatory asbestos hand pick during the enabling works programme.

Subject to confirmatory chemical analysis, it is considered that natural drift deposits and reworked topsoil deposits should be suitable for reuse within the limited proposed peripheral landscaping.

Notes:

N.D. – None Detected

0.001% - Soils may contain 0.001% asbestos using composite testing to ensure there is no potential risk to human health. This value is present within areas where there may be short-term low-level exposure of soils containing trace asbestos fibres by construction workers where an appropriate level of asbestos management is employed (dust suppression).

Undefined – This will be dependent upon soils encountered during the earthworks, which may be placed at these depths to ensure no potential risk to human health.

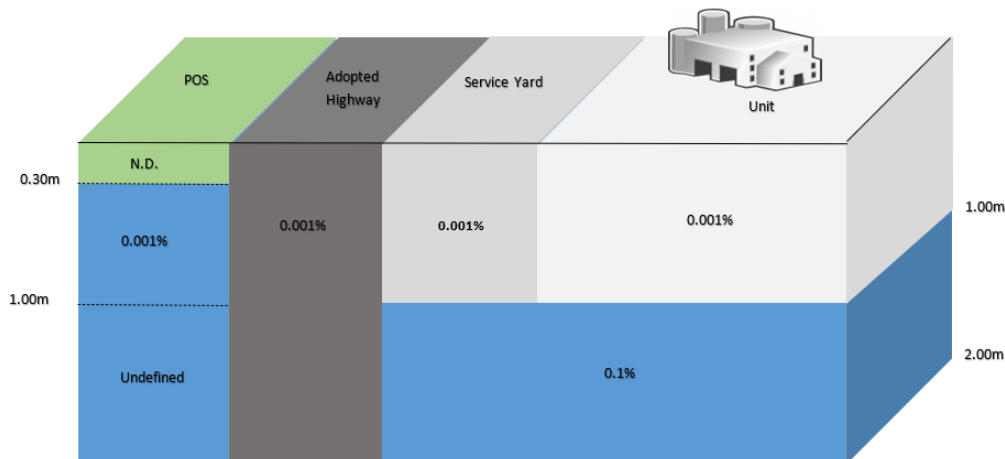


Figure 5.1 Asbestos Conceptual Site Model

5.2 Controlled Waters Risk Assessment

The site sensitivity with respect to controlled waters is summarised within Table 5.2.

Table 5.2 Controlled Waters Sensitivity Profile

RISK PROFILE	DISCUSSION	SENSITIVITY RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	None identified.	LOW
Distance to the closest groundwater abstraction point.	There are 6no. active recorded non-potable groundwater abstraction points within 1km of the site. The nearest is recorded 509m south of the site.	LOW/ MODERATE
Aquifer Classification in Superficial Drift Deposits.	Glacial Till - Secondary Undifferentiated	LOW
Aquifer classification in Bedrock.	Chester Sandstone Formation - Principal Aquifer	MODERATE
Viability for Anthropogenic soil in direct contact with aquifer (drift or bedrock).	The site has been shown to be underlain by likely low permeability cohesive deposits which will limit infiltration and negate the potential for vertical migration to the underlying receptor.	LOW
Is the site located within 50m of a surface watercourse?	Risks to surface water are considered negligible in the absence of an identifiable receptor within influencing distance of the site.	LOW

Summary

The ICSM developed within the context of the site setting has identified several pollutant risks associated with Made Ground from previous onsite development and historic and current surrounding industrial land use including the presence of tanks. Given the assessment, the only identified viable pollutant risk which would be the downward migration of potentially mobile phase soluble contaminants towards the underlying Principal aquifer. However, the overall sensitivity of this receptor is reduced given the significant thickness of low permeability cohesive deposits absence of any potable groundwater abstractions within close proximity to the site, inhibiting the potential for the creation of a complete pollutant linkage as the site is unlikely to be in hydraulic connectivity any identified receptors.

ERGO has undertaken an initial qualitative assessment of the soil data analysis to assess the potential for a source of separate phase or dissolved phase contamination originating from either a defined on-site source or from impacted soils. This assessment is summarised in Table 5.3.

Table 5.3 Qualitative Risk to Controlled Waters from Soil Analytical Results

BTEX -> 1mg/kg	The soil data analysis has not identified any detectable concentrations of TPH C5 to C6 that might otherwise be indicative of VOC impact.
Total VOC -> 1mg/kg	Onsite PID analysis did not identify significant concentrations of VOC compounds
C5-C10 -> 5mg/kg	All concentrations are below the laboratory LOD.
C10-C12 -> 10mg/kg	All concentrations are below the laboratory LOD.
C12-C16 -> 50mg/kg	All concentrations are below the laboratory LOD.
Phenols -> 2mg/kg	All concentrations are below the laboratory LOD.
Naphthalene -> 2mg/kg	The most soluble SVOC (Naphthalene) has been not identified at concentrations greater than 2mg/kg.
Total PAH -> 10mg/kg	Concentrations of PAH compounds were noted to be elevated above 10mg/kg in WS101 at 1.50mbgl (27 mg/kg) and WS102 at 0.50mbgl (1428 kg/mg), both locations are noted to be within Made Ground deposits in the northern area of the site.
PCB -> 1mg/kg	No potential sources of PCB have been identified.
Heavy metals -> 500mg/kg	Concentrations of heavy metals are all below 500mg/kg.

Based on the available information, the risks to Controlled Waters are considered low in the absence of identifiable surface water receptors and the presence of low permeability cohesive drift underlying the site which will inhibit infiltration to Aquifer receptors. Additionally, development proposals indicate the site to comprise predominantly impermeable surfaces which will further inhibit the infiltration of potential contaminants.

Potential risks to Controlled Waters are considered low and no further assessment is considered to be necessary.

5.3 Ground Gas

A ground gas risk assessment was beyond the scope of the investigation.

5.4 Preliminary Waste Classification Assessment

The procedures to be followed in carrying out the assessment of potentially hazardous waste are set out in the following document:

- *Waste Classification: Guidance on the classification and assessment of waste (1st Edition 2015). Technical Guidance WM3, Environment Agency, 2015.*

One touch data, Haz Waste assessment tool has been utilised for the first step of the waste classification, the output from the assessment is enclosed and has been summarised below and shown within Appendix V.

Preliminary screening has been undertaken for samples and material is generally classified as 'non-hazardous' with the exception of the sample from WS103 at 0.50mbgl due to the presence of visible asbestos. Visible asbestos cement was identified within 1no. of the samples tested, which results in the classification of this material as hazardous waste should this be removed from the site to landfill.

WAC testing will be required to confirm the material classification for offsite disposal.

It should be noted that the above conclusions relate to the specific samples tested during the investigation, and therefore material excavated during redevelopment will not necessarily

have the same classification. It is recommended that waste materials varying from the samples tested and intended to be removed from site are tested individually to determine the classification of the waste.

The waste classification should be confirmed with the individual landfill accepting the waste prior to disposal. These test results should not be regarded as being representative of materials on site for landfill export purposes since preparatory and excavation works often result in mixing of different types of materials.

5.5 Revised Conceptual Site Model

Following the completion of the intrusive site investigation, chemical analysis and risk assessment the conceptual model shown in Table 5.4, overleaf, has been prepared for the site.

For the avoidance of doubt, should unforeseen ground conditions be encountered during the development works, ERGO should be contacted for advice.

Table 5.4 Conceptual Model

PATHWAY	RECEPTOR	CONTAMINANT (SOURCE)	PROBABILITY	RISK	ASSESSMENT AND RECOMMENDATIONS
Dermal contact. Inhalation of soil, fibres and dust.	Future site users and offsite receptors.	Identified Chrysotile Cement in shallow Made Ground deposits.	Likely	Moderate/High	Chrysotile asbestos cement was identified within localized shallow Made Ground deposits in banded material in the northern site area. It is considered that further asbestos may be present within Made Ground materials. However, risks are considered somewhat reduced given the presence of predominantly hardstanding impermeable surfaces and buildings with limited areas of proposed landscaping within the development proposals breaking potential source-receptor pathways. Recommendation: Delineation and management of impacted soils to mitigate potential risks. All visible ACM materials should be segregated and removed from the soil matrix.
Ingestion of soils, dust and direct contact with contaminated soils	Future site users and offsite receptors.	PAHs within shallow Made Ground deposits.	Likely	Low	PAH contamination has been identified within localized Made Ground deposits during the site investigation. However, risks are considered somewhat reduced given the presence of predominantly hardstanding impermeable surfaces and buildings with limited areas of proposed landscaping within the development proposals, breaking potential source-receptor pathways. Recommendation: Inclusion of a suitable capping layer on site within limited proposed areas of landscaping to minimise the potential for receptors to come in to direct contact with contamination
Surface Run-off. Vertical Migration.	Groundwater (Principal Aquifer).	Potentially mobile contaminants within onsite Made Ground	Unlikely	Low	In the absence of identifiable surface water receptors and the presence of low permeability cohesive drift underlying the site and development proposals comprising predominantly hardstanding impermeable surface which will inhibit infiltration to Aquifer receptors risks to Controlled Water are considered negligible. Recommendation: No further action.
Sulphate attack on concrete.	Building structure.	Sulphate (potential ash within made ground).	Unlikely	Low	The concrete classification for the site has been determined to be DS-1 AC-1. Recommendation: Use concrete of appropriate classification.

