



## PHASE II GEO-ENVIRONMENTAL SITE ASSESSMENT

Land at Carlton Avenue  
Blyth  
NE24 4AP

Prepared for:



IMPERATOR  
GROUP

Report Ref: 20-596-r02  
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## ERGO LIMITED

Hoults Yard,  
Walker Road,  
Newcastle upon Tyne,  
NE6 2HL

Tel : + 00 (0) 191 389 6200  
<http://www.ergoenvironmental.com>

Registered in England  
No.: 11162116

## QUALITY ASSURANCE

REMARKS	Final
DATE	July 2020
PREPARED BY	A Becker
QUALIFICATIONS	BSc, MSc
SIGNATURE	
CHECKED BY	J Nairn
QUALIFICATIONS	BSc, MSc, MIENVSc, CEnv, FGS
SIGNATURE	
AUTHORISED BY	J Nairn
QUALIFICATIONS	BSc, MSc, MIENVSc, CEnv, FGS
SIGNATURE	
PROJECT NUMBER	20-596
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## EXECUTIVE SUMMARY

<b>Site Address</b>	Land off Carlton Avenue, Blyth, NE24 4AP.	
<b>Grid Reference</b>	E430137, N579421.	
<b>Site Area</b>	~0.70 Ha.	
<b>Current Site Use</b>	The site comprises an irregularly shaped parcel of land off Carlton Avenue in Blyth. The site is currently covered by overgrown grasses and brambles. Access can be gained from the north via Carlton Avenue or alternatively via a small lane off Newcastle Road to the west.	
<b>Proposed Development</b>	ERGO understands that Imperator Group intent to develop the site for low-rise residential end use with associated landscaping, car parking, access roads and infrastructure.	
<b>Environmental Setting</b>	<i>Drift Geology</i>	Till (Devensian – Clay).
	<i>Bedrock Geology</i>	Pennine Middle Coal Measures Formation- Mudstone, Siltstone, Sandstone.
	<i>Hydrogeology</i>	Undifferentiated strata (drift) overlying Secondary A aquifer (Solid).
	<i>Hydrology</i>	Newsham Pond is located 250m south of the site.
<b>ERGO Intrusive Ground Investigation</b>		
<b>Site Investigation Works</b>	ERGO has completed a preliminary and supplementary intrusive Ground Investigation comprising mechanically excavated trial pits, window sample boreholes and environmental monitoring installations.	
<b>Ground Conditions</b>	<p><b>Made Ground</b></p> <p>Made Ground was encountered in all exploratory hole locations and recorded to a maximum depth of 0.65m bgl. Made Ground was predominantly described as a reworked dark brown slightly clayey slightly sandy slightly gravelly topsoil, locally underlain by a firm light brown sandy slightly gravelly clay in the east of the site at depths between 0.35-0.65mbgl.</p> <p><b>Drift</b></p> <p>Natural drift deposits were encountered within all exploratory hole locations from general depths of 0.40-0.60m and proven to a maximum depth of at least 5.45mbgl. Drift deposits generally comprised firm to stiff brownish grey slightly sandy slightly gravelly CLAY. Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY was encountered within the majority of window sample probeholes between depths of 3.00-5.45mbgl.</p> <p><b>Solid</b></p> <p>Solid bedrock geology was not encountered during this investigation.</p> <p><b>Groundwater</b></p> <p>Localised groundwater was encountered in the majority of the exploratory locations at depths between 4.00-4.10mbgl as seepages.</p>	
<b>Human Health</b>	<p>Elevated concentrations of lead and dibenzo(a,h)anthracene have been identified within shallow reworked topsoil deposits.</p> <p>All of the identified elevated concentrations have primary exposure pathways related to dermal contact and ingestion of soils. The chronic risk to human health associated with the elevated concentrations on inorganic heavy metals and non-volatile PAH compounds can be mitigated through the delineation, excavation and subsequent disposal of impacted soils, or</p>	



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<b>Human Health (Continued)</b>	<p>alternatively through the placement of the reworked topsoil in areas of low sensitivity on site.</p> <p>It is considered the reworked topsoil material on site is unsuitable to be reused within residential gardens.</p> <p>It is considered that following removal of the reworked topsoil materials that garden areas will be suitable for use with placement of at least 150mm of clean imported topsoil directly overlying natural drift deposits.</p>
<b>Controlled Waters</b>	<p>A Controlled Waters Risk Assessment was beyond the scope of the intrusive investigation. However, given the low sensitivity of the site setting and the nature of the contamination encountered, the risk to controlled waters is considered to be low.</p>
<b>Ground Gas</b>	<p>Ground gas monitoring thus far has indicated the site would be classed as Characteristic Situation 1 or Green, suggesting no gas protection measures will be required. However, the final ground gas regime will be confirmed following the completion of the ground gas monitoring programme.</p>
<b>Potable Water Infrastructure</b>	<p>A well designed, managed and validated programme of enabling works should render the site suitable for PE Potable Supply Infrastructure.</p>
<b>Geotechnical Assessment</b>	
<b>Underground Obstructions &amp; Anomalies</b>	<p>Relic obstructions were not exposed during the intrusive Ground Investigation; however, their existence cannot be ruled out. The landowner identified a shallow well on site to the Ergo engineer during the intrusive works.</p>
<b>Allowable Bearing Pressure</b>	<p>The underlying natural clay drift deposits have been assessed as being generally firm to stiff with a net ABP in the order of 100kN/m<sup>2</sup> at circa 1.00m bgl for foundations up to 1.0m wide.</p>
<b>Foundation Options</b>	<p>Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net Allowable Bearing Pressure, the suitable target founding stratum has been identified as the underlying firm to stiff clays.</p> <p>It is considered that upon completion of limited site enabling works, ground conditions would allow the proposed development to be constructed on traditional strip foundations at depths of at least 0.9m bgl, with Mass Trench Fill where a greater level of excavation may be required due to obstructions, localised soft clays/Made Ground and/or tree influences in clay strata.</p> <p>Foundation depths 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 NHBC standards.</p>
<b>Building Slabs Floor</b>	<p>Current building control regulations require that where infilled ground is present to depths in excess of 600mm or where the sub-stratum is variable in terms of the structure and settlement potential or where clay soils are present within the influence of existing or proposed trees, a suspended floor slab is required.</p>
<b>Heave Precautions</b>	<p>Given that the underlying clay is of low volume change potential, heave precautions will not be required to the internal face of a foundation. However, heave precautions will be required to the underside of floor slabs (where there is no 200mm void) or ground beams within the modelled influencing distance of trees.</p>
<b>Soakaway Drainage</b>	<p>The site is predominantly underlain by likely low permeability gravelly CLAY. Therefore, the use of soakaway drainage is considered limited. As such, it</p>



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	<p>is not recommended that soakaways are utilised for disposal of surface water runoff.</p> <p>If soak-away drainage is to be considered, full BRE365 Testing must be completed to inform the detailed design.</p>
<b>Sulphate Assessment</b>	Concrete classification DS1 AC1s.
<b>CBR Design %</b>	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.
<b>Cut / Fill</b>	Development levels unknown at this time, however the site is generally level and significant cut fill works are unlikely to be required to prepare the development platform.
<b>Waste Characterisation</b>	<p>A preliminary assessment of Made Ground indicated materials to be classified as Non-Hazardous &amp; Hazardous.</p> <p>It should be noted that the classification relates to the specific samples tested during the investigation and should be confirmed with the individual landfill accepting the waste prior to disposal.</p>



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## APPENDICES

**Appendix I** Limitations

**Appendix II** Glossary

**Appendix III** Drawings

*Drawing No 20-596-001* – Site Location Plan

*Drawing No 20-596-002* – Proposed Development Plan

*Drawing No 20-596-003* – 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 Imperator Group to undertake a Phase II Geo-Environmental Site Investigation for a parcel land off Carlton Avenue, Blyth.

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 for the proposed low-rise residential development.

The scope of work consisted of following elements.

- *Design of suitable intrusive Ground Investigation;*
- *Window sample probeholes with and construction of environmental monitoring installations;*
- *Mechanically excavated trial pits;*
- *In-situ Geotechnical Testing;*
- *Chemical & Geotechnical Laboratory analysis;*
- *Groundwater monitoring;*
- *Ground gas monitoring;*
- *Contamination risk assessment;*
- *Geotechnical Assessment & Interpretation; and,*
- *Factual and interpretive reporting.*

### 1.2 Proposed Development

ERGO understands that Imperator Group intend to develop the subject site for low-rise residential end use with associated landscaping, car parking, access roads and infrastructure. Drawing 20-596-002 (Appendix III) identifies the proposed development layout.

A snapshot of the proposed development layout is indicated in Figure 1.1 below:






**Figure 1.1 Snapshot of Proposed Development**

### 1.3 Objectives

The objectives of the Geo-Environmental Investigation are to:

- Undertake a preliminary stage of sampling and analysis to provide an overview of environmental issues identified;



-  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 geotechnical information and provide preliminary recommendations in relation to foundations, pavement construction and floor slabs; and,
-  Provide recommendations regarding future works required.

#### **1.4 Previous Reports**

The following reports have previously been completed for the site:

**ERGGO** – *Environmental Soil Assessment, Land at Carlton Avenue*. Ref: 20-596-r1, dated February 2020.

For ease of reference the environmental report has been combined with the geotechnical information to create a combined report.

#### **1.5 Limitations**

The limitations of this report are presented in Appendix I.

A Phase I Desk Study Report was outside the scope of this investigation.

#### **1.6 Confidentiality**

ERGGO 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 ERGGO; a charge may be levied against such approval.



## 2. GROUND INVESTIGATION

### 2.1 General

A preliminary phase of exploratory fieldwork was completed as specified by the Client on the 10<sup>th</sup> February 2020 with a Supplementary Phase completed on the 9<sup>th</sup> July 2020. The works are summarised in Table 2.1 below.

**Table 2.1 Summary of Fieldwork**

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (mbgl)	MONITORING WELLS RESPONSE ZONE (mbgl)
General Ground Conditions including the presence / nature of obstructions.	WS101	Window Sample Probehole	5.45	1.0-5.0
	WS102		5.45	N/A
	WS103		5.45	1.0-5.0
	WS104		5.45	1.0-5.0
	WS105		5.45	N/A
	WS106		5.45	N/A
	TP101-TP108	Trial Pit	1.00	N/A

Mechanically excavated trial pits were advanced at locations agreed by the client to investigate ground conditions and to retrieve environmental samples, spatially distributed to offer the maximum site coverage. The client provided the mini excavator for the trial pits.

Window sample probeholes were advanced to undertake in-situ detailed geotechnical testing and install groundwater and ground gas monitoring wells.

The sampling locations are illustrated in Drawing 20-596-003 (Appendix III). The ground conditions encountered are indicated on the logs which are provided in Appendix IV.

Return visits were made to monitor installations for groundwater level and gas concentrations.

### 2.2 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 IV and presented in Table 3.3 and discussed in Section 5.0.

### 2.3 Laboratory Analysis

Selected soil samples were submitted for a range of chemical analysis, as specified by the client comprising, metals, spec PAHs, spec TPH's, BTEX and asbestos. 2no. WAC tests were also requested.

Chemtech undertook the analytical work and the testing results are included in Appendix V and discussed in Section 4.0.

Selected samples were submitted to a 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 3.0.



### 3. GROUND AND GROUNDWATER CONDITIONS

#### 3.1 Ground and Groundwater Conditions

##### 3.1.1 Summary of Ground Conditions

The Ground Investigation generally confirms the published geology and identifies the strata set out in Table 3.1 below:

**Table 3.1 Summary of Strata**

STRATA	GENERAL DESCRIPTION	TYPICAL DEPTH (mbgl):				LOCATION
		TOP:		BASE:		
		MIN:	MAX:	MIN:	MAX:	
MADE GROUND	MADE GROUND: Dark brown slightly clayey slightly sandy slightly gravelly topsoil.	0.00	-	0.20	0.55	TP101-TP108, WS101-WS106
MADE GROUND	MADE GROUND: Firm light brown sandy slightly gravelly clay.	0.35	0.45	0.50	0.65	TP101-TP102, WS101
CLAY	Firm dark brown sandy CLAY.	0.65	-	-	1.00	TP101
CLAY	Firm light brown sandy slightly gravelly CLAY.	0.30	0.50	-	1.00	TP102, TP104-TP105A
CLAY	Firm greyish brown sandy slightly gravelly CLAY.	0.20	4.00	1.00	5.45	TP103, TP106, WS101, WS105-WS106
CLAY	Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY.	3.00	4.00	-	5.45	WS102-WS105
CLAY	Stiff brown mottled grey slightly sandy slightly gravelly CLAY.	0.40	0.60	1.60	3.00	WS101-WS106
CLAY	Stiff brownish grey slightly sandy slightly gravelly CLAY.	1.60	4.50	3.10	5.45	WS101-WS106
CLAY	Firm orangish brown sandy gravelly CLAY	0.35	0.55	-	1.00	TP107-TP108

##### 3.1.2 Made Ground

Made Ground was encountered in all exploratory hole locations and recorded to a maximum depth of 0.65mbgl. Made Ground was predominantly described as reworked dark brown slightly clayey slightly sandy slightly gravelly topsoil, locally underlain by a firm light brown sandy slightly gravelly clay in the east of the site at depths between 0.35-0.65mbgl.