6. GEOTECHNICAL ASSESSMENT

6.1 Proposed Development

ERGO understand that Mr Mahmood intends to construct 3no. portal frame commercial units with associated hardstanding parking and buried service infrastructure. Drawing 22-1146-002 (Appendix III) identifies the proposed development layout.

6.2 Summary of Ground Conditions

Made Ground

Made Ground was encountered within all advanced exploratory probeholes from thicknesses of between 0.50m and 2.05mbgl (WS101). Made Ground is shallower in the southern site area, outside of the bund area.

Made Ground generally comprises a dark brown clayey topsoil overlying a brown clayey sandy gravel in turn overlying a firm brown gravelly sandy clay. Made Ground contained brick, glass, plastic and concrete.

Drift

Natural drift deposits were encountered within all exploratory probeholes from depths of between 0.50m to 2.10m bgl and proven down to maximum depths of at least 5.45mbgl. Drift deposits generally comprised a firm to very stiff sandy gravelly CLAY.

Soft CLAY was encountered within WS101 and WS103 in the eastern site area to depths of between 2.05-4.85mbgl.

Solid

Solid bedrock geology was not encountered within any of the advanced probeholes locations.

Groundwater

Groundwater was not encountered during the site investigation.

6.3 Site Preparation

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Roots present below the footprint of proposed structures should be grubbed out and the resulting void infilled with suitable compacted engineered fill;
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill;
- Existing services to be retained within the development should be appropriately considered with suitable standoff zones incorporated in to the development plan; and,
- Whilst not encountered within the advanced exploratory probeholes buried structures and old foundations may be present within the subsurface. If present, these should be excavated from below the proposed development footprint with the resulting void backfilled.

6.4 Foundation Conditions & Assessment of Potential Bearing Capacities

In due consideration of the identified ground conditions, in-situ and laboratory geotechnical testing, ERGO has undertaken an assessment of the net safe Allowable Bearing Pressure (ABP) within the underlying natural stratum to assist in the detailed design of foundations and infrastructure and determine the target founding stratum.

When considering the variable depth and nature and of Made Ground and underlying soft clays within the footprint of the proposed buildings, unacceptable total and differential settlements may occur if foundations are placed within these materials. Therefore, foundations should be taken through these materials onto underlying firm to very stiff glacial clays.

Given the presence of significant thicknesses of significant soft clays within the eastern site area it is considered that ground conditions are unsuitable for traditional shallow strip or pad footings. An engineered piled foundation solution is therefore considered the most appropriate.

The nature and thickness of the deposits is such that skin friction should be generated within the clays. The variable ground conditions at the site also include compressible soils which may give rise to negative skin friction. A competent piling contractor should be consulted to determine the most appropriate pile specification for the site. The Contractor should design the most appropriate solution giving due consideration to, and in accordance with, Environment Agency publication NC/99/73 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (May 2001). The possible presence of obstructions, site constraints and potential impact on neighbouring assets should be considered carefully.

Alternatively, other ground improvement / engineered foundation solutions may be considered, such as CMC and soil mixing. Advice from specialist ground improvement contractors should be sought to confirm suitability of these methods.

Foundation depths/ground beams should take account of the presence of existing and proposed trees with foundations deepened locally, to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of LABC standards.

Should unexpected ground conditions be encountered during redevelopment, ERGO should be contacted for further advice.

6.5 Ground Floor Slabs

ERGO have not been provided with loadings to date and subject to receipt of loadings, it is considered that a ground bearing floor slab should be viable for the commercial structures; however, it will need to be constructed utilising a sub-base with the thickness designed by a structural engineer to ensure that settlement tolerances are taken into consideration.

Where a ground bearing floor slab is to be constructed within the conjectured zone of tree influence, the clay will need to be removed to ensure that any desiccated soil cannot swell and induce heave to the structure. Alternatively, it may be possible to design the structure to resist the influence of clay heave using exaggerated sub-base and additional re-enforcement within the slab to be designed by the Structural Engineer.

6.6 Heave Precautions

The site has been proven to be underlain by clay soils which are susceptible to volumetric instability due to fluctuations in moisture content, particularly within influencing distance of trees as per the NHBC / LABC conjectured zones of influence.

As the clay is deemed to be moderate Volume Change Potential, appropriate heave precautions are required to be incorporated in to design proposals.

If a ground beam is to be constructed within the zone of tree influence, heave precautions are required to the underside of this and edge beams.

A summary of Heave Precautions is presented in Table 6.1 (overleaf).

Table 6.1 Summary of Heave Precautions

		MINIMUM VOID DIMENSION FOR FOUNDATIONS, GROUND BEAMS AND SUSPENDED IN-SITU CONCRETE GROUND FLOORS		MINIMUM VOID DIMENSIONS UNDER PRE-CAST CONCRETE AND SUSPENDED TIMBER FLOORS
Volume Change Potential of Soil	Required Foundation Depth (m)	Thickness of Void Former Against Side of Foundation or Ground Beam (mm)	Thickness of Void on Underside of Edge Beam and Floor Slab (mm)	Void Dimension (mm)
High (>40)	>2.50	Engineer Design		Engineer Design
	2.00-2.50	35	150	300
	1.50-2.00	25	75	
Medium (20-40)	>2.50	Engineer Design		Engineer Design
	2.00-2.50	25	100	250
	1.50-2.00	25	50	
Low (<20)	2.00-2.50	-	50	200
	>2.00	No Special Precautions		

6.7 Pavement Construction

Granular soils can be re-engineered to ensure 5% within the sub-grade during favourable climatic conditions.

Natural clay soils will provide a CBR in the order of 3-5% during drier climatic periods, however If water is allowed to shed onto the formation, the CBR will reduce to <2% which will require specialist engineering of the sub-grade.

6.8 Drainage

The site is predominantly underlain by likely low permeability gravelly CLAYs. As such, it is considered that the use of soakaway drainage will be limited, it is not recommended that soakaways utilised for disposal of surface water runoff.

If soakaway drainage is to be considered, full BRE365 Testing must be completed to inform the detailed design.

6.9 Concrete Durability

Based upon the results of the chemical analyses, it is considered that subsurface concrete can be designed in accordance with Design Sulphate Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with the recommendations provided in BRE Special Digest 1 (2005).

6.10 Excavations

Site observations indicated that excavations should be feasible in the near surface with normal plant, no obstructions were identified in the near surface however their presence cannot be ruled out. If encountered, any obstructions should be grubbed out during the site enabling works.

Due to the potential for trench collapse it is considered that all excavations are supported or battered back in accordance with guidance contained in CIRIA R97.

Groundwater was not identified during the advanced exploratory probeholes. However, it should be noted that the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels higher than those found during this investigation may be encountered.

Table 6.2 (overleaf) discusses the civil engineering risk matrix.

Table 6.2 Civil Engineering Excavation Risk Matrix

Risk Item	Present	Comment
Running Sands	No	Running sands were not encountered within any of the advanced exploratory probeholes.
Minor Water ingress	No	Minor water ingress was not encountered during the works undertaken to date. However, if present localised dewatering / sump pumping will be necessary for excavations. Ingress of water into foundation excavation will potentially flood foundation excavations limiting the viability of spread foundations to be constructed.
Shallow Bedrock	No	Shallow Bedrock was not encountered in the exploratory holes undertaken.

6.11 Further Works

Based on the findings of the intrusive site investigation undertaken, it is recommended that a Remediation & Enabling Works strategy is completed for the site.

6.12 Construction Activity and Inspection

The following activities and inspections should be incorporated in to the site works:

-  Due to the potential variability of the soils at the site it is recommended that sufficient allowance is made for the inspection of formation and sub formations to foundations and pavement construction;
-  Excavations where access is required should be subject to a risk assessment from a competent person and where appropriate mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 utilised;
-  It is considered that de-watering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required. Measures to remove silt and suspended solids may be required and consideration should be given to provision of space for settling tanks or an attenuation pond;
-  Where access to confined spaces is required appropriate mitigation measures should be addressed within the Construction Stage Health and Safety Plan; and,
-  The presence of potential contamination and mitigation measures should be addressed as part of the Construction Stage Health and Safety Plan and should include measures to design out the risks, reduce their impact and finally the use of Personnel Protective Equipment (PPE).