##### 3.1.3 Drift Deposits

Natural drift deposits were encountered within all exploratory hole locations from general depths of 0.40-0.60m and proven to a maximum depth of at least 5.45mbgl. Drift deposits generally comprised firm to stiff brownish grey slightly sandy slightly gravelly CLAY. Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY was encountered within the majority of window sample probeholes between depths of 3.00-5.45mbgl.

##### 3.1.4 Solid Geology

Solid bedrock geology was not encountered during this investigation.



### 3.1.5 Soil Consistency

Undrained shear strength values were measured using field hand shear vanes. Results of the tests are presented in Table 3.2 below which indicate the clay soils to vary between firm and stiff. Strength test data is generally consistent with the field descriptions of the soils given above.

**Table 3.2 Summary of Hand Shear Vane Tests**

LOCATION	DEPTH	SHEAR STRENGTH KPA	CALCULATED ALLOWABLE BEARING PRESSURE kN/m <sup>2</sup>
WS101	0.8	70	164.5
WS101	1.8	70	164.5
WS101	3.5	90	211.5
WS102	1.5	70	164.5
WS102	2.5	90	211.5
WS102	4.2	45	105.75
WS103	2.5	80	188
WS103	3.5	65	152.75
WS103	4.8	55	129.25
WS104	0.8	90	211.5
WS104	2.5	90	211.5
WS104	3.8	70	164.5
WS105	1.5	100	235
WS105	3.4	60	141
WS105	4.5	50	117.5
WS106	0.8	70	164.5
WS106	3.5	70	164.5
WS106	4.8	50	117.5

Results of the Standard Penetration Tests, including undrained shear strengths derived from SPTs are included on Table 3.3.

### 3.1.6 Side Stability and Ease of Excavation

The sides of the exploratory trial pit excavations appeared to be generally stable during excavation.



**Table 3.3 Standard/Cone Penetration Test Results**

BOREHOLES	DEPTH (mbgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE (N <sub>1</sub> ) <sub>60</sub>	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m <sup>2</sup> )
WS101	1.2	Stiff sandy slightly CLAY	8	7.85	N/A	Low strength	Firm	39.25
WS101	2	Stiff sandy slightly CLAY	11	10.05	N/A	Medium strength	Stiff	50.24
WS101	3	Stiff sandy slightly CLAY	10	8.70	N/A	Medium strength	Stiff	43.48
WS101	4	Firm sandy slightly CLAY	12	10.14	N/A	Medium strength	Stiff	50.69
WS101	5	Stiff sandy slightly CLAY	14	11.61	N/A	Medium strength	Stiff	58.07
WS102	1.2	Stiff sandy slightly CLAY	10	9.81	N/A	Medium strength	Stiff	49.06
WS102	2	Stiff sandy slightly CLAY	13	11.88	N/A	Medium strength	Stiff	59.38
WS102	3	Stiff sandy slightly CLAY	11	9.57	N/A	Medium strength	Stiff	47.83
WS102	4	Stiff sandy slightly CLAY	12	10.14	N/A	Medium strength	Stiff	50.69
WS102	5	Firm sandy slightly CLAY	13	10.79	N/A	Medium strength	Stiff	53.93
WS103	1.2	Stiff sandy slightly CLAY	10	9.81	N/A	Medium strength	Stiff	49.06
WS103	2	Stiff sandy slightly CLAY	13	11.88	N/A	Medium strength	Stiff	59.38
WS103	3	Stiff sandy slightly CLAY	10	8.70	N/A	Medium strength	Stiff	43.48
WS103	4	Firm sandy slightly CLAY	10	8.45	N/A	Medium strength	Stiff	42.24
WS103	5	Firm sandy slightly CLAY	11	9.13	N/A	Medium strength	Stiff	45.63
WS104	1.2	Stiff sandy slightly CLAY	8	7.85	N/A	Low strength	Firm	39.25
WS104	2	Stiff sandy slightly CLAY	12	10.96	N/A	Medium strength	Stiff	54.81
WS104	3	Firm sandy slightly CLAY	10	8.70	N/A	Medium strength	Stiff	43.48
WS104	4	Firm sandy slightly CLAY	9	7.60	N/A	Low strength	Firm	38.02
WS104	5	Firm sandy slightly CLAY	10	8.30	N/A	Medium strength	Stiff	41.48
WS105	1.2	Stiff sandy slightly CLAY	10	9.81	N/A	Medium strength	Stiff	49.06
WS105	2	Stiff sandy slightly CLAY	14	12.79	N/A	Medium strength	Stiff	63.95
WS105	3	Firm sandy slightly CLAY	12	10.44	N/A	Medium strength	Stiff	52.18
WS105	4	Firm sandy slightly CLAY	10	8.45	N/A	Medium strength	Stiff	42.24
WS105	5	Firm sandy slightly CLAY	12	9.96	N/A	Medium strength	Stiff	49.78



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE (N <sub>1</sub> ) <sub>60</sub>	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m <sup>2</sup> )
WS106	1.2	Stiff sandy slightly CLAY	9	8.83	N/A	Medium strength	Stiff	44.16
WS106	2	Stiff sandy slightly CLAY	12	10.96	N/A	Medium strength	Stiff	54.81
WS106	3	Stiff sandy slightly CLAY	9	7.83	N/A	Low strength	Firm	39.13
WS106	4	Firm sandy slightly CLAY	9	7.60	N/A	Low strength	Firm	38.02
WS106	5	Firm sandy slightly CLAY	12	9.96	N/A	Medium strength	Stiff	49.78



### 3.1.7 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<sub>p</sub>), defined as:

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

ie if PI is 30%, but the soil contains 80% < 425µm, then: I<sub>p</sub> = 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 3.4 below, show the clay to be of predominantly low plasticity.

**Table 3.4 Summary of Plasticity Index Test Results**

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PASSING 425µm SIEVE (%)	MODIFIED PLASTICITY INDEX	NHBC VOLUME CHANGE POTENTIAL
WS101	1.20	18	18	44	26	95	17.1	Low
WS103	1.20	20	20	43	23	93	18.6	Low
WS104	2.00	18	20	44	24	90	18	Low
WS105	2.00	17	21	44	23	91	19.1	Low
WS106	2.00	19	20	44	24	93	18.6	Low

The results of the Atterberg Limits testing confirmed that the soils would be deemed to be low Volume Change Potential in accordance with the classification system utilised by the LABC / NHBC industry guidance.

### 3.1.8 pH and Sulphate

Chemical analyses for pH and soluble sulphate content contained in Appendix V (summarised below in Table 3.5 overleaf), shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1 in accordance with BRE Special Digest 1 (2005).



**Table 3.5 Summary of pH and Sulphate Data**

LOCATION	DEPTH (m)	SO <sub>4</sub> IN 2:1 WATER / SOIL (mg/l)	pH VALUE	CLASSIFICATION
TP101	0.20	71	7.6	DS-1, AC-1
TP102	0.20	61	7.3	DS-1, AC-1
TP103	0.20	55	7.6	DS-1, AC-1
TP104	0.20	105	7.4	DS-1, AC-1
TP105A	0.20	29	6.5	DS-1, AC-1
TP106	0.10	33	7.4	DS-1, AC-1
TP107	0.20	32	7.2	DS-1, AC-1
TP108	0.20	48	7.1	DS-1, AC-1
WS101	2.00	97	8.1	DS-1, AC-1
WS103	2.00	120	8.1	DS-1, AC-1
WS104	1.20	102	8.0	DS-1, AC-1
WS106	1.20	94	8.1	DS-1, AC-1

### 3.2 Groundwater Conditions

Groundwater was encountered as seepages within several exploratory holes. The depth of the seepages are shown on the exploratory hole records and summarised in Table 3.6:

**Table 3.6 Summary Groundwater Seepages**

LOCATION	DEPTH TO GROUNDWATER (m)	NOTES
TP102	0.45	Seepage
WS101	4.10	Seepage
WS103	4.00	Seepage
WS104	4.10	Seepage
WS105	4.10	Seepage

Monitoring was undertaken using an electronic dip meter and interface probe to record the depth to groundwater and the thickness of any free phase hydrocarbon product, if present.

### 3.3 Ground Gas

A ground gas assessment has been completed in accordance with guidance provided within CIRIA 665 *Assessing risk posed by hazardous ground gases to buildings*.

#### 3.3.1 Investigation Rationale

The intrusive investigation along with anecdotal evidence from the landowner have identified that the limited thicknesses of onsite Made Ground, shallow onsite well and the adjacent former manmade ponds may represent potential sources of ground gas generation. Based the identification of these sources, ERGO has determined that the site represents a low ground gas source generation potential.

Within the context of the proposed residential end use and ground gas generation potential, the gas assessment requires 6 visits are required over 3 months with at least two sets of readings at low or falling atmospheric pressure as set out within CIRIA 665 Tables 5.5a and 5.5b.

The spacing requirements for monitoring wells are detailed within CIRIA 665 Table 4.2 this indicates that for low gas hazard sites (*Made Ground with limited degradable material, organic clay of limited thickness*) and a high sensitivity development nominal well spacing should be between 25m and 50m.

Table 3.7 (overleaf) outlines the rationale for the installation locations.



**Table 3.7**      **Ground Gas Monitoring Location Rationale**

LOCATION	GROUND GAS SOURCE	DEPTH OF MONITORING WELL (m)
WS101	Adjacent former pond	1.0 to 5.0
WS103	General.	1.0 to 5.0
WS104	On site shallow well.	1.0 to 5.0

### 3.3.2 Monitoring Methodology

Concentrations of methane (CH<sub>4</sub>), carbon dioxide (CO<sub>2</sub>) and Oxygen (O<sub>2</sub>) were measured using an infra-red gas analyser (GFM435) calibrated to a reference standard (before and after each survey) and gas flow rates were measured using an attached flow pod.

Gas measurements were recorded for a minimum of sixty seconds at each location, at which point the maximum concentration of CH<sub>4</sub> and CO<sub>2</sub> together with the lowest concentration of O<sub>2</sub> were recorded. The results of the ground gas monitoring are presented in Table 3.8 (overleaf).



**Table 3.8 Summary of Ground Gas Monitoring Results**

WELL	DATE	CH <sub>4</sub> INITIAL %V/V	CH <sub>4</sub> STEADY %V/V	CH <sub>4</sub> GSV l/hr	CO <sub>2</sub> INITIAL %V/V	CO <sub>2</sub> STEADY %V/V	CO <sub>2</sub> GSV l/hr	O <sub>2</sub> %V/V	ATMOS(mB)	ATMOS. DYNAMIC	FLOW (l/hr)	RESPONSE ZONE / STRATUM (mbgl)	DEPTH TO BASE (mbgl)	DEPTH TO WATER (mbgl)
WS101	11.07.20	0.00	0.00	0.00	0.00	0.00	0.00	18.10	1029	Rising	0.00	1.00-5.00	4.80	3.28
	21.07.20	0.00	0.00	0.00	0.10	0.10	0.00	17.90	1035	Rising	0.00		4.50	3.05
WS103	11.07.20	0.00	0.00	0.00	0.10	0.10	0.00	18.20	1029	Rising	0.00	1.00-5.00	4.70	4.10
	21.07.20	0.00	0.00	0.00	0.10	0.10	0.00	18.00	1035	Rising	0.00		4.62	3.96
WS104	11.07.20	0.00	0.00	0.00	0.50	0.50	0.00	17.90	1029	Rising	0.00	1.00-5.00	4.70	4.13
	21.07.20	0.00	0.00	0.00	0.80	0.80	0.00	17.60	1035	Rising	0.00		4.50	4.04



## 4. PRELIMINARY TIER I QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

ERGO has undertaken a Tier 1 qualitative risk assessment to determine if potential contaminants within the underlying soils pose an unacceptable level of risk to the Human Health end use receptors. A full conceptual site model has not been produced for the site, given that a Desk Study has not been commissioned for the site and therefore in lieu of this a general suite of contaminants, as specified by the client has been scheduled.