7. CONCLUSIONS AND RECOMMENDATIONS

Contaminated Land

Human Health	A Tier I Human Health Risk Assessment identified the presence of elevated Benzo(a)Pyrene, Benzo(b)Fluoranthene, Dibenzo(a,h)Anthracene within WS102 at 0.50mbgl and asbestos in the form of chrysotile asbestos cement within WS103 at 0.50mbgl. Potential risks from the identified PAH contaminants are somewhat negated given development proposals indicate the presence of hardstanding impermeable surface across the site which will remove the potential source-receptor pathway. Materials impacted by asbestos will need to be managed appropriately to ensure that materials pose no significant risk to future site users and adjacent site users, as per the developed asbestos conceptual site model. It is considered that materials to be retained and reused onsite as part of the enabling works should be subjected to a confirmatory asbestos hand pick during the enabling works programme.
Controlled Waters	Low risk to controlled waters.
Ground Gas	A ground gas assessment was outside the scope of this report.

Geotechnical Issues

Given the presence of significant variable thicknesses of Made Ground which is underlain locally by significant thicknesses of soft clays down to depths of 4.85m, the use of traditional shallow foundations is not considered feasible. Therefore, it is considered that the most cost-effective option would be the use of a piled foundation solution.

The presence of buried obstructions should be taken into consideration by the contractor.

An appropriate specialist contractor should be contacted to confirm the type and design of the piles required.

ERGO have not been provided with loadings to date and subject to receipt of loadings, it is considered that a ground bearing floor slab should be viable for the commercial structures; however, it will need to be constructed utilising a sub-base with the thickness designed by a structural engineer to ensure that settlement tolerances are taken into consideration.

Recommendations

Based on the findings of the intrusive site investigation, the following additional works are recommended to be completed in due course:

-  Remediation & Enabling Works strategy

END OF REPORT

APPENDIX I LIMITATIONS



1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between ERGO and the Client as indicated in Section 1.2.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
9. ERGO cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by ERGO is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by ERGO in this connection without their explicit written agreement there to by ERGO.
10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II GLOSSARY



TERMS

AST	Above Ground Storage Tank	SGV	Soil Guideline Value
BGS	British Geological Survey	SPH	Separate Phase Hydrocarbon
BSI	British Standards Institute	TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group)
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes	SPT	Standard Penetration Test
CIEH	Chartered Institute of Environmental Health	SVOC	Semi Volatile Organic Compound
CIRIA	Construction Industry Research Association	UST	Underground Storage Tank
CLEA	Contaminated Land Exposure Assessment	VCCs	Vibro Concrete Columns
CSM	Conceptual Site Model	VOC	Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)	WTE	Water Table Elevation
DWS	Drinking Water Standard	m	Metres
EA	Environment Agency	km	Kilometres
EQS	Environmental Quality Standard	%	Percent
GAC	General Assessment Criteria	%v/v	Percent volume in air
GL	Ground Level	mb	Milli Bars (atmospheric pressure)
GSV	Gas Screening Value	l/hr	Litres per hour
HCV	Health Criteria Value	µg/l	Micrograms per Litre (parts per billion)
ICSM	Initial Conceptual Site Model	ppb	Parts Per Billion
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)	mg/kg	Milligrams per kilogram (parts per million)
ND	Not Detected	ppm	Parts Per Million
LMRL	Lower Method Reporting Limit	mg/m³	Milligram per metre cubed
NR	Not Recorded	m bgl	Metres Below Ground Level
PAH	Polycyclic Aromatic Hydrocarbon	m bcl	Metre Below Cover Level
PCB	Poly-Chlorinated Biphenyl	mAOD	Metres Above Ordnance Datum (sea level)
PID	Photo Ionisation Detector	kN/m²	Kilo Newtons per metre squared
QA	Quality Assurance	µm	Micro metre
SGV	Soil Guideline Value		



APPENDIX III DRAWINGS





SITE

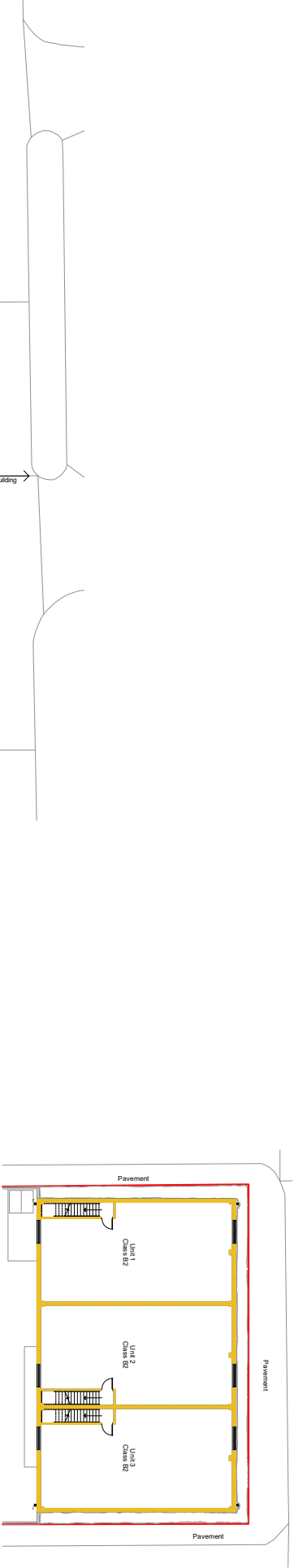


*Drawing 21-1146-001
Site Location Plan*



Key:

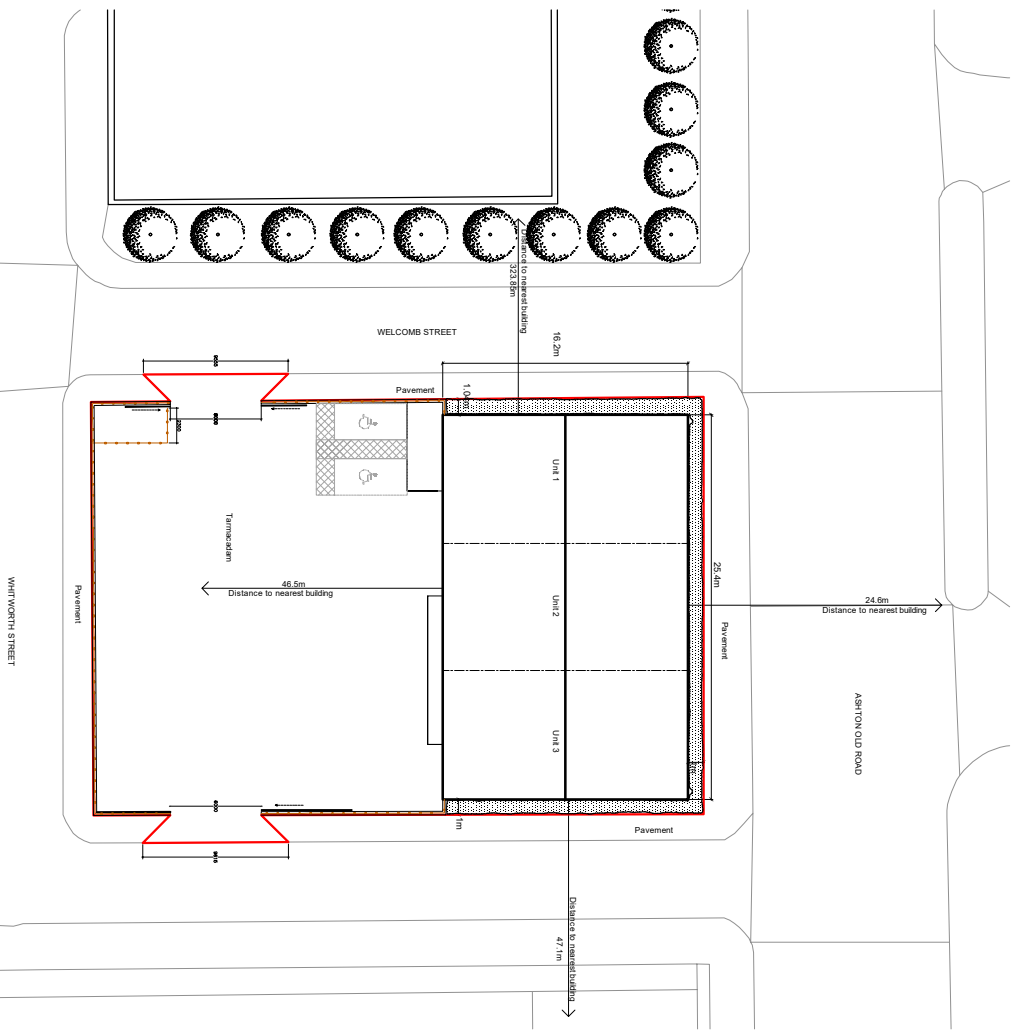
Location Symbols



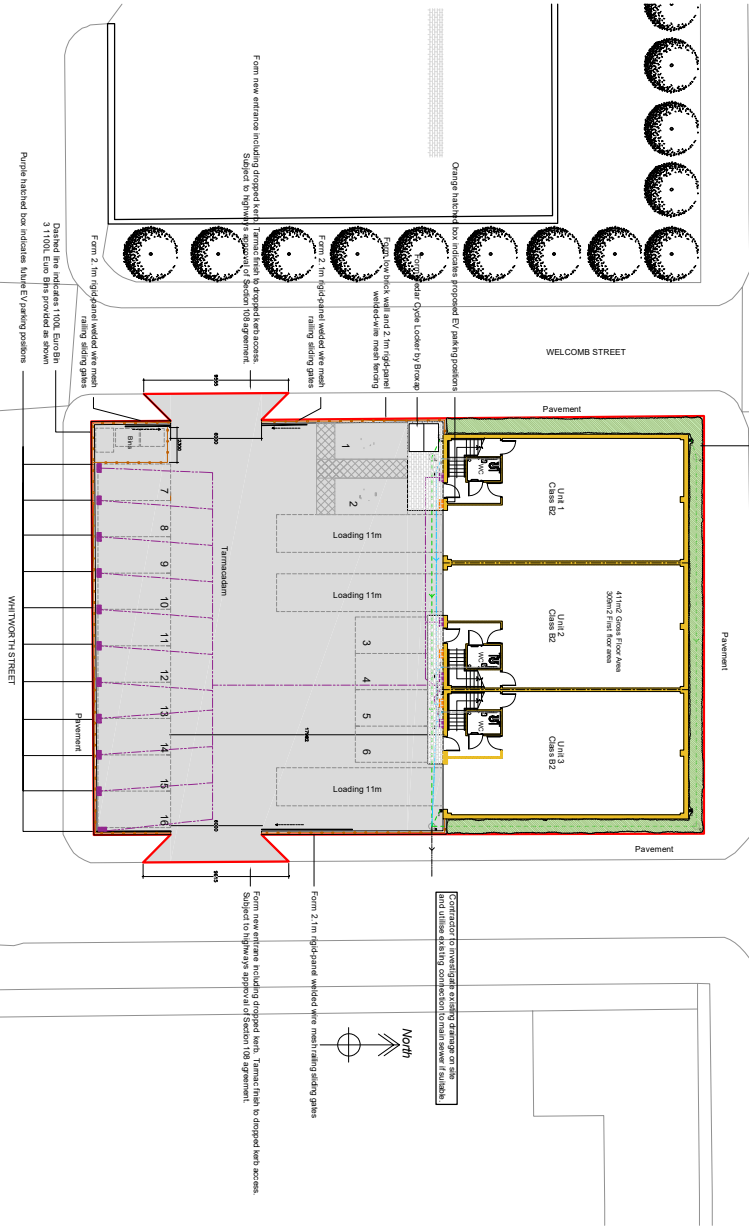
First Floor Plan Plan 1:200

NOTE: Item 303.32, Accessibility 1.1
From definition in sub-clause 3.1

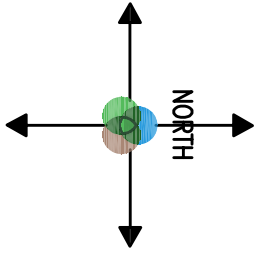
NOTE: The proposed structure does not obstruct the existing highway
Pedestrian and vehicular access onto site to be maintained



Block Plan 1:200



Site Plan 1:200

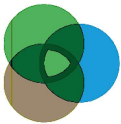


Notes:

P1	-	15.03.2022	DRAFT	RB	JN
Phase	Revision	Date	Issue	Drawn	Authorised

Client	Manjur Choudhury	Job No:	22-1146	Date:	15.03.2022
Drawing No:	002	Scale:	NTS		

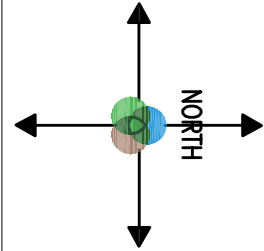
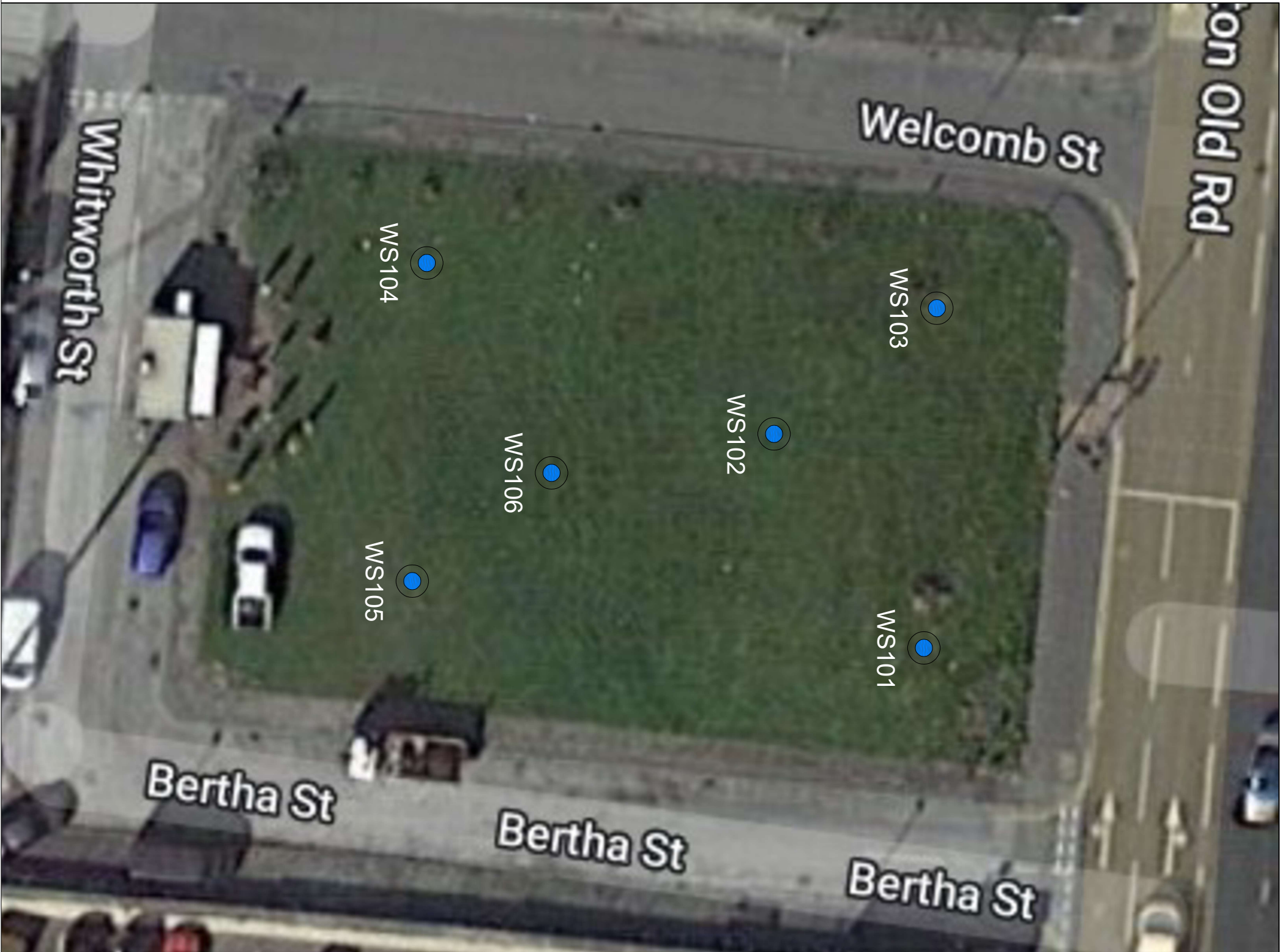
Job Title:	Ashton Old Road, Manchester	Drawing Title:	Proposed Development Plan
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Key:

Location Symbols

-  Approximate Window Sample Probehole Location

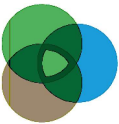
WS101

Notes:

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P1	-	03.03.2022	DRAFT	RB	JN
Phase	Revision	Date	Issue	Drawn	Authorised
Client: Faisal Mahmood			Job No: 22-1146	Date: 03.03.2022	
			Drawing No: 003	Scale: NTS	

Job Title: Ashton Old Road, Manchester	Drawing Title: Exploratory Hole Location Plan
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APPENDIX VI ERGO EXPLORATORY HOLE LOGS





Remarks

1. Complete at 4.40m bgl. 2. No groundwater encountered.



Percussion Drilling Log-WS102

Project Name: Land off Ashton Old Road		Client: Kryton Structure		Date: 10/03/2022	
Location: Manchester		Contractor: Taylor Drilling Services			
Project No. : 22-1146		Crew Name: JA		Drilling Equipment: Window Sample Rig	
Borehole Number WS102	Hole Type WS		Logged By PC	Scale 1:33	Page Number Sheet 1 of 1