### 4.1 Human Health Risk Assessment

At a Preliminary 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) for residential end use with plant uptake. The proposed development comprises low rise residential end use.

The results of this comparison have been summarised within Table 4.1.

**Table 4.1 Summary of Inorganic and Hydrocarbon Toxicity Assessment for a Residential End Use**

DETERMINANT	UNIT	GAC	N	MC	LOC.OF EX	PATHWAY	ASSESSMENT
Arsenic	mg/kg	37	8	21	N/A	1	No Further Action
Cadmium	mg/kg	11	8	1.1	N/A	1	No Further Action
Chromium (VI)	mg/kg	6.1	8	<1	N/A	1	No Further Action
Lead	mg/kg	200	8	362	TP101 0.20m TP105A 0.20m TP108 0.20m	1	Further Action
Mercury	mg/kg	11	8	0.7	N/A	2	No Further Action
Nickel	mg/kg	180	8	51	N/A	1	No Further Action
Selenium	mg/kg	250	8	1.9	N/A	1	No Further Action
Copper	mg/kg	2400	8	138	N/A	1	No Further Action
Zinc	mg/kg	3700	8	714	N/A	1	No Further Action
Asbestos	Fibres	NFD	8	NAD	N/A	4	No Further Action
Naphthalene	mg/kg	2.3	8	0.07	N/A	2	No Further Action
Acenaphthylene	mg/kg	170	8	0.19	N/A	3	No Further Action
Acenaphthene	mg/kg	210	8	0.05	N/A	1	No Further Action
Fluorene	mg/kg	170	8	0.08	N/A	1	No Further Action
Phenanthrene	mg/kg	95	8	1.91	N/A	3	No Further Action
Anthracene	mg/kg	2400	8	0.17	N/A	3	No Further Action
Fluoranthene	mg/kg	280	8	3.77	N/A	3	No Further Action
Pyrene	mg/kg	620	8	3.75	N/A	3	No Further Action
Benzo(a)Anthracene	mg/kg	7.2	8	1.50	N/A	3	No Further Action
Chrysene	mg/kg	15	8	2.43	N/A	3	No Further Action
Benzo(b)Fluoranthene	mg/kg	2.6	8	2.42	N/A	3	No Further Action
Benzo(k)Fluoranthene	mg/kg	77	8	0.89	N/A	3	No Further Action
Benzo(a)Pyrene**	mg/kg	2.2	8	1.94	N/A	3	No Further Action
Indeno(123-cd)Pyrene	mg/kg	27	8	1.49	N/A	3	No Further Action
Dibenzo(a,h)Anthracene	mg/kg	0.24	8	0.34	TP102 0.20m	3	Further Action
Benzo(ghi)Perylene	mg/kg	320	8	1.42	N/A	3	No Further Action
TPH C5-C6 (aliphatic)*	mg/kg	42	8	<0.1	N/A	2	No Further Action
TPH C6-C8 (aliphatic)*	mg/kg	100	8	<0.1	N/A	2	No Further Action
TPH C8-C10 (aliphatic)*	mg/kg	27	8	<0.1	N/A	2	No Further Action
TPH C10-C12 (aromatic)*	mg/kg	74	8	<1	N/A	2	No Further Action
TPH C12-C16 (aromatic)*	mg/kg	140	8	<1	N/A	2	No Further Action
TPH C16-C21 (aromatic)*	mg/kg	260	8	10	N/A	1	No Further Action
TPH C21-C35 (aromatic)*	mg/kg	1100	8	12	N/A	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 (C<sub>5</sub>-C<sub>12</sub>) and the Tier 1 values for aromatic compound for the non-volatile fractions (C<sub>12</sub>-C<sub>35</sub>). 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 4.1, several elevated concentrations of potential contaminants of concerns have been identified in the samples tested when compared with Tier I GACs for a residential end use:

-  Lead; and,
-  Dibenzo(a,h)Anthracene.

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

-  The exposure pathways based on the Tier I exceedances are:
  1. Soil Ingestion
  2. Dermal Contact & Ingestion

The exceedances for all determinands are associated with shallow Made Ground reworked topsoil deposits generally in the central and north eastern sections of the site, with the exception of TP105A, located in the west of the site.

#### Risk Assessment and Mitigation

All of the identified elevated concentrations have primary exposure pathways related to dermal contact and ingestion of soils. The chronic risk to human health associated with the elevated concentrations on inorganic heavy metals and non-volatile PAH compounds can be mitigated through the delineation, excavation and subsequent disposal of impacted soils, or alternatively through the placement of the reworked topsoil in areas of low sensitivity on site.

It is considered the reworked topsoil material on site is unsuitable to remain or to be reused within residential gardens.

Chemical analysis of the natural clay drift deposits are considered to be suitable for use as subsoil within the proposed garden areas.


It is considered that following removal of the reworked topsoil materials that garden areas will be suitable for use following placement of at least 150mm of clean imported topsoil directly overlying natural drift deposits.

#### 4.2 Controlled Waters Risk Assessment

A Controlled Waters Risk Assessment was beyond the scope of the intrusive investigation. However, given the low sensitivity of the site setting and the nature of the contamination encountered, the risk to controlled waters is considered to be low.

#### 4.3 Waste Characterisation 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 (1<sup>st</sup> 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.

Asbestos was not identified in the samples tested.



In view of the preliminary assessment, the samples of Made Ground tested have been classified as Non-Hazardous.




In addition, 2no. samples of Made Ground were submitted for subsequent full WAC analysis which determined the material to be classified as Hazardous Waste due to elevated Total Organic Carbon and Loss on Ignition. 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.

#### **4.4 Ground Gas**

The potential impact on the development from ground gases has been assessed with reference to standards and guidelines published in CIRIA Report 665 (*Assessing risks posed by hazardous ground gases to buildings*, 2007). However, it is recommended that the full ground gas assessment and recommended protection measures are agreed with the local authority prior to their adoption on-site. Furthermore, all protection measures adopted should be validated by a suitably qualified engineer.

The Ground Investigation has identified the following potential sources of ground gas:

-  Shallow Made Ground deposits;
-  On site shallow well; and,
-  Former adjacent pond

##### **4.4.1 Groundwater**

Within the monitoring wells, groundwater levels were observed to fluctuate over the preliminary monitoring period with levels generally increasing. The greatest groundwater change occurred within WS101 where levels increased by 0.23m over the preliminary monitoring period. WS101 was set within a low permeability clay stratum and groundwater may be a result of surface water collecting in the well rather than a measurement of true groundwater.

##### **4.4.2 Gas Flow**

No significant flows have been recorded to date during the monitoring period.

##### **4.4.3 Gas Concentrations**

No elevated concentrations of Methane have been recorded within monitoring wells

Carbon dioxide concentrations were recorded within all the monitoring wells at concentrations ranging from 0.10% v/v to 0.80% v/v (WS104).

##### **4.4.4 Gas Assessment**

In accordance with the methodology outlined with the CIRIA publication C665, ERGO have utilised the results of the ground gas monitoring surveys to calculate a tentative Gas Screening Value (GSV). The GSVs for the monitoring positions are summarised in Table 4.2 overleaf. A flow rate of 0.10L/hr has been used in cases where no flow has been observed.



**Table 4.2 Gas Risk Profile & Location**

LOCATION	Max CO2	GSV	Max CH4	GSV	Classification
WS101	0.10	0.0001	0.00	<0.0001	Green / CS1
WS103	0.10	0.0001	0.00	<0.0001	Green / CS1
WS104	0.80	0.0008	0.00	<0.0001	Green / CS1

The GSV has been compared to the criteria outlined with CIRIA C665 to determine the level of risk to the proposed development and to ensure the appropriate remedial options are incorporated into any future building design in this area.

Preliminary ground gas monitoring suggests that the site can be classified as CS1 and it is considered that gas protection measures will not be required. However, this should be confirmed following completion of the monitoring period and following regulatory approval.



## 5. GEOTECHNICAL ASSESSMENT

### 5.1 Proposed Development

ERGO understands that Emperor Group will develop the subject site for low-rise residential end use with associated landscaping, car parking, access roads and infrastructure. Drawing 20-596-002 (Appendix III) identifies the proposed development layout.

### 5.2 Summary of Ground Conditions

#### Made Ground

Made Ground was encountered in all exploratory hole locations and recorded to a maximum depth of 0.65mbgl. Made Ground was predominantly described as a reworked dark brown slightly clayey slightly sandy slightly gravelly topsoil, locally underlain by a firm light brown sandy slightly gravelly clay in the east of the site at depths between 0.35-0.65mbgl.

#### Drift




Natural drift deposits were encountered within all exploratory hole locations from general depths of 0.40-0.60m and proven to a maximum depth of at least 5.45mbgl. Drift deposits generally comprised firm to stiff brownish grey slightly sandy slightly gravelly CLAY. Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY was encountered within the majority of window sample probeholes between depths of 3.00-5.45mbgl.

#### Solid

Solid bedrock geology was not encountered during this investigation.

### 5.3 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:

-  A shallow well feature was indicated to ERGO by the landowner during the intrusive works, this should be taken into account during the design/preparation works;
-  Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill; and,
-  Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill.

### 5.4 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.

Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net Allowable Bearing Potential, the suitable target founding stratum has been identified as the underlying natural firm to stiff clays at depths of c.1.0m.

Subject to receipt of finished floor levels (FFLs), aboricultural survey and following clearance/stripping of the site it is considered that shallow spread foundations should be suitable for the proposed structures.

Based on the results of insitu testing and visual descriptions, a safe bearing capacity in the order of 100kN/m<sup>2</sup> has been determined for strip foundations up to 1.0m wide founding on the natural firm/stiff clays at depths of 0.9mbgl. At this width of foundation and bearing pressure settlements should be within tolerable limits.

Should localised shallow soft clays/variable ground be encountered at foundation level, foundations should be deepened to found on underlying competent ground.



Groundwater has been recorded locally at shallow depths in monitoring wells, this should be taken in to account when planning excavation works.

Reinforcement of foundations is recommended where variable ground conditions are encountered or the foundations deepened wholly to found within one material type. Care would be required with extending footing trenches not to penetrate weaker soil, or soil that may be detrimentally impacted by groundwater.

Foundation depths 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 NHBC standards.

Overdeepened foundations should be stepped in accordance with NHBC Standards, Chapter 4.4.

It is recommended that at working drawing stage a foundation schedule is prepared for the development taking account of the physical change of natural clay soils and the current / proposed locations of trees.

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

## **5.5 Ground Floor Slabs**

Current building control regulations require that where infilled ground is present to depths in excess of 600mm or where the sub-stratum is variable in terms of the structure and settlement potential or where clay soils are present within the influence of existing or proposed trees, a suspended floor slab is required.

In this instance it is considered that for the majority of substructures, the underlying stratum would have less than 600mm of infill and as such a ground bearing floor slabs will be suitable. However, where there is in excess of 600mm of infill identified suspended floor slabs will be required.

Where a cast in-situ suspended slab is utilised with no sub-floor void, appropriate compressible material (heave precautions) will be required in the construction of the sub-structure.

## **5.6 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 Low Volume Change precautions are not required to the internal face of the external load bearing walls (outside or within tree influence).

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.

If the ground floor slab is to be constructed with a beam and block floor, a minimum sub-floor void of 200mm is required within any structures located in the zone of conjectured tree influence.

If the ground floor slab is constructed with a cast in-situ suspended floor slab heave precautions that can tolerate 50mm of clay swelling are required within any part of the floor slab to be located within the zone of influence of a tree.

A summary of heave precautions is present in Table 5.1 (overleaf).



**Table 5.1 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 Former 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		

## 5.7 Pavement Construction

A programme of remediation and enabling works will be required to remediate the proposed road sub-grade in accordance with the requirements of the highways design manual (series 600) for a Method Compaction.

It is considered that the material can be re-engineered to a method to achieve a CBR in excess of 3-5% if works are completed in favourable climatic conditions.

## 5.8 Drainage

The site is predominantly underlain by likely low permeability gravelly CLAY. Therefore, the use of soak-away drainage is considered limited. As such, it is not recommended that soakaways are utilised for disposal of surface water runoff.

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

## 5.9 Concrete Durability

Based upon the results of the chemical analyses summarised in 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).

## 5.10 Excavations

Trial Pits were generally stable in both Made Ground and natural strata, as such it is considered that near surface excavations will be feasible.

Site observations indicated that excavations should be feasible in the near surface with normal plant. It is anticipated that any obstructions will be grubbed out during the reduced level dig for the sub structure works.

However, due to the possibility of trench collapse it is considered that all excavations are supported or battered back in accordance with guidance contained in CIRIA R97.

Observations made during the fieldwork and supplementary monitoring works recorded groundwater to be present at depths ranging between 0.45-4.10mbgl. Groundwater was generally encountered as slight seepages. However, 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 5.2 Civil Engineering Excavation Risk Matrix**

Risk Item	Present	Comment
Running Sands	No	Running sands have not been encountered in the exploratory holes undertaken.
Minor Water ingress	No	If identified, minor water ingress will require localised dewatering / sump pumping during the construction of site drainage infrastructure. Ingress of water into foundation excavation will potentially flood foundation excavations limiting the viability of spread foundations to be constructed.
Shallow Bedrock	No	N/A

### 5.11 Construction Activity and Inspection

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

-  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 dewatering 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. Particular account should be taken of the gas results; 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).



## 6. CONCLUSIONS

Contaminated Land	
Human Health	<p>Elevated lead and dibenzo(a,h)anthracene have been identified within shallow reworked topsoil deposits.</p> <p>All of the identified elevated concentrations have primary exposure pathways related to dermal contact and ingestion of soils. The chronic risk to human health associated with the elevated concentrations on inorganic heavy metals and non-volatile PAH compounds can be mitigated through the delineation, excavation and subsequent disposal of impacted soils, or alternatively through the placement of the reworked topsoil in areas of low sensitivity on site.</p> <p>It is considered the reworked topsoil material on site is unsuitable to be reused within residential gardens.</p> <p>Chemical analysis of the natural clay drift deposits has identified these soils to be acceptable for use as subsoil within the proposed garden areas.</p> <p>It is considered that following removal of the reworked topsoil materials that garden areas will be suitable for use with placement of at least 150mm of clean imported topsoil directly overlying natural drift deposits.</p>
Controlled Waters	Low risk to Controlled Waters.
Ground Gas	Characteristic Situation 1 (pending completion of gas monitoring).
Potable Water	A well designed, managed and validated programme of enabling works should render the site suitable for PE Potable Supply Infrastructure.
Geotechnical Issues	
<p>Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net Allowable Bearing Pressure, the suitable target founding stratum has been identified as the underlying firm to stiff clays.</p> <p>It is considered that upon completion of limited site enabling works, ground conditions would allow the proposed development to be constructed on traditional strip foundations at depths of at least 0.9m bgl, with Mass Trench Fill where a greater level of excavation may be required due to obstructions, localised soft clays/Made Ground and/or tree influences in clay strata.</p>	

**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

<b>AST</b>	Above Ground Storage Tank	<b>SGV</b>	Soil Guideline Value
<b>BGS</b>	British Geological Survey	<b>SPH</b>	Separate Phase Hydrocarbon
<b>BSI</b>	British Standards Institute	<b>TPH CWG</b>	Total Petroleum Hydrocarbon (Criteria Working Group)
<b>BTEX</b>	Benzene, Toluene, Ethylbenzene, Xylenes	<b>SPT</b>	Standard Penetration Test
<b>CIEH</b>	Chartered Institute of Environmental Health	<b>SVOC</b>	Semi Volatile Organic Compound
<b>CIRIA</b>	Construction Industry Research Association	<b>UST</b>	Underground Storage Tank
<b>CLEA</b>	Contaminated Land Exposure Assessment	<b>VCCs</b>	Vibro Concrete Columns
<b>CSM</b>	Conceptual Site Model	<b>VOC</b>	Volatile Organic Compound
<b>DNAPL</b>	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)	<b>WTE</b>	Water Table Elevation
<b>DWS</b>	Drinking Water Standard	<b>m</b>	Metres
<b>EA</b>	Environment Agency	<b>km</b>	Kilometres
<b>EQS</b>	Environmental Quality Standard	<b>%</b>	Percent
<b>GAC</b>	General Assessment Criteria	<b>%v/v</b>	Percent volume in air
<b>GL</b>	Ground Level	<b>mb</b>	Milli Bars (atmospheric pressure)
<b>GSV</b>	Gas Screening Value	<b>l/hr</b>	Litres per hour
<b>HCV</b>	Health Criteria Value	<b>µg/l</b>	Micrograms per Litre (parts per billion)
<b>ICSM</b>	Initial Conceptual Site Model	<b>ppb</b>	Parts Per Billion
<b>LNAPL</b>	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)	<b>mg/kg</b>	Milligrams per kilogram (parts per million)
<b>ND</b>	Not Detected	<b>ppm</b>	Parts Per Million
<b>LMRL</b>	Lower Method Reporting Limit	<b>mg/m<sup>3</sup></b>	Milligram per metre cubed
<b>NR</b>	Not Recorded	<b>m bgl</b>	Metres Below Ground Level
<b>PAH</b>	Polycyclic Aromatic Hydrocarbon	<b>m bcl</b>	Metre Below Cover Level
<b>PCB</b>	Poly-Chlorinated Biphenyl	<b>mAOD</b>	Metres Above Ordnance Datum (sea level)
<b>PID</b>	Photo Ionisation Detector	<b>kN/m<sup>2</sup></b>	Kilo Newtons per metre squared
<b>QA</b>	Quality Assurance	<b>µm</b>	Micro metre
<b>SGV</b>	Soil Guideline Value		



**APPENDIX III  
DRAWINGS**









FULL PLANNING APPLICATION REQUIRED TO MAKE ANY AMENDS TO EXISTING BUNGALOW SITE

THESE ARE HAND DRAUGHT FOR INFORMATION ONLY AND ARE NOT TO BE USED FOR CONSTRUCTION

Key:

Notes:

P1	-	20.04.2021	DRAFT	AB	JN
Phase	Revision	Date	Issue	Drawn	Authorised
Client:			Job No:	20-596	Date: 20.04.2021
Imperator Group			Drawing No:	002	Scale: NTS
Job Title:			Drawing Title:		
Carlton Avenue, Blyth			Proposed Development Plan		



Ergo Environmental Ltd  
Tel: 0191 389 6200  
Website: [www.ergoenvironmental.com](http://www.ergoenvironmental.com)  
Email: [info@ergoenvironmental.com](mailto:info@ergoenvironmental.com)

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Revision

S3	P01.02	03.12.19	ME	DB	Completed
RED LINE AMENDED TO INCLUDE BUNGALOW (PLOT 17)					
S3	P01.01	N/A	ME	DB	Completed
ISSUED AS PART OF FULL PLANS APPLICATION					

BLAKE HOPKINSON  
ARCHITECTURE  
+ DESIGN

BLAKE HOPKINSON ARCHITECTURE

UNIT 6027403

NORTH SHIELDS, TYNE & WEAR NE19 2ST7022

www.blakehopkinson.co.uk

Project Name:

Proposed Residential Development

Carlton Avenue, Byth

Imperator Development

BHA Project No:

RES731

North Arrow

North

Location Symbols

- TP101 Approximate Trial Pit Location
- WS101 Approximate Window Sample Probehole Location
- WS101(MM) Approximate Window Sample Probehole Location with Install

P1	-	09.07.2020	DRAFT	AB	JN
Phase	Revision	Date	Issue	Drawn	Authorised

Client:	Imperator Group	Job No:	20-596	Date:	09.07.2020
		Drawing No:	003	Scale:	NTS

Job Title:	Carlton Avenue, Byth	Drawing Title:	Exploratory Hole Location Plan
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Ergo Environmental Ltd  
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Website: [www.ergoenvironmental.com](http://www.ergoenvironmental.com)  
Email: [info@ergoenvironmental.com](mailto:info@ergoenvironmental.com)

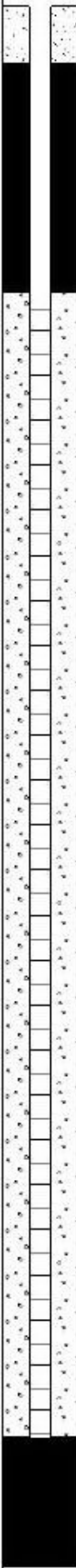

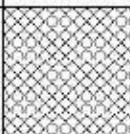
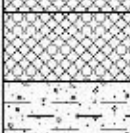
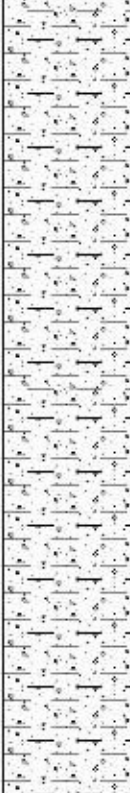
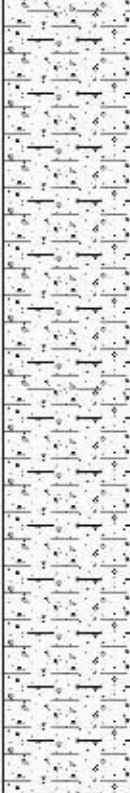
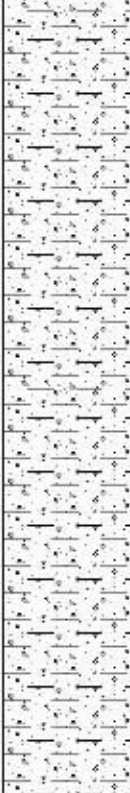
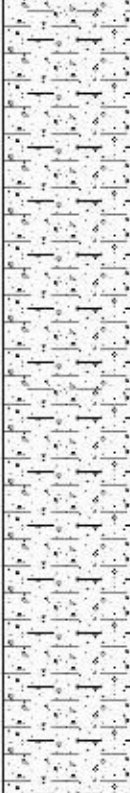
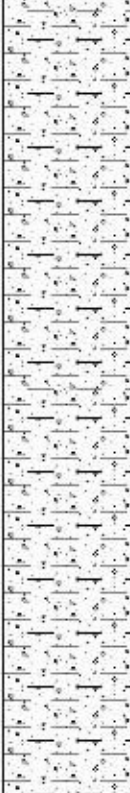
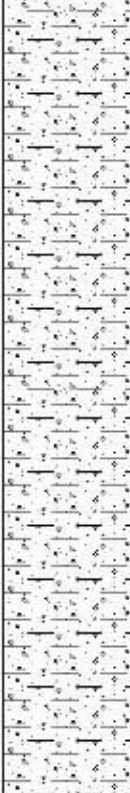
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**APPENDIX IV  
ERGO EXPLORATORY HOLE LOGS**





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
								MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.	1			
					0.40			MADE GROUND: Firm light brown sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.				
		0.80		HVP=70				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 and mudstone.	1			
		1.20	D SPT	N=8 (1,1/2,2,2,2) HVP=60								
		1.20										
		1.40										
		1.80		HVP=70								2
		2.00	D SPT	N=11 (2,2/3,2,3,3)								
		2.00										
		2.50		HVP=80					3			
		3.00	D SPT	N=10 (2,1/2,3,2,3)								
		3.00										
		3.50		HVP=90							Stiff brownish grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and mudstone.	4
		4.00	D SPT	N=12 (2,2/2,3,3,4)								
		4.00										
4.40		HVP=40		4.50		Firm greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and occasional coal.	5					
4.80		HVP=60										
5.00	D SPT	N=14 (2,2/3,3,4,4)										
5.00												
5.45										6		
					End of Borehole at 5.45m							

[illegible]