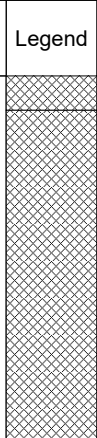
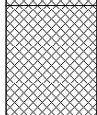
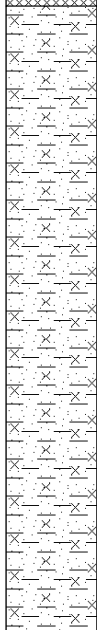
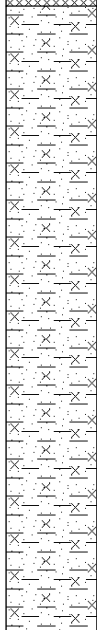
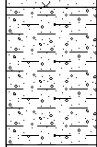
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.15			MADE GROUND: Dark brown slightly gravelly slightly sandy clayey topsoil. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, limestone, mudstone and brick.	
		0.50	ES		0.65			MADE GROUND: Brown slightly clayey sandy gravel. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone, slag, coal, clinker, brick and concrete. Occasional glass and plastic fragments noted.	
		0.80	ES					Firm brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.	1
		1.00	D						
		1.20	SPT	N=10 (1,1/2,2,3,3)					
		1.50	D		1.70				
		1.50		HVP=80					
		2.00	D						
		2.00	SPT	N=38 (8,10/9,10,10,9)				Very stiff brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.	2
		3.00	D						
		3.00		HVP=150					
		3.00	SPT	N=50 (6,9/50 for 255mm)	3.30				
End of Borehole at 3.30m									3
									4
									5
									6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
Remarks											
1. Terminated due to SPT failure at 3.30m bgl. 2. No groundwater encountered.											



Percussion Drilling Log-WS103

Project Name: Land off Ashton Old Road		Client: Kryton Structure		Date: 10/03/2022	
Location: Manchester		Contractor: Taylor Drilling Services			
Project No. : 22-1146		Crew Name: JA		Drilling Equipment: Window Sample Rig	
Borehole Number WS103	Hole Type WS		Logged By PC	Scale 1:33	Page Number Sheet 1 of 1

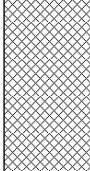
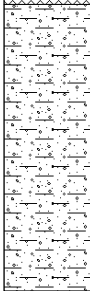
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES	N=7 (1,2/0,0,2,5)	0.15			MADE GROUND: Dark brown slightly gravelly slightly sandy clayey topsoil. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, limestone, mudstone and brick.	1
		0.50	ES						
		1.00	D						
		1.20	SPT						
					1.60			MADE GROUND: Orangish brown slightly clayey gravelly fine to coarse sand. Gravel is angular to sub-rounded fine to coarse of sandstone, limestone, brick and concrete.	2
		1.80	ES						
		2.00	D						
		2.00	SPT						
					2.10		Soft grey slightly sandy slightly silty CLAY. Sand is fine to coarse.	3	
		2.50	D						
		2.70		HVP=28					
		3.00	SPT	N=7 (1,1/1,2,2,2)					
		3.20	D						
		4.00	SPT	N=12 (2,2/2,3,4,3)					
		4.10		HVP=35					
		4.20	D				Very stiff brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.	5	
		5.00	D						
		5.00	SPT						
					4.85		End of Borehole at 5.45m	6	
			5.45						

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
Remarks											
1. Complete at 5.45m bgl. 2. No groundwater encountered.											



Percussion Drilling Log-WS104

Project Name: Land off Ashton Old Road		Client: Kryton Structure		Date: 10/03/2022	
Location: Manchester		Contractor: Taylor Drilling Services			
Project No. : 22-1146		Crew Name: JA		Drilling Equipment: Window Sample Rig	
Borehole Number WS104	Hole Type WS		Logged By PC	Scale 1:33	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.10	ES		0.15			MADE GROUND: Dark brown slightly gravelly slightly sandy clayey topsoil. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, limestone, mudstone and brick.	1			
		0.50	ES				MADE GROUND: Brown slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of limestone, sandstone, brick and concrete.					
		1.20 1.20	ES SPT				Very stiff brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.					
		1.50	D	N=12 (3,3/3,3,3,3)								
		1.70						HVP=102				
		2.00 2.00	D SPT					N=50 (4,6/50 for 265mm)				
					2.40				End of Borehole at 2.40m			
												3
												4
												5
									6			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Terminated due to SPT failure at 2.40m bgl. 2. No groundwater encountered.



Percussion Drilling Log-WS105

Project Name: Land off Ashton Old Road		Client: Kryton Structure		Date: 10/03/2022	
Location: Manchester		Contractor: Taylor Drilling Services			
Project No. : 22-1146		Crew Name: JA		Drilling Equipment: Window Sample Rig	
Borehole Number WS105	Hole Type WS		Logged By PC	Scale 1:33	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.05			MADE GROUND: Dark brown slightly gravelly slightly sandy clayey topsoil. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, limestone, mudstone and brick.	
		0.90	ES	HVP=42	0.80			MADE GROUND: Brown slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of limestone, sandstone, brick and concrete.	1
		0.90	D					Firm light brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.	
		1.00	SPT	N=15 (2,3/3,3,4,5)					
		1.20			1.60			Very stiff brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.	2
		1.90	D	HVP=132					
		2.00	SPT	N=50 (5,10/50 for 255mm)	2.30				
		2.00						End of Borehole at 2.30m	3
									4
									5
									6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Terminated due to SPT failure at 2.30m bgl. 2. No groundwater encountered.



Remarks

1. Terminated due to SPT failure at 2.30m bgl. 2. No groundwater encountered.

APPENDIX VII CHEMICAL TESTING RESULTS





ANALYTICAL TEST REPORT

Contract no: 107078

Contract name: Ashton Old Road

Client reference: 22-1146

Clients name: Ergo Environmental

Clients address: Maling Exchange
Hoults Yard, Walker Road
Newcastle
NE6 2HL

Samples received: 15 March 2022

Analysis started: 15 March 2022

Analysis completed: 22 March 2022

Report issued: 22 March 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by:

Rachael Burton

Reporting Team Lead

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
107078-1	WS101	0.20	Sandy Clayey Loam with Gravel & Roots	-	-	18.0
107078-2	WS101	1.50	Sandy Loamy Clay with Gravel	-	-	11.9
107078-3	WS102	0.50	Loamy Sand with Gravel & Roots	-	-	16.9
107078-4	WS103	0.50	Sandy Clayey Loam with Gravel & Roots	-	-	14.2
107078-5	WS104	0.10	Sandy Loamy Clay with Roots	-	-	25.3
107078-6	WS105	0.10	Sandy Loamy Clay with Gravel	-	-	14.1
107078-7	WS106	0.05	Sandy Loamy Clay with Gravel & Roots	-	-	25.4

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SOILS

Lab number Sample id Depth (m) Date sampled			107078-1 WS101 0.20 -	107078-2 WS101 1.50 -	107078-3 WS102 0.50 -	107078-4 WS103 0.50 -	107078-5 WS104 0.10 -	107078-6 WS105 0.10 -
Test	Method	Units						
Arsenic (total)	CE127	mg/kg As	16	21	21	23	11	8.0
Cadmium (total)	CE127	mg/kg Cd	0.6	0.2	1.0	1.6	0.4	0.2
Chromium (total)	CE127	mg/kg Cr	93	60	60	51	60	64
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127	mg/kg Cu	66	61	133	126	34	26
Lead (total)	CE127	mg/kg Pb	246	271	240	393	81	315
Mercury (total)	CE127	mg/kg Hg	0.8	<0.5	<0.5	<0.5	<0.5	4.6
Nickel (total)	CE127	mg/kg Ni	27	31	52	26	27	24
Selenium (total)	CE127	mg/kg Se	0.5	0.9	1.4	0.8	0.8	0.5
Zinc (total)	CE127	mg/kg Zn	159	76	235	300	116	94
pH	CE004 ^M	units	7.5	8.3	8.1	8.4	6.7	8.6
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	24	39	38	36	22	18
Total Organic Carbon (TOC)	CE197	% w/w C	-	6.8	11.8	-	4.1	1.4
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	11.7	20.4	-	7.1	2.4
PAH								
Naphthalene	CE087 ^M	mg/kg	-	0.23	1.48	-	<0.02	0.05
Acenaphthylene	CE087 ^M	mg/kg	-	<0.02	0.25	-	<0.02	<0.02
Acenaphthene	CE087 ^M	mg/kg	-	0.31	25.79	-	<0.02	0.06
Fluorene	CE087 ^U	mg/kg	-	0.19	13.45	-	<0.02	0.07
Phenanthrene	CE087 ^M	mg/kg	-	2.05	154.91	-	0.31	0.67
Anthracene	CE087 ^U	mg/kg	-	0.42	37.45	-	0.09	0.17
Fluoranthene	CE087 ^M	mg/kg	-	3.35	289.09	-	0.64	0.88
Pyrene	CE087 ^M	mg/kg	-	3.72	248.69	-	0.65	0.80
Benzo(a)anthracene	CE087 ^U	mg/kg	-	2.02	108.67	-	0.40	0.42
Chrysene	CE087 ^M	mg/kg	-	2.33	111.70	-	0.42	0.46
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	2.75	121.94	-	0.50	0.49
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	1.08	45.67	-	0.20	0.19
Benzo(a)pyrene	CE087 ^U	mg/kg	-	2.97	107.01	-	0.44	0.41
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	2.37	74.11	-	0.33	0.28
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	0.60	17.22	-	0.06	0.06
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	2.56	70.99	-	0.32	0.25
PAH (total of USEPA 16)	CE087	mg/kg	-	27.0	1428	-	4.34	5.25
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	-	<0.01	-	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	-	<0.01	-	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	-	<0.01	-	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	3	2	-	4	-	<1
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	7	4	-	11	-	<1
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	14	7	-	65	-	<1
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	107	57	-	289	-	<1
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	46	26	-	95	-	<1