1. Complete at 5.45mbgl. 2. Groundwater encountered at 4.10mbgl as a seepage.

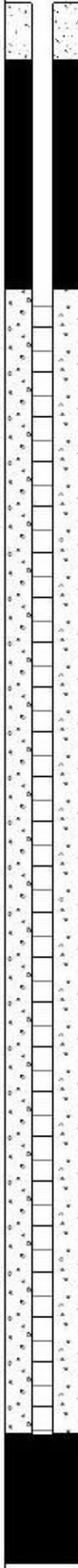

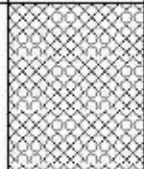
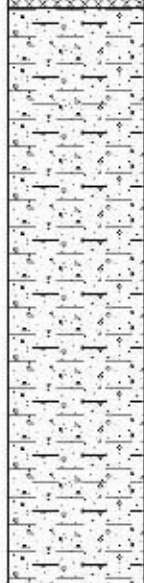
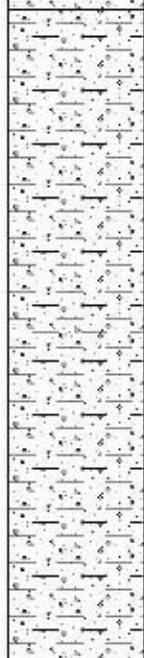
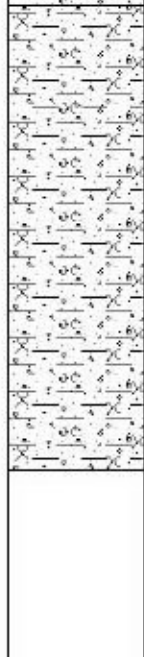
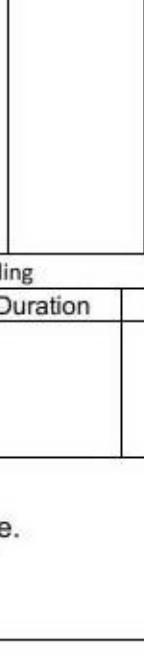





Project Name: Carlton Avenue					Client: Imperator Group					Date: 09/07/2020				
Location: Blyth					Contractor: TDS									
Project No. : 20-596					Crew Name: GT					Drilling Equipment: Window Sample Rig				
Borehole Number WS102			Hole Type WS					Logged By AB		Scale 1:33		Page Number Sheet 1 of 1		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results										
		0.60		HVP=50	0.40			MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.  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 and mudstone.				1		
		1.20 1.20	D SPT	N=10 (1,1/2,2,3,3)							2			
		1.50											HVP=70	
		2.00 2.00	D SPT	N=13 (2,2/3,3,3,4)							3			
		2.50											HVP=90	
		3.00 3.00	D SPT	N=11 (2,2/2,2,3,4)							4			
		3.50											HVP=100	
		4.00 4.00 4.20	D SPT	N=12 (2,2/2,3,3,4) HVP=45	4.10						5			
		4.80											HVP=50	
		5.00 5.00	D SPT	N=13 (2,2/3,3,3,4)	5.45						6			
End of Borehole at 5.45m														
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 5.45mbgl. 2. No groundwater encountered.														





Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.50			MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.	1
		0.80		HVP=80				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 and mudstone.	
		1.20	D SPT	N=10 (1,1/2,2,3,3)	2.20			Stiff brownish 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 occasional coal.	2
		1.20							
		1.50							
		2.00	D SPT	N=13 (2,2/2,3,4,4)	2.20			Stiff brownish 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 occasional coal.	3
		2.00							
		2.50							
		3.00	D SPT	N=10 (2,2/2,2,3,3)	4.10			Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of mudstone.	4
		3.00							
		3.50							
		4.00	D SPT	N=10 (2,2/2,2,3,3)	4.10			Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of mudstone.	5
4.00									
4.20	HVP=45								
4.80	D SPT	N=11 (2,2/2,2,3,4)	5.45				6		
5.00								HVP=55	
5.00							End of Borehole at 5.45m		

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

1. Complete at 5.45mbgl. 2. Groundwater encountered at 4.00mbgl as a seepage.







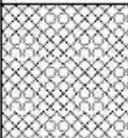
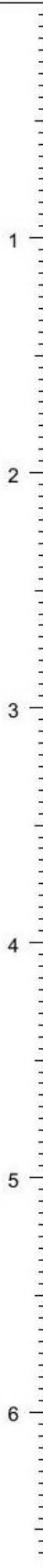
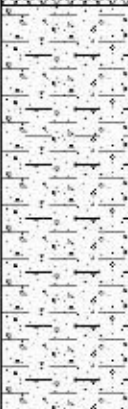
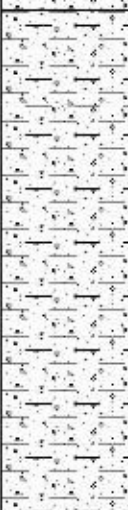
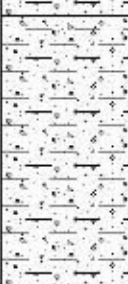
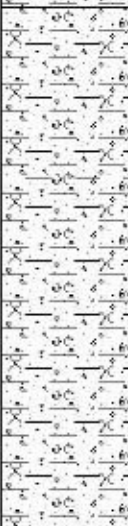
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.	1
		0.80		HVP=90				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 occasional coal.	
		1.20	D SPT	N=8 (1,2/2,2,2,2)					
		1.20							
		1.50							HVP=110
		2.00	D SPT	N=12 (2,2/3,3,3,3)					2
		2.00							
		2.50							
		3.00	D SPT	N=10 (2,1/2,2,3,3)					3
		3.00							
		3.50							
		3.80		HVP=70					4
		4.00	D SPT	N=9 (2,1/2,2,2,3)					
		4.00							
		4.30							HVP=50
4.80		HVP=50					5		
5.00	D SPT	N=10 (2,2/2,2,3,3)							
5.00									
5.45							End of Borehole at 5.45m	6	

[illegible]

1. Complete at 5.45mbgl. 2. Groundwater encountered at 4.10mbgl as a seepage.





Project Name: Carlton Avenue				Client: Imperator Group				Date: 09/07/2020			
Location: Blyth				Contractor: TDS							
Project No. : 20-596				Crew Name: GT				Drilling Equipment: Window Sample Rig			
Borehole Number WS105		Hole Type WS				Logged By AB		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							
					0.40			MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.			
		0.80		HVP=80				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 occasional coal.			
		1.20 1.20	D SPT	N=10 (1,2/2,2,2,4)							
		1.50		HVP=100	1.60						
		2.00 2.00	D SPT	N=14 (1,2/3,3,4,4)				Stiff brownish 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 occasional coal.			
		2.50		HVP=90							
		3.00 3.00	D SPT	N=12 (2,2/3,2,3,4)	3.10			Firm brownish grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and mudstone.			
		3.40		HVP=60							
		3.80		HVP=55	3.90						
		4.00 4.00	D SPT	N=10 (2,2/2,2,3,3)				Firm brownish grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and mudstone.			
		4.50		HVP=50							
		5.00 5.00	D SPT	N=12 (2,2/3,3,3,3)	5.45						
										End of Borehole at 5.45m	
		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 5.45mbgl. 2. Groundwater encountered at 4.10mbgl as a seepage.											


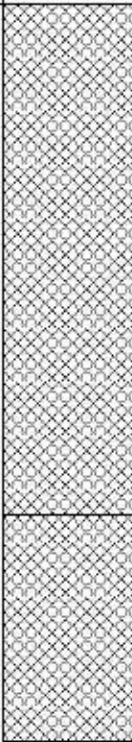




Project Name: Carlton Avenue					Client: Imperator Group					Date: 09/07/2020				
Location: Blyth					Contractor: TDS									
Project No. : 20-596					Crew Name: GT					Drilling Equipment: Window Sample Rig				
Borehole Number WS106			Hole Type WS					Logged By AB		Scale 1:33		Page Number Sheet 1 of 1		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results										
					0.40			MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.				1  <		



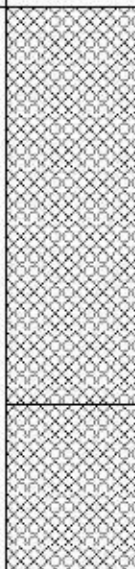




Project Name: Carlton Avenue					Client: Imperator Group					Date: 10/02/2020				
Location: Blyth					Contractor: Imperator Group									
Project No. : 20-596					Crew Name: JW					Equipment: Mini Digger				
Location Number TP101			Location Type TP					Logged By LB		Scale 1:10		Page Number Sheet 1 of 1		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results										
		0.20	ES	HVP=62	0.45	0.65		MADE GROUND: Grass onto dark brown slightly clayey slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone, coal and occasional brick. Roots and rootlets noted. Glass fragments noted.				1		
		0.60	ES					MADE GROUND: Firm light brown sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick.						
		0.90						Firm dark brown sandy CLAY. Sand is fine to coarse. Occasional orangish brown sandy lenses noted.						
		1.00	ES					End of Trial Pit at 1.00m						
Dimensions				Trench Support and Comment						Pumping Data				
Pit Length		Pit Width		Pit Stability	Shoring Used	Remarks			Date	Rate	Remarks			
1.50		0.30		Stable										
Remarks														
1. Completed at 1.00mbgl. 2. No groundwater encountered. 3. Stable.														





Project Name: Carlton Avenue					Client: Imperator Group					Date: 10/02/2020				
Location: Blyth					Contractor: Imperator Group									
Project No. : 20-596					Crew Name: JW					Equipment: Mini Digger				
Location Number TP102			Location Type TP					Logged By LB		Scale 1:10		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	HVP=48	0.35	0.50		MADE GROUND: Grass onto dark brown slightly clayey slightly sandy slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone, coal and occasional brick. Rootlets noted.				1		
		0.40	ES					MADE GROUND: Firm light brown sandy slightly gravelly clay. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, coal and occasional brick.						
		0.60	ES					Firm light brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and coal. Occasional orangish brown sandy lenses noted.						
		0.80												
					1.00			End of Trial Pit at 1.00m				2		
Dimensions				Trench Support and Comment							Pumping Data			
Pit Length		Pit Width		Pit Stability	Shoring Used	Remarks				Date	Rate	Remarks		
1.80		0.30		Stable										
Remarks														
1. Completed at 1.00mbgl. 2. Groundwater encountered at 0.45mbgl as a seepage. 3. Stable.														





Project Name: Carlton Avenue				Client: Imperator Group				Date: 10/02/2020			
Location: Blyth				Contractor: Imperator Group							
Project No. : 20-596				Crew Name: JW				Equipment: Mini Digger			
Location Number TP103		Location Type TP				Logged By LB		Scale 1:10		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	HVP=62	0.40			MADE GROUND: Grass onto dark brown slightly clayey sandy slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, coal and occasional brick. Rootlets noted.	1		
		0.50	ES					Firm greyish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.			
		0.70									
		0.80	ES								
					1.00			End of Trial Pit at 1.00m	2		
Dimensions				Trench Support and Comment					Pumping Data		
Pit Length		Pit Width		Pit Stability	Shoring Used	Remarks			Date	Rate	Remarks
2.10		0.30		Stable							
Remarks											
1. Completed at 1.00mbgl. 2. No groundwater encountered. 3. Stable.											



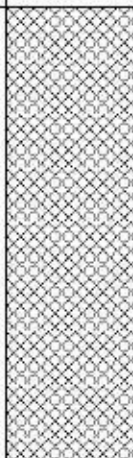




Project Name: Carlton Avenue				Client: Imperator Group				Date: 10/02/2020			
Location: Blyth				Contractor: Imperator Group							
Project No. : 20-596				Crew Name: JW				Equipment: Mini Digger			
Location Number TP104		Location Type TP				Logged By LB		Scale 1:10		Page Number Sheet 1 of 1	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.20	ES	HVP=62	0.45			MADE GROUND: Grass onto dark brown slightly clayey sandy slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, coal and occasional brick. Rootlets noted. Glass fragments noted.		1	
		0.50	ES					Firm light brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and brick.			
		0.60									
					1.00			End of Trial Pit at 1.00m		2	
Dimensions				Trench Support and Comment				Pumping Data			
Pit Length		Pit Width		Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks	
2.10		0.30		Stable							
Remarks											
1. Completed at 1.00mbgl. 2. No groundwater encountered. 3. Stable.											





Project Name: Carlton Avenue				Client: Imperator Group				Date: 10/02/2020			
Location: Blyth				Contractor: Imperator Group							
Project No. : 20-596				Crew Name: JW				Equipment: Mini Digger			
Location Number TP105		Location Type TP				Logged By LB		Scale 1:10		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							
					0.40			MADE GROUND: Grass onto dark brown clayey sandy slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone and occasional brick. Rootlets noted.			
								End of Trial Pit at 0.40m			
Dimensions		Trench Support and Comment					Pumping Data				
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks			Date	Rate	Remarks		
1.70	0.30	Stable									
Remarks											
1. Terminated at 0.40mbgl due to suspected field drain. 2. Groundwater encountered as seepage at 0.40mbgl. 3. Stable.											





Project Name: Carlton Avenue					Client: Imperator Group					Date: 10/02/2020				
Location: Blyth					Contractor: Imperator Group									
Project No. : 20-596					Crew Name: JW					Equipment: Mini Digger				
Location Number TP105A			Location Type TP					Logged By LB		Scale 1:10		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	HVP=64	0.30			MADE GROUND: Grass onto dark brown slightly clayey sandy slightly gravelly topsoil. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, mudstone and coal. Cobbles of brick noted.				1		
		0.60	ES					Firm light brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal. Occasional orangish brown sandy lenses noted.						
							0.70							End of Trial Pit at 1.00m
Dimensions					Trench Support and Comment					Pumping Data				
Pit Length		Pit Width		Pit Stability	Shoring Used	Remarks				Date	Rate	Remarks		
2.10		0.30		Stable										
Remarks														
1. Completed at 1.00mbgl. 2. No groundwater encountered. 3. Stable.														






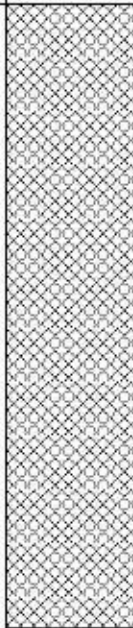
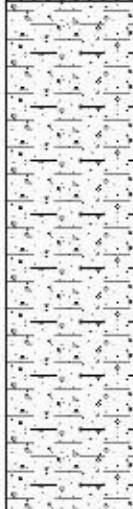
Project Name: Carlton Avenue				Client: Imperator Group				Date: 10/02/2020			
Location: Blyth				Contractor: Imperator Group							
Project No. : 20-596				Crew Name: JW				Equipment: Mini Digger			
Location Number TP106		Location Type TP				Logged By LB		Scale 1:10		Page Number Sheet 1 of 1	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.10	ES	HVP=68	0.20			MADE GROUND: Grass onto brown slightly clayey sandy slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, coal and occasional brick. Rootlets noted. Fragments of ceramic noted.		1	
		0.40						Firm greyish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal. Occasional orangish brown sandy lenses noted.			
		0.60	ES								
					1.00			End of Trial Pit at 1.00m		2	
Dimensions				Trench Support and Comment				Pumping Data			
Pit Length		Pit Width		Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks	
2.10		0.30		Stable							
Remarks											
1. Completed at 1.00mbgl. 2. No groundwater encountered. 3. Stable.											









Project Name: Carlton Avenue				Client: Imperator Group				Date: 10/02/2020				
Location: Blyth				Contractor: Imperator Group								
Project No. : 20-596				Crew Name: JW				Equipment: Mini Digger				
Location Number TP108		Location Type TP				Logged By LB		Scale 1:10		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	HVP=50	0.55		MADE GROUND: Grass onto brown slightly clayey sandy slightly gravelly topsoil (reworked). Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of sandstone, coal and occasional brick. Rootlets noted. Fragments of ceramic noted.					
		0.50										
		0.70	ES	HVP=56	1.00		Firm orangish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and coal.					
		0.80										
		1.00	ES				End of Trial Pit at 1.00m					



**APPENDIX V  
CHEMICAL TESTING RESULTS**





## ANALYTICAL TEST REPORT

**Contract no:** 84307

**Contract name:** Carlton Avenue, Blyth

**Client reference:** 20-596

**Clients name:** Ergo Environmental

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

**Samples received:** 11 February 2020

**Analysis started:** 11 February 2020

**Analysis completed:** 18 February 2020

**Report issued:** 18 February 2020

**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.

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

**Approved by:**

Dave Bowerbank  
Customer Support Hero



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## 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.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
84307-1	TP101	0.20	Sandy Clay with Gravel & Roots	-	-	31.9
84307-2	TP102	0.20	Sandy Clay with Gravel & Roots	-	-	20.7
84307-3	TP103	0.20	Sandy Clay with Gravel & Roots	-	-	27.6
84307-4	TP104	0.20	Sandy Clay with Gravel & Roots	-	-	23.9
84307-5	TP105A	0.20	Sandy Clay with Gravel & Roots	-	-	27.2
84307-6	TP106	0.10	Sandy Clay with Gravel & Roots	-	-	28.1
84307-7	TP107	0.20	Sandy Clay with Gravel & Roots	-	-	26.9
84307-8	TP108	0.20	Sandy Clay with Gravel & Roots	-	-	38.1



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## SOILS

Lab number			84307-1	84307-2	84307-3	84307-4	84307-5	84307-6
Sample id			TP101	TP102	TP103	TP104	TP105A	TP106
Depth (m)			0.20	0.20	0.20	0.20	0.20	0.10
Date sampled			10/02/2020	10/02/2020	10/02/2020	10/02/2020	10/02/2020	10/02/2020
Test	Method	Units						
Antimony (total)	CE127 <sup>U</sup>	mg/kg Sb	9.7	-	-	-	-	3.6
Arsenic (total)	CE127 <sup>M</sup>	mg/kg As	16	15	18	14	20	21
Barium (total)	CE127 <sup>M</sup>	mg/kg Ba	431	-	-	-	-	269
Cadmium (total)	CE127 <sup>M</sup>	mg/kg Cd	1.1	0.9	0.7	0.6	0.6	0.6
Chromium (total)	CE127 <sup>M</sup>	mg/kg Cr	84	57	82	74	73	89
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 <sup>M</sup>	mg/kg Cu	138	72	67	106	66	61
Lead (total)	CE127 <sup>M</sup>	mg/kg Pb	335	161	127	179	209	136
Mercury (total)	CE127 <sup>M</sup>	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Molybdenum (total)	CE127 <sup>M</sup>	mg/kg Mo	5.9	-	-	-	-	7.0
Nickel (total)	CE127 <sup>M</sup>	mg/kg Ni	43	35	38	36	42	51
Selenium (total)	CE127 <sup>M</sup>	mg/kg Se	1.5	1.4	1.5	1.2	1.6	1.9
Zinc (total)	CE127 <sup>M</sup>	mg/kg Zn	714	620	250	283	256	273
pH	CE004 <sup>M</sup>	units	7.6	7.3	7.6	7.4	6.5	7.4
Sulphate (2:1 water soluble)	CE061 <sup>M</sup>	mg/l SO <sub>4</sub>	71	61	55	105	29	33
Total Organic Carbon (TOC)	CE072 <sup>M</sup>	% w/w C	6.3	11.5	7.7	7.0	5.9	3.8
Estimate of OMC (calculated from TOC)	CE072 <sup>M</sup>	% w/w	10.8	19.9	13.3	12.1	10.2	6.5
<b>PAH</b>								
Naphthalene	CE087 <sup>M</sup>	mg/kg	<0.02	0.07	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	CE087 <sup>M</sup>	mg/kg	0.03	0.19	<0.02	<0.02	<0.02	<0.02
Acenaphthene	CE087 <sup>M</sup>	mg/kg	<0.02	0.05	<0.02	<0.02	<0.02	<0.02
Fluorene	CE087 <sup>U</sup>	mg/kg	<0.02	0.08	<0.02	<0.02	0.03	0.02
Phenanthrene	CE087 <sup>M</sup>	mg/kg	0.25	1.91	0.16	0.21	0.49	0.42
Anthracene	CE087 <sup>U</sup>	mg/kg	0.05	0.17	0.03	0.06	0.07	0.11
Fluoranthene	CE087 <sup>M</sup>	mg/kg	0.51	3.77	0.33	0.48	0.78	0.97
Pyrene	CE087 <sup>M</sup>	mg/kg	0.44	3.75	0.29	0.38	0.65	0.74
Benzo(a)anthracene	CE087 <sup>U</sup>	mg/kg	0.23	1.50	0.15	0.25	0.37	0.46
Chrysene	CE087 <sup>M</sup>	mg/kg	0.34	2.43	0.25	0.32	0.53	0.57
Benzo(b)fluoranthene	CE087 <sup>M</sup>	mg/kg	0.37	2.42	0.26	0.38	0.53	0.66
Benzo(k)fluoranthene	CE087 <sup>M</sup>	mg/kg	0.14	0.89	0.09	0.15	0.23	0.25
Benzo(a)pyrene	CE087 <sup>U</sup>	mg/kg	0.31	1.94	0.19	0.27	0.42	0.49
Indeno(123cd)pyrene	CE087 <sup>M</sup>	mg/kg	0.27	1.49	0.16	0.23	0.31	0.38
Dibenz(ah)anthracene	CE087 <sup>M</sup>	mg/kg	0.05	0.34	0.05	0.05	0.08	0.10
Benzo(ghi)perylene	CE087 <sup>M</sup>	mg/kg	0.23	1.42	0.16	0.23	0.32	0.38
PAH (total of USEPA 16)	CE087	mg/kg	3.22	22.4	2.11	3.02	4.80	5.54
<b>BTEX &amp; TPH</b>								
Benzene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
m & p-Xylene	CE192 <sup>U</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
o-Xylene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



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## SOILS

Lab number			84307-1	84307-2	84307-3	84307-4	84307-5	84307-6
Sample id			TP101	TP102	TP103	TP104	TP105A	TP106
Depth (m)			0.20	0.20	0.20	0.20	0.20	0.10
Date sampled			10/02/2020	10/02/2020	10/02/2020	10/02/2020	10/02/2020	10/02/2020
Test	Method	Units						
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1	<1	<1	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1	<1	<1	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	2	10	1	1	2	1
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	6	12	1	4	2	4
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	1	2	<1	<1	<1	<1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	<4	<4	<4	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	6	<4	<4	<4	<4	<4
EPH Aliphatic (>C16-C35)	CE068	mg/kg	86	172	19	52	37	55
EPH Aliphatic (>C35-C44)	CE068	mg/kg	10	20	<10	<10	<10	<10
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD



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## SOILS

<b>Lab number</b>			84307-7	84307-8
<b>Sample id</b>			TP107	TP108
<b>Depth (m)</b>			0.20	0.20
<b>Date sampled</b>			10/02/2020	10/02/2020
<b>Test</b>	<b>Method</b>	<b>Units</b>		
Antimony (total)	CE127 <sup>U</sup>	mg/kg Sb	-	-
Arsenic (total)	CE127 <sup>M</sup>	mg/kg As	19	17
Barium (total)	CE127 <sup>M</sup>	mg/kg Ba	-	-
Cadmium (total)	CE127 <sup>M</sup>	mg/kg Cd	0.8	0.8
Chromium (total)	CE127 <sup>M</sup>	mg/kg Cr	73	73
Chromium (VI)	CE146	mg/kg CrVI	<1	<1
Copper (total)	CE127 <sup>M</sup>	mg/kg Cu	61	74
Lead (total)	CE127 <sup>M</sup>	mg/kg Pb	143	362
Mercury (total)	CE127 <sup>M</sup>	mg/kg Hg	0.7	<0.5
Molybdenum (total)	CE127 <sup>M</sup>	mg/kg Mo	-	-
Nickel (total)	CE127 <sup>M</sup>	mg/kg Ni	42	40
Selenium (total)	CE127 <sup>M</sup>	mg/kg Se	1.6	1.4
Zinc (total)	CE127 <sup>M</sup>	mg/kg Zn	434	678
pH	CE004 <sup>M</sup>	units	7.2	7.1
Sulphate (2:1 water soluble)	CE061 <sup>M</sup>	mg/l SO <sub>4</sub>	32	48
Total Organic Carbon (TOC)	CE072 <sup>M</sup>	% w/w C	7.1	6.0
Estimate of OMC (calculated from TOC)	CE072 <sup>M</sup>	% w/w	12.3	10.3
<b>PAH</b>				
Naphthalene	CE087 <sup>M</sup>	mg/kg	<0.02	0.03
Acenaphthylene	CE087 <sup>M</sup>	mg/kg	<0.02	0.07
Acenaphthene	CE087 <sup>M</sup>	mg/kg	<0.02	0.03
Fluorene	CE087 <sup>U</sup>	mg/kg	<0.02	0.03
Phenanthrene	CE087 <sup>M</sup>	mg/kg	0.18	0.59
Anthracene	CE087 <sup>U</sup>	mg/kg	0.04	0.12
Fluoranthene	CE087 <sup>M</sup>	mg/kg	0.35	1.58
Pyrene	CE087 <sup>M</sup>	mg/kg	0.28	1.30
Benzo(a)anthracene	CE087 <sup>U</sup>	mg/kg	0.15	0.83
Chrysene	CE087 <sup>M</sup>	mg/kg	0.23	1.10
Benzo(b)fluoranthene	CE087 <sup>M</sup>	mg/kg	0.26	1.26
Benzo(k)fluoranthene	CE087 <sup>M</sup>	mg/kg	0.09	0.51
Benzo(a)pyrene	CE087 <sup>U</sup>	mg/kg	0.20	1.07
Indeno(123cd)pyrene	CE087 <sup>M</sup>	mg/kg	0.16	0.74
Dibenz(ah)anthracene	CE087 <sup>M</sup>	mg/kg	0.04	0.19
Benzo(ghi)perylene	CE087 <sup>M</sup>	mg/kg	0.15	0.76
PAH (total of USEPA 16)	CE087	mg/kg	2.13	10.2
<b>BTEX &amp; TPH</b>				
Benzene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01
Toluene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01
Ethylbenzene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01
m & p-Xylene	CE192 <sup>U</sup>	mg/kg	<0.02	<0.02
o-Xylene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01