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SOILS

Lab number			107078-1	107078-2	107078-3	107078-4	107078-5	107078-6
Sample id			WS101	WS101	WS102	WS103	WS104	WS105
Depth (m)			0.20	1.50	0.50	0.50	0.10	0.10
Date sampled			-	-	-	-	-	-
Test	Method	Units						
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	-	<0.1	-	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	-	<0.1	-	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	-	<0.1	-	<0.1
EPH Aliphatic (>C10-C12)	CE250	mg/kg	<6	<6	-	<6	-	<6
EPH Aliphatic (>C12-C16)	CE250	mg/kg	<6	<6	-	<6	-	<6
EPH Aliphatic (>C16-C35)	CE250	mg/kg	23	<15	-	24	-	<15
EPH Aliphatic (>C35-C44)	CE250	mg/kg	<10	<10	-	21	-	<10
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	Chrysotile	NAD	NAD
Form of Asbestos	\$	-	-	-	-	Asbestos Cement	-	-

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SOILS

Lab number			107078-7
Sample id			WS106
Depth (m)			0.05
Date sampled			-
Test	Method	Units	
Arsenic (total)	CE127	mg/kg As	8.4
Cadmium (total)	CE127	mg/kg Cd	0.4
Chromium (total)	CE127	mg/kg Cr	57
Chromium (VI)	CE146	mg/kg CrVI	<1
Copper (total)	CE127	mg/kg Cu	27
Lead (total)	CE127	mg/kg Pb	176
Mercury (total)	CE127	mg/kg Hg	0.6
Nickel (total)	CE127	mg/kg Ni	13
Selenium (total)	CE127	mg/kg Se	0.4
Zinc (total)	CE127	mg/kg Zn	96
pH	CE004 ^M	units	6.8
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	25
Total Organic Carbon (TOC)	CE197	% w/w C	5.6
Estimate of OMC (calculated from TOC)	CE197	% w/w	9.6
PAH			
Naphthalene	CE087 ^M	mg/kg	0.04
Acenaphthylene	CE087 ^M	mg/kg	<0.02
Acenaphthene	CE087 ^M	mg/kg	0.02
Fluorene	CE087 ^U	mg/kg	0.04
Phenanthrene	CE087 ^M	mg/kg	0.64
Anthracene	CE087 ^U	mg/kg	0.16
Fluoranthene	CE087 ^M	mg/kg	1.69
Pyrene	CE087 ^M	mg/kg	1.62
Benzo(a)anthracene	CE087 ^U	mg/kg	0.90
Chrysene	CE087 ^M	mg/kg	1.02
Benzo(b)fluoranthene	CE087 ^M	mg/kg	1.15
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.41
Benzo(a)pyrene	CE087 ^U	mg/kg	0.95
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.73
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.14
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.66
PAH (total of USEPA 16)	CE087	mg/kg	10.2
TPH			
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	-
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	-
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	-
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	-
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	-

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SOILS

Lab number			107078-7
Sample id			WS106
Depth (m)			0.05
Date sampled			-
Test	Method	Units	
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-
EPH Aliphatic (>C10-C12)	CE250	mg/kg	-
EPH Aliphatic (>C12-C16)	CE250	mg/kg	-
EPH Aliphatic (>C16-C35)	CE250	mg/kg	-
EPH Aliphatic (>C35-C44)	CE250	mg/kg	-
Subcontracted analysis			
Asbestos (qualitative)	\$	-	NAD
Form of Asbestos	\$	-	-

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry		1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry		0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry		1	mg/kg Cr
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry		1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry		1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry		0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry		1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry		0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry		5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO ₄
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE250	EPH Aromatic (>EC10-EC12)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC12-EC16)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC16-EC21)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC21-EC35)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC35-EC44)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE250	EPH Aliphatic (>C10-C12)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C12-C16)	Solvent extraction, GCxGC-FID	As received		6	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE250	EPH Aliphatic (>C16-C35)	Solvent extraction, GCxGC-FID	As received		15	mg/kg
CE250	EPH Aliphatic (>C35-C44)	Solvent extraction, GCxGC-FID	As received		10	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

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

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

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

Key

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

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
107078-1	WS101	0.20	N	
107078-2	WS101	1.50	N	
107078-3	WS102	0.50	N	
107078-4	WS103	0.50	N	
107078-5	WS104	0.10	N	
107078-6	WS105	0.10	N	
107078-7	WS106	0.05	N	

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

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

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

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

Methods, procedures and performance data are available on request.

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

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

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

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

For soils and solids, analytical results are inclusive of stones, where applicable.

Waste Classification Report

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

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



9M2RU-DJA06-5AC8H

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

Job name

Ashton Old Road

Description/Comments

Project

22-1146

Site

Ashton Old Road

Classified by

Name: **Jonathan Malley**
 Date: **12 Apr 2022 09:51 GMT**
 Telephone: **0191 3896200**

Company: **ERGO Environmental**
Maling Exchange, Hoults Yard, Walker Rd,
Newcastle upon Tyne, NE6 2HL

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

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

04 Jun 2020

Next 3 year Refresher due by Jun 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS101 0.20	0.20	Non Hazardous		2
2	WS101 1.50	1.50	Non Hazardous		4
3	WS102 0.50	0.50	Non Hazardous		6
4	WS103 0.50	0.50	Non Hazardous		8
5	WS104 0.10	0.10	Non Hazardous		10
6	WS105 0.10	0.10	Non Hazardous		12
7	WS106 0.05	0.05	Non Hazardous		14

Related documents

#	Name	Description
1	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Jonathan Malley

Created date: 12 Apr 2022 09:51 GMT

Appendices

	Page
Appendix A: Classifier defined and non GB MCL determinands	16
Appendix B: Rationale for selection of metal species	17
Appendix C: Version	17

Classification of sample: WS101 0.20

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

Sample details

Sample name:	LoW Code:
WS101 0.20	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 m	
Moisture content:	
18%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **18% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				93 mg/kg	1.462	135.925 mg/kg	0.0136 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				66 mg/kg	1.126	74.309 mg/kg	0.00743 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	246 mg/kg	1.56	383.715 mg/kg	0.0246 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.8 mg/kg	1.353	1.083 mg/kg	0.000108 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				27 mg/kg	2.976	80.359 mg/kg	0.00804 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.5 mg/kg	2.554	1.277 mg/kg	0.000128 %			
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				159 mg/kg	2.774	441.089 mg/kg	0.0441 %			
	024-007-00-3	236-878-9	13530-65-9								
11	TPH (C6 to C40) petroleum group				222.33 mg/kg		222.33 mg/kg	0.0222 %			
			TPH								
12	confirm TPH has NOT arisen from diesel or petrol				☒						
13	pH				7.5 pH		7.5 pH	7.5 pH			
			PH								
Total:									0.123 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Based on guidance within WM3

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0222%)