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## SOILS

<b>Lab number</b>			84307-7	84307-8
<b>Sample id</b>			TP107	TP108
<b>Depth (m)</b>			0.20	0.20
<b>Date sampled</b>			10/02/2020	10/02/2020
<b>Test</b>	<b>Method</b>	<b>Units</b>		
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	1	4
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	3	6
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	<4
EPH Aliphatic (>C16-C35)	CE068	mg/kg	46	70
EPH Aliphatic (>C35-C44)	CE068	mg/kg	<10	<10
<b>Subcontracted analysis</b>				
Asbestos (qualitative)	\$	-	NAD	NAD

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## METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Antimony (total)	Aqua regia digest, ICP-MS	Dry	U	0.2	mg/kg Sb
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Barium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ba
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Molybdenum (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Mo
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	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	M	10	mg/l SO <sub>4</sub>
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	M	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	M	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
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	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
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	As received		1	mg/kg



# Chemtech Environmental Limited

## METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-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
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-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)
84307-1	TP101	0.20	N	
84307-2	TP102	0.20	N	
84307-3	TP103	0.20	N	
84307-4	TP104	0.20	N	
84307-5	TP105A	0.20	N	
84307-6	TP106	0.20	N	
84307-7	TP107	0.20	N	
84307-8	TP108	0.20	N	



# Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



## Sample Details

Contract Name	Carlton Avenue, Blyth
Lab Number	84307-1
Sample ID	TP101 0.20m
Date Sampled	10 February 2020
Date Received	11 February 2020
Particle Size (<4mm)	-
Method of size reduction	N/A
Non-crushable matter	N/A

## Test Values

Mass of Raw Test Portion (MW) kg	0.257
Mass of Dried Test Portion (MD) kg	0.175
Moisture Content Ratio (MC) %	46.92
Dry Matter Content Ratio (DR) %	68.06
Leachant Volume (1) (L2) Litre	0.268
Leachant Volume (2) (L8) Litre	1.400
Eluate Volume (1) (VE1) Litre	0.220
Eluate Volume (2) (VE2) Litre	1.285

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	8.3	8.0
Temperature (°C)	20	20
Conductivity (µS/cm)	291	141
Antimony (µg/l Sb)	19.9	13.2
Arsenic (µg/l As)	5.00	4.94
Barium (µg/l Ba)	38.7	16.4
Cadmium (µg/l Cd)	0.09	<0.07
Chromium (µg/l Cr)	0.8	0.5
Copper (µg/l Cu)	40.7	28.8
Lead (µg/l Pb)	9.0	2.7
Mercury (µg/l Hg)	0.028	<0.008
Molybdenum (µg/l Mo)	8.8	3.8
Nickel (µg/l Ni)	2.3	1.0
Selenium (µg/l Se)	0.96	0.57
Zinc (µg/l Zn)	19	8
Chloride (mg/l Cl)	8.7	1.8
Fluoride (mg/l F)	0.3	0.4
Sulphate (mg/l SO <sub>4</sub> )	26	5.2
Total Dissolved Solids (mg/l TDS)	220	110
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	13	6.0

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.040	<b>0.140</b>	0.06	0.7	5
0.010	<b>0.049</b>	0.5	2	25
0.077	<b>0.192</b>	20	100	300
0.0002	<b>&lt;0.0001</b>	0.04	1	5
0.002	<b>0.006</b>	0.5	10	70
0.081	<b>0.303</b>	2	50	100
0.018	<b>0.035</b>	0.5	10	50
0.00006	<b>&lt;0.0002</b>	0.01	0.2	2
0.018	<b>0.044</b>	0.5	10	30
0.005	<b>0.012</b>	0.4	10	40
0.002	<b>0.006</b>	0.1	0.5	7
0.037	<b>0.097</b>	4	50	200
17	<b>27</b>	800	15000	25000
0.7	<b>4.0</b>	10	150	500
53	<b>79</b>	1000	20000	50000
440	<b>1238</b>	4000	60000	100000
<0.02	<b>&lt;0.1</b>	1		
25	<b>68</b>	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	<b>6.3</b>	3%	5%	6%
Loss on Ignition	% w/w	<b>12.3</b>			10%
BTEX	mg/kg	<b>&lt;0.06</b>	6		
PCBs (7 congeners)	mg/kg	<b>&lt;0.045</b>	1		
TPH (C10 - C40)	mg/kg	<b>115</b>	500		
PAH (total)	mg/kg	<b>3.28</b>	100		
pH	pH units	<b>7.6</b>		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	<b>0.14</b>		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	<b>0.02</b>		To be evaluated	

Disclaimer : The Landfill Waste Acceptance Criteria limits in this report are provided for guidance only.  
Chemtech Environmental Ltd does not take responsibility for any errors or omissions. Data is correct as of 01/09/2005.  
Samples will be disposed of 6 weeks from initial receipt unless written instructions are received and further storage is agreed.  
Waste Acceptance Criteria testing is outside the scope of the laboratory's UKAS accreditation.

## Comments

Authorised by:

*J. Campbell*

Name:

John Campbell

Report date:

18 February 2020

Position:

Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB  
Tel 01207 528578 Email customerservices@chemtech-env.co.uk  
Vat Reg No. 772 5703 18 Registered in England number 4284013



# Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



## Sample Details

Contract Name	Carlton Avenue, Blyth
Lab Number	84307-6
Sample ID	TP106 0.10m
Date Sampled	10 February 2020
Date Received	11 February 2020
Particle Size (<4mm)	-
Method of size reduction	N/A
Non-crushable matter	N/A

## Test Values

Mass of Raw Test Portion (MW) kg	0.243
Mass of Dried Test Portion (MD) kg	0.175
Moisture Content Ratio (MC) %	39.03
Dry Matter Content Ratio (DR) %	71.93
Leachant Volume (1) (L2) Litre	0.282
Leachant Volume (2) (L8) Litre	1.400
Eluate Volume (1) (VE1) Litre	0.225
Eluate Volume (2) (VE2) Litre	1.285

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.9	7.6
Temperature (°C)	20	20
Conductivity (µS/cm)	135	68
Antimony (µg/l Sb)	10.9	8.3
Arsenic (µg/l As)	5.43	5.42
Barium (µg/l Ba)	20.8	10.3
Cadmium (µg/l Cd)	0.23	0.08
Chromium (µg/l Cr)	1.6	0.9
Copper (µg/l Cu)	17.7	9.9
Lead (µg/l Pb)	6.5	3.2
Mercury (µg/l Hg)	0.012	<0.008
Molybdenum (µg/l Mo)	10.9	5.6
Nickel (µg/l Ni)	3.8	2.2
Selenium (µg/l Se)	1.01	0.68
Zinc (µg/l Zn)	29	14
Chloride (mg/l Cl)	4.5	2.0
Fluoride (mg/l F)	0.4	0.4
Sulphate (mg/l SO <sub>4</sub> )	14	5.5
Total Dissolved Solids (mg/l TDS)	105	50
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	6.7	<5

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.022	<b>0.086</b>	0.06	0.7	5
0.011	<b>0.054</b>	0.5	2	25
0.042	<b>0.117</b>	20	100	300
0.0005	<b>0.001</b>	0.04	1	5
0.003	<b>0.010</b>	0.5	10	70
0.035	<b>0.109</b>	2	50	100
0.013	<b>0.037</b>	0.5	10	50
0.00002	<b>&lt;0.0001</b>	0.01	0.2	2
0.022	<b>0.063</b>	0.5	10	30
0.008	<b>0.024</b>	0.4	10	40
0.002	<b>0.007</b>	0.1	0.5	7
0.057	<b>0.157</b>	4	50	200
9.0	<b>24</b>	800	15000	25000
0.9	<b>4.5</b>	10	150	500
29	<b>66</b>	1000	20000	50000
210	<b>571</b>	4000	60000	100000
<0.02	<b>&lt;0.1</b>	1		
13	<b>&lt;53</b>	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	<b>3.8</b>	3%	5%	6%
Loss on Ignition	% w/w	<b>10.5</b>			10%
BTEX	mg/kg	<b>&lt;0.06</b>	6		
PCBs (7 congeners)	mg/kg	<b>&lt;0.045</b>	1		
TPH (C10 - C40)	mg/kg	<b>72</b>	500		
PAH (total)	mg/kg	<b>5.63</b>	100		
pH	pH units	<b>7.4</b>		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	<b>0.14</b>		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	<b>0.02</b>		To be evaluated	

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Samples will be disposed of 6 weeks from initial receipt unless written instructions are received and further storage is agreed.  
Waste Acceptance Criteria testing is outside the scope of the laboratory's UKAS accreditation.

## Comments

Authorised by:

*J. Campbell*

Name:

John Campbell

Report date:

18 February 2020

Position:

Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB  
Tel 01207 528578 Email customerservices@chemtech-env.co.uk  
Vat Reg No. 772 5703 18 Registered in England number 4284013





## ANALYTICAL TEST REPORT

**Contract no:** 87293

**Contract name:** Carlton Avenue, Blyth

**Client reference:** 20-596

**Clients name:** Ergo Environmental

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

**Samples received:** 10 July 2020

**Analysis started:** 10 July 2020

**Analysis completed:** 17 July 2020

**Report issued:** 17 July 2020

**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.

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

**Approved by:**

Dave Bowerbank  
Customer Support Hero

# 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.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
87293-1	WS101	2.00	Clay with Gravel	-	-	24.2
87293-2	WS103	2.00	Clay with Gravel	-	-	16.5
87293-3	WS104	1.20	Clay with Gravel	-	-	15.0
87293-4	WS106	1.20	Clay with Gravel	-	-	15.7



# Chemtech Environmental Limited

## SOILS

Lab number			87293-1	87293-2	87293-3	87293-4
Sample id			WS101	WS103	WS104	WS106
Depth (m)			2.00	2.00	1.20	1.20
Date sampled			10/07/2020	10/07/2020	10/07/2020	10/07/2020
Test	Method	Units				
pH	CE004 <sup>M</sup>	units	8.1	8.1	8.0	8.1
Sulphate (2:1 water soluble)	CE061 <sup>M</sup>	mg/l SO <sub>4</sub>	97	120	102	94

# Chemtech Environmental Limited

## METHOD DETAILS

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



# 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.

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### 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)
87293-1	WS101	2.00	N	
87293-2	WS103	2.00	N	
87293-3	WS104	1.20	N	
87293-4	WS106	1.20	N	

## Waste Classification Report



Y3927-SV6S7-N2C9H

### Job name

Carlton Ave.