Classification of sample: WS101 1.50

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

Sample details

Sample name:	LoW Code:
WS101 1.50	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.50 m	
Moisture content:	
11.9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **11.9%** No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727 mg/kg	0.00277 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				60 mg/kg	1.462	87.693 mg/kg	0.00877 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				64 mg/kg	1.126	72.057 mg/kg	0.00721 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	271 mg/kg	1.56	422.71 mg/kg	0.0271 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				31 mg/kg	2.976	92.264 mg/kg	0.00923 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.9 mg/kg	2.554	2.298 mg/kg	0.00023 %			
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				76 mg/kg	2.774	210.835 mg/kg	0.0211 %			
	024-007-00-3	236-878-9	13530-65-9								
11	TPH (C6 to C40) petroleum group				133.33 mg/kg		133.33 mg/kg	0.0133 %			
			TPH								
12	confirm TPH has NOT arisen from diesel or petrol				☒						
13	pH				8.3 pH		8.3 pH	8.3 pH			
			PH								
14	naphthalene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		205-917-1	208-96-8								
16	acenaphthene				0.31 mg/kg		0.31 mg/kg	0.000031 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	fluorene	201-695-5	86-73-7		0.19 mg/kg		0.19 mg/kg	0.000019 %		
18	phenanthrene	201-581-5	85-01-8		2.05 mg/kg		2.05 mg/kg	0.000205 %		
19	anthracene	204-371-1	120-12-7		0.42 mg/kg		0.42 mg/kg	0.000042 %		
20	fluoranthene	205-912-4	206-44-0		3.35 mg/kg		3.35 mg/kg	0.000335 %		
21	pyrene	204-927-3	129-00-0		3.72 mg/kg		3.72 mg/kg	0.000372 %		
22	benzo[a]anthracene	601-033-00-9	200-280-6		2.02 mg/kg		2.02 mg/kg	0.000202 %		
23	chrysene	601-048-00-0	205-923-4		2.33 mg/kg		2.33 mg/kg	0.000233 %		
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		2.75 mg/kg		2.75 mg/kg	0.000275 %		
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.08 mg/kg		1.08 mg/kg	0.000108 %		
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		2.97 mg/kg		2.97 mg/kg	0.000297 %		
27	indeno[123-cd]pyrene	205-893-2	193-39-5		2.37 mg/kg		2.37 mg/kg	0.000237 %		
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.6 mg/kg		0.6 mg/kg	0.00006 %		
29	benzo[ghi]perylene	205-883-8	191-24-2		2.56 mg/kg		2.56 mg/kg	0.000256 %		
Total:								0.0927 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Based on guidance within WM3

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0133%)

Classification of sample: WS102 0.50

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

Sample details

Sample name:	LoW Code:
WS102 0.50	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m	
Moisture content:	
16.9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 16.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				21	mg/kg	1.32	27.727	mg/kg	0.00277 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				1	mg/kg	1.142	1.142	mg/kg	0.000114 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				60	mg/kg	1.462	87.693	mg/kg	0.00877 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				133	mg/kg	1.126	149.743	mg/kg	0.015 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	240	mg/kg	1.56	374.356	mg/kg	0.024 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				52	mg/kg	2.976	154.766	mg/kg	0.0155 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				1.4	mg/kg	2.554	3.575	mg/kg	0.000358 %		
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				235	mg/kg	2.774	651.924	mg/kg	0.0652 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				8.1	pH		8.1	pH	8.1 pH		
			PH									
12	naphthalene				0.25	mg/kg		0.25	mg/kg	0.000025 %		
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				25.79	mg/kg		25.79	mg/kg	0.00258 %		
		205-917-1	208-96-8									
14	acenaphthene				13.45	mg/kg		13.45	mg/kg	0.00134 %		
		201-469-6	83-32-9									
15	fluorene				154.91	mg/kg		154.91	mg/kg	0.0155 %		
		201-695-5	86-73-7									
16	phenanthrene				37.45	mg/kg		37.45	mg/kg	0.00375 %		
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		289.09 mg/kg		289.09 mg/kg	0.0289 %		
18	fluoranthene	205-912-4	206-44-0		248.69 mg/kg		248.69 mg/kg	0.0249 %		
19	pyrene	204-927-3	129-00-0		108.67 mg/kg		108.67 mg/kg	0.0109 %		
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	111.7 mg/kg		111.7 mg/kg	0.0112 %		
21	chrysene	601-048-00-0	205-923-4	218-01-9	121.94 mg/kg		121.94 mg/kg	0.0122 %		
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	45.67 mg/kg		45.67 mg/kg	0.00457 %		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	107.01 mg/kg		107.01 mg/kg	0.0107 %		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	107.11 mg/kg		107.11 mg/kg	0.0107 %		
25	indeno[123-cd]pyrene	205-893-2	193-39-5		74.11 mg/kg		74.11 mg/kg	0.00741 %		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	17.22 mg/kg		17.22 mg/kg	0.00172 %		
27	benzo[ghi]perylene	205-883-8	191-24-2		70.99 mg/kg		70.99 mg/kg	0.0071 %		
Total:								0.285 %		

Key

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

Classification of sample: WS103 0.50

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

Sample details

Sample name:	LoW Code:
WS103 0.50	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m	
Moisture content:	
14.2%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 14.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				23 mg/kg	1.32	30.367 mg/kg	0.00304 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				1.6 mg/kg	1.142	1.828 mg/kg	0.000183 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				51 mg/kg	1.462	74.539 mg/kg	0.00745 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				126 mg/kg	1.126	141.862 mg/kg	0.0142 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	393 mg/kg	1.56	613.007 mg/kg	0.0393 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				26 mg/kg	2.976	77.383 mg/kg	0.00774 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.8 mg/kg	2.554	2.043 mg/kg	0.000204 %			
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				300 mg/kg	2.774	832.244 mg/kg	0.0832 %			
	024-007-00-3	236-878-9	13530-65-9								
11	TPH (C6 to C40) petroleum group				321.33 mg/kg		321.33 mg/kg	0.0321 %			
			TPH								
12	confirm TPH has NOT arisen from diesel or petrol				☒						
13	pH				8.4 pH		8.4 pH	8.4 pH			
			PH								
Total:									0.188 %		

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	

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Based on guidance within WM3

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0321%)

Classification of sample: WS104 0.10

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

Sample details

Sample name:	LoW Code:
WS104 0.10	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)
0.10 m	
Moisture content:	
25.3%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 25.3% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				11 mg/kg	1.32	14.524 mg/kg	0.00145 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				60 mg/kg	1.462	87.693 mg/kg	0.00877 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				34 mg/kg	1.126	38.28 mg/kg	0.00383 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	81 mg/kg	1.56	126.345 mg/kg	0.0081 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				27 mg/kg	2.976	80.359 mg/kg	0.00804 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.8 mg/kg	2.554	2.043 mg/kg	0.000204 %			
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				116 mg/kg	2.774	321.801 mg/kg	0.0322 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				6.7 pH		6.7 pH	6.7 pH			
			PH								
12	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		205-917-1	208-96-8								
14	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-469-6	83-32-9								
15	fluorene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-695-5	86-73-7								
16	phenanthrene				0.31 mg/kg		0.31 mg/kg	0.000031 %			
		201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.09 mg/kg		0.09 mg/kg	0.000009 %		
18	fluoranthene	205-912-4	206-44-0		0.64 mg/kg		0.64 mg/kg	0.000064 %		
19	pyrene	204-927-3	129-00-0		0.65 mg/kg		0.65 mg/kg	0.000065 %		
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.4 mg/kg		0.4 mg/kg	0.00004 %		
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.42 mg/kg		0.42 mg/kg	0.000042 %		
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.5 mg/kg		0.5 mg/kg	0.00005 %		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.2 mg/kg		0.2 mg/kg	0.00002 %		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.44 mg/kg		0.44 mg/kg	0.000044 %		
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.33 mg/kg		0.33 mg/kg	0.000033 %		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.06 mg/kg		0.06 mg/kg	0.000006 %		
27	benzo[ghi]perylene	205-883-8	191-24-2		0.32 mg/kg		0.32 mg/kg	0.000032 %		
Total:								0.0634 %		

Key

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

Classification of sample: WS105 0.10

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

Sample details

Sample name:	LoW Code:
WS105 0.10	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)
0.10 m	
Moisture content:	
14.1%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **14.1% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				8 mg/kg	1.32	10.563 mg/kg	0.00106 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				64 mg/kg	1.462	93.54 mg/kg	0.00935 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	29.273 mg/kg	0.00293 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	315 mg/kg	1.56	491.342 mg/kg	0.0315 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				4.6 mg/kg	1.353	6.226 mg/kg	0.000623 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				24 mg/kg	2.976	71.43 mg/kg	0.00714 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.5 mg/kg	2.554	1.277 mg/kg	0.000128 %			
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				94 mg/kg	2.774	260.77 mg/kg	0.0261 %			
	024-007-00-3	236-878-9	13530-65-9								
11	TPH (C6 to C40) petroleum group				42.33 mg/kg		42.33 mg/kg	0.00423 %			
			TPH								
12	confirm TPH has NOT arisen from diesel or petrol				☒						
13	pH				8.6 pH		8.6 pH	8.6 pH			
			PH								
14	naphthalene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		205-917-1	208-96-8								
16	acenaphthene				0.06 mg/kg		0.06 mg/kg	0.000006 %			
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	fluorene	201-695-5	86-73-7		0.07 mg/kg		0.07 mg/kg	0.000007 %		
18	phenanthrene	201-581-5	85-01-8		0.67 mg/kg		0.67 mg/kg	0.000067 %		
19	anthracene	204-371-1	120-12-7		0.17 mg/kg		0.17 mg/kg	0.000017 %		
20	fluoranthene	205-912-4	206-44-0		0.88 mg/kg		0.88 mg/kg	0.000088 %		
21	pyrene	204-927-3	129-00-0		0.8 mg/kg		0.8 mg/kg	0.00008 %		
22	benzo[a]anthracene	601-033-00-9	200-280-6		0.42 mg/kg		0.42 mg/kg	0.000042 %		
23	chrysene	601-048-00-0	205-923-4		0.46 mg/kg		0.46 mg/kg	0.000046 %		
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.49 mg/kg		0.49 mg/kg	0.000049 %		
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.19 mg/kg		0.19 mg/kg	0.000019 %		
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.41 mg/kg		0.41 mg/kg	0.000041 %		
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.28 mg/kg		0.28 mg/kg	0.000028 %		
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.06 mg/kg		0.06 mg/kg	0.000006 %		
29	benzo[ghi]perylene	205-883-8	191-24-2		0.25 mg/kg		0.25 mg/kg	0.000025 %		
Total:								0.0838 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Based on guidance within WM3

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00423%)

Classification of sample: WS106 0.05

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

Sample details

Sample name:	LoW Code:
WS106 0.05	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)
0.05 m	
Moisture content:	
25.4%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 25.4% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				8.4	mg/kg	1.32	11.091	mg/kg	0.00111 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.4	mg/kg	1.142	0.457	mg/kg	0.0000457 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				57	mg/kg	1.462	83.309	mg/kg	0.00833 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				27	mg/kg	1.126	30.399	mg/kg	0.00304 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	176	mg/kg	1.56	274.527	mg/kg	0.0176 %		
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.6	mg/kg	1.353	0.812	mg/kg	0.0000812 %		
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				13	mg/kg	2.976	38.691	mg/kg	0.00387 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.4	mg/kg	2.554	1.022	mg/kg	0.000102 %		
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				96	mg/kg	2.774	266.318	mg/kg	0.0266 %		
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.8	pH		6.8	pH	6.8 pH		
			PH									
12	naphthalene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
		201-469-6	83-32-9									
15	fluorene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
		201-695-5	86-73-7									
16	phenanthrene				0.64	mg/kg		0.64	mg/kg	0.000064 %		
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.16 mg/kg		0.16 mg/kg	0.000016 %		
18	fluoranthene	205-912-4	206-44-0		1.69 mg/kg		1.69 mg/kg	0.000169 %		
19	pyrene	204-927-3	129-00-0		1.62 mg/kg		1.62 mg/kg	0.000162 %		
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.9 mg/kg		0.9 mg/kg	0.00009 %		
21	chrysene	601-048-00-0	205-923-4	218-01-9	1.02 mg/kg		1.02 mg/kg	0.000102 %		
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	1.15 mg/kg		1.15 mg/kg	0.000115 %		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.41 mg/kg		0.41 mg/kg	0.000041 %		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.95 mg/kg		0.95 mg/kg	0.000095 %		
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.73 mg/kg		0.73 mg/kg	0.000073 %		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.14 mg/kg		0.14 mg/kg	0.000014 %		
27	benzo[ghi]perylene	205-883-8	191-24-2		0.66 mg/kg		0.66 mg/kg	0.000066 %		
Total:								0.0621 %		

Key

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

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ 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

■ confirm TPH has NOT arisen from diesel or petrol

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

■ 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)

cadmium {cadmium oxide}

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

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

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

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

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2017.202.300.300 (23 Mar 2022)

HazWasteOnline Database: 2022.81.5064.9565 (22 Mar 2022)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

**APPENDIX VIII
ORIGIN OF TIER I GENERIC
ASSESSMENT CRITERIA**



Constituent	Origin of Risk Assessment Value
Arsenic	2014 LQM/CIEH S4ULs
Cadmium	2014 LQM/CIEH S4ULs
Chromium	2014 LQM/CIEH S4ULs
Lead	2014 LQM/CIEH S4ULs
Mercury	2014 LQM/CIEH S4ULs – Inorganic Mercury
Nickel	2014 LQM/CIEH S4ULs
Selenium	2014 LQM/CIEH S4ULs
Copper	2014 LQM/CIEH S4ULs
Zinc	2014 LQM/CIEH S4ULs
Cyanide - Total	2014 LQM/CIEH S4ULs
Phenols - Total.	2014 LQM/CIEH S4ULs
Naphthalene	General Assessment Criteria (GAC) developed by CIEH / LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene	
Chrysene	
Benzo(b/k)Fluoranthene	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C ₅ -C ₆ (aliphatic)	
TPH C ₆ -C ₈ (aliphatic)	
TPH C ₈ -C ₁₀ (aliphatic)	
TPH C ₁₀ -C ₁₂ (aliphatic)	
TPH C ₁₂ -C ₁₆ (aromatic)	
TPH C ₁₆ -C ₂₁ (aromatic)	
TPH C ₂₁ -C ₃₅ (aromatic)	



**APPENDIX IX
GEOTECHNICAL TESTING
RESULTS**



Laboratory Report Front Sheet		Solmek 12-16 Yarm Road, Stockton on Tees, TS18 3NA 01642 607083 lab@solmek.com	
Site name	Job number		
Ashton Old Road	22-1146		

Client details:

Reference: 22-1146
 Name: Ergo Environmental
 Address: Hoult's Yard
 Walker Rd,
 Newcastle upon Tyne,
 NE6 2HL

 Telephone: 0191 3896200
 Email: abecker@ergoenvironmental.com

 FAO: Alicia Becker

Date commenced: 17/03/2022

Date reported: 21/03/2022

Observations and interpretations are outside of 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 in full, without the prior written approval of the laboratory.

Samples will be held at the laboratory for a period of 4 weeks after the report date. After the above reporting date the samples will be disposed of. Should further testing be required then the office should be informed before the above date.

Signature:	Approved Signatories:
	☒ J. Brischuk (Laboratory Manager) ☐ ☐

Summary of Classification Tests

Site name

Job number

Ashton Old Road

22-1146

Solmek
12-16 Yarm Road,
Stockton on Tees,
TS18 3NA
01642 607083
lab@solmek.com

[illegible]

All tests found in Solmek UKAS Schedule of Accreditation are tested to standard unless otherwise indicated

Key	Description	Category	BS Test Code
w	Moisture content		BS 1377:1990 Part 2 Clause 3.2
wa	Equivalent moisture content passing 425µm sieve		BS 1377:1990 Part 2 Clause 3.2
wL	Liquid limit	-s	BS 1377:1990 Part 2 Clause 4.4
	Single point Four point	-f	BS 1377:1990 Part 2 Clause 4.3
wP	Plastic limit		BS 1377:1990 Part 2 Clause 5.2
Pa	Percentage passing 425um sieve		
Pr	Percentage retained 425um sieve		
IP	Plasticity index		BS 1377:1990 Part 2 Clause 5.4
IL	Liquidity index		BS 1377:1990 Part 2 Clause 5.4
	Suffix indicating test is "Not UKAS Accredited"	*	

Approved by	JBrischuk
Approval date	17/03/2022 19:31
Date report generated	
Report Number	



2183

Final Report

Report No.: 22-10016-1

Initial Date of Issue: 22-Mar-2022

Client Solmek Ltd

Client Address: 12 Yarm Road
Stockton-on-Tees
TS18 3NA

Contact(s): B Atkinson
Joe Brischuk
Lab
Office

Project 22-1146 Ashton Old Road, Manchester

Quotation No.: **Date Received:** 17-Mar-2022

Order No.: LAB1381 **Date Instructed:** 17-Mar-2022

No. of Samples: 4

Turnaround (Wkdays): 5 **Results Due:** 23-Mar-2022

Date Approved: 22-Mar-2022

Approved By:



Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: 22-1146 Ashton Old Road, Manchester

Client: Solmek Ltd	Chemtest Job No.:				22-10016	22-10016	22-10016	22-10016
Quotation No.:	Chemtest Sample ID.:				1392854	1392855	1392856	1392857
	Sample Location:				WS01	WS02	WS03	WS04
	Sample Type:				SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				2.5	1.0	2.5	1.8
Determinand	Accred.	SOP	Units	LOD				
Moisture	N	2030	%	0.020	35	22	25	18
pH	U	2010		4.0	[A] 8.1	[A] 8.3	[A] 8.2	[A] 8.4
Sulphate (2:1 Water Soluble) as SO4	U	2120	mg/l	10	[A] 33	[A] 10	[A] 71	[A] 12

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:
1392854			WS01		A	Plastic Tub 500g
1392855			WS02		A	Plastic Tub 500g
1392856			WS03		A	Plastic Tub 500g
1392857			WS04		A	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

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"
SOP	Standard operating procedure
LOD	Limit of detection

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 30 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