### Description/Comments

### Project

20-596

### Site

Carlton Ave., Blyth

### Related Documents

#	Name	Description
None		

### Waste Stream Template

Example waste stream template for contaminated soils

### Classified by

Name:  
**Jonathan Malley**  
Date:  
**19 Feb 2020 10:50 GMT**  
Telephone:  
**0191 389 6200**

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

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

### Report

Created by: Jonathan Malley  
Created date: 19 Feb 2020 10:50 GMT

### Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP101	0.20	Non Hazardous		3
2	TP102	0.20	Non Hazardous		6
3	TP103	0.20	Non Hazardous		9
4	TP104	0.20	Non Hazardous		12
5	TP105A	0.20	Non Hazardous		15
6	TP106	0.20	Non Hazardous		18
7	TP107	0.20	Non Hazardous		21
8	TP108	0.20	Non Hazardous		24

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	27
Appendix B: Rationale for selection of metal species	28





Appendices	Page
Appendix C: Version	29

## Classification of sample: TP101

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

## Sample details

Sample Name:	TP101	LoW Code:	
Sample Depth:	0.20 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	31.9% (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 31.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	antimony { antimony trioxide }				9.7 mg/kg	1.197	11.612 mg/kg	0.00116 %			
	051-005-00-X	215-175-0	1309-64-4								
2	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %			
	033-003-00-0	215-481-4	1327-53-3								
3	cadmium { cadmium oxide }				1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide }				84 mg/kg	1.462	122.771 mg/kg	0.0123 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
6	copper { dicopper oxide; copper (I) oxide }				138 mg/kg	1.126	155.373 mg/kg	0.0155 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	335 mg/kg	1.56	522.538 mg/kg	0.0335 %			
	082-004-00-2	231-846-0	7758-97-6								
8	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								
9	molybdenum { molybdenum(VI) oxide }				5.9 mg/kg	1.5	8.851 mg/kg	0.000885 %			
	042-001-00-9	215-204-7	1313-27-5								
10	nickel { nickel chromate }				43 mg/kg	2.976	127.979 mg/kg	0.0128 %			
	028-035-00-7	238-766-5	14721-18-7								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.5 mg/kg	2.554	3.83 mg/kg	0.000383 %			
	034-002-00-8										
12	zinc { zinc sulphate }				714 mg/kg	2.469	1763.078 mg/kg	0.176 %			
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
13	TPH (C6 to C40) petroleum group				117.33 mg/kg		117.33 mg/kg	0.0117 %			
			TPH								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>						
15	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
17	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
19	pH				7.6 pH		7.6 pH	7.6 pH			
			PH								
20	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
21	acenaphthylene				0.03 mg/kg		0.03 mg/kg	0.000003 %			
		205-917-1	208-96-8								
22	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-469-6	83-32-9								
23	fluorene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-695-5	86-73-7								
24	phenanthrene				0.25 mg/kg		0.25 mg/kg	0.000025 %			
		201-581-5	85-01-8								
25	anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		204-371-1	120-12-7								
26	fluoranthene				0.51 mg/kg		0.51 mg/kg	0.000051 %			
		205-912-4	206-44-0								
27	pyrene				0.44 mg/kg		0.44 mg/kg	0.000044 %			
		204-927-3	129-00-0								
28	benzo[a]anthracene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
	601-033-00-9	200-280-6	56-55-3								
29	chrysene				0.34 mg/kg		0.34 mg/kg	0.000034 %			
	601-048-00-0	205-923-4	218-01-9								
30	benzo[b]fluoranthene				0.37 mg/kg		0.37 mg/kg	0.000037 %			
	601-034-00-4	205-911-9	205-99-2								
31	benzo[k]fluoranthene				0.14 mg/kg		0.14 mg/kg	0.000014 %			
	601-036-00-5	205-916-6	207-08-9								
32	benzo[a]pyrene; benzo[def]chrysene				0.31 mg/kg		0.31 mg/kg	0.000031 %			
	601-032-00-3	200-028-5	50-32-8								
33	indeno[123-cd]pyrene				0.27 mg/kg		0.27 mg/kg	0.000027 %			
		205-893-2	193-39-5								
34	dibenz[a,h]anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-041-00-2	200-181-8	53-70-3								
35	benzo[ghi]perylene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
		205-883-8	191-24-2								
Total:									0.267 %		

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

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### Supplementary Hazardous Property Information

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**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 MW3

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0117%)



## Classification of sample: TP102

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

## Sample details

Sample Name:	TP102	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.20 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	20.7% (no correction)			

## Hazard properties

None identified

## Determinands

Moisture content: 20.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				15	mg/kg	1.32	19.805	mg/kg	0.00198 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.9	mg/kg	1.142	1.028	mg/kg	0.000103 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide }				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) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				72	mg/kg	1.126	81.064	mg/kg	0.00811 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	161	mg/kg	1.56	251.13	mg/kg	0.0161 %		
	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 }				35	mg/kg	2.976	104.169	mg/kg	0.0104 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.4	mg/kg	2.554	3.575	mg/kg	0.000358 %		
	034-002-00-8											
10	zinc { zinc sulphate }				620	mg/kg	2.469	1530.964	mg/kg	0.153 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
11	TPH (C6 to C40) petroleum group				226.33	mg/kg		226.33	mg/kg	0.0226 %		
			TPH									
12	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>							
13	benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
15	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
16	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
17	pH				7.3 pH		7.3 pH	7.3 pH			
			PH								
18	naphthalene				0.07 mg/kg		0.07 mg/kg	0.000007 %			
	601-052-00-2	202-049-5	91-20-3								
19	acenaphthylene				0.19 mg/kg		0.19 mg/kg	0.000019 %			
		205-917-1	208-96-8								
20	acenaphthene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
		201-469-6	83-32-9								
21	fluorene				0.08 mg/kg		0.08 mg/kg	0.000008 %			
		201-695-5	86-73-7								
22	phenanthrene				1.91 mg/kg		1.91 mg/kg	0.000191 %			
		201-581-5	85-01-8								
23	anthracene				0.17 mg/kg		0.17 mg/kg	0.000017 %			
		204-371-1	120-12-7								
24	fluoranthene				3.77 mg/kg		3.77 mg/kg	0.000377 %			
		205-912-4	206-44-0								
25	pyrene				3.75 mg/kg		3.75 mg/kg	0.000375 %			
		204-927-3	129-00-0								
26	benzo[a]anthracene				1.5 mg/kg		1.5 mg/kg	0.00015 %			
	601-033-00-9	200-280-6	56-55-3								
27	chrysene				2.43 mg/kg		2.43 mg/kg	0.000243 %			
	601-048-00-0	205-923-4	218-01-9								
28	benzo[b]fluoranthene				2.42 mg/kg		2.42 mg/kg	0.000242 %			
	601-034-00-4	205-911-9	205-99-2								
29	benzo[k]fluoranthene				0.89 mg/kg		0.89 mg/kg	0.000089 %			
	601-036-00-5	205-916-6	207-08-9								
30	benzo[a]pyrene; benzo[def]chrysene				1.94 mg/kg		1.94 mg/kg	0.000194 %			
	601-032-00-3	200-028-5	50-32-8								
31	indeno[123-cd]pyrene				1.49 mg/kg		1.49 mg/kg	0.000149 %			
		205-893-2	193-39-5								
32	dibenz[a,h]anthracene				0.34 mg/kg		0.34 mg/kg	0.000034 %			
	601-041-00-2	200-181-8	53-70-3								
33	benzo[ghi]perylene				1.42 mg/kg		1.42 mg/kg	0.000142 %			
		205-883-8	191-24-2								
Total:									0.224 %		

#### 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 MW3





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Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0226%)

## Classification of sample: TP103

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

## Sample details

Sample Name:	TP103	LoW Code:	
Sample Depth:	0.20 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	27.6% (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 27.6% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	23.766	mg/kg	0.00238 %		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.7 mg/kg	1.142	0.8	mg/kg	0.00008 %		
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide }				82 mg/kg	1.462	119.848	mg/kg	0.012 %		
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				67 mg/kg	1.126	75.435	mg/kg	0.00754 %		
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	127 mg/kg	1.56	198.097	mg/kg	0.0127 %		
	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 }				38 mg/kg	2.976	113.098	mg/kg	0.0113 %		
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.5 mg/kg	2.554	3.83	mg/kg	0.000383 %		
	034-002-00-8										
10	zinc { zinc sulphate }				250 mg/kg	2.469	617.324	mg/kg	0.0617 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
11	TPH (C6 to C40) petroleum group		TPH		42.33 mg/kg		42.33	mg/kg	0.00423 %		
12	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>						
13	benzene				<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
15	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
16	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
17	pH				7.6 pH		7.6 pH	7.6 pH			
			PH								
18	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
19	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		205-917-1	208-96-8								
20	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-469-6	83-32-9								
21	fluorene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-695-5	86-73-7								
22	phenanthrene				0.16 mg/kg		0.16 mg/kg	0.000016 %			
		201-581-5	85-01-8								
23	anthracene				0.03 mg/kg		0.03 mg/kg	0.000003 %			
		204-371-1	120-12-7								
24	fluoranthene				0.33 mg/kg		0.33 mg/kg	0.000033 %			
		205-912-4	206-44-0								
25	pyrene				0.29 mg/kg		0.29 mg/kg	0.000029 %			
		204-927-3	129-00-0								
26	benzo[a]anthracene				0.15 mg/kg		0.15 mg/kg	0.000015 %			
	601-033-00-9	200-280-6	56-55-3								
27	chrysene				0.25 mg/kg		0.25 mg/kg	0.000025 %			
	601-048-00-0	205-923-4	218-01-9								
28	benzo[b]fluoranthene				0.26 mg/kg		0.26 mg/kg	0.000026 %			
	601-034-00-4	205-911-9	205-99-2								
29	benzo[k]fluoranthene				0.09 mg/kg		0.09 mg/kg	0.000009 %			
	601-036-00-5	205-916-6	207-08-9								
30	benzo[a]pyrene; benzo[def]chrysene				0.19 mg/kg		0.19 mg/kg	0.000019 %			
	601-032-00-3	200-028-5	50-32-8								
31	indeno[123-cd]pyrene				0.16 mg/kg		0.16 mg/kg	0.000016 %			
		205-893-2	193-39-5								
32	dibenz[a,h]anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-041-00-2	200-181-8	53-70-3								
33	benzo[ghi]perylene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
		205-883-8	191-24-2								
Total:									0.113 %		

#### 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 MW3

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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: TP104

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

## Sample details

Sample Name:	TP104	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.20 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	23.9% (no correction)			

## Hazard properties

None identified

## Determinands

Moisture content: 23.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
	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 }				74	mg/kg	1.462	108.155	mg/kg	0.0108 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				106	mg/kg	1.126	119.344	mg/kg	0.0119 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	179	mg/kg	1.56	279.207	mg/kg	0.0179 %		
	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 }				36	mg/kg	2.976	107.146	mg/kg	0.0107 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.2	mg/kg	2.554	3.064	mg/kg	0.000306 %		
	034-002-00-8											
10	zinc { zinc sulphate }				283	mg/kg	2.469	698.811	mg/kg	0.0699 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
11	TPH (C6 to C40) petroleum group				78.33	mg/kg		78.33	mg/kg	0.00783 %		
			TPH									
12	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>							
13	benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
15	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
16	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
17	pH				7.4 pH		7.4 pH	7.4 pH			
			PH								
18	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
19	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		205-917-1	208-96-8								
20	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-469-6	83-32-9								
21	fluorene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-695-5	86-73-7								
22	phenanthrene				0.21 mg/kg		0.21 mg/kg	0.000021 %			
		201-581-5	85-01-8								
23	anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %			
		204-371-1	120-12-7								
24	fluoranthene				0.48 mg/kg		0.48 mg/kg	0.000048 %			
		205-912-4	206-44-0								
25	pyrene				0.38 mg/kg		0.38 mg/kg	0.000038 %			
		204-927-3	129-00-0								
26	benzo[a]anthracene				0.25 mg/kg		0.25 mg/kg	0.000025 %			
	601-033-00-9	200-280-6	56-55-3								
27	chrysene				0.32 mg/kg		0.32 mg/kg	0.000032 %			
	601-048-00-0	205-923-4	218-01-9								
28	benzo[b]fluoranthene				0.38 mg/kg		0.38 mg/kg	0.000038 %			
	601-034-00-4	205-911-9	205-99-2								
29	benzo[k]fluoranthene				0.15 mg/kg		0.15 mg/kg	0.000015 %			
	601-036-00-5	205-916-6	207-08-9								
30	benzo[a]pyrene; benzo[def]chrysene				0.27 mg/kg		0.27 mg/kg	0.000027 %			
	601-032-00-3	200-028-5	50-32-8								
31	indeno[123-cd]pyrene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
		205-893-2	193-39-5								
32	dibenz[a,h]anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %			
	601-041-00-2	200-181-8	53-70-3								
33	benzo[ghi]perylene				0.23 mg/kg		0.23 mg/kg	0.000023 %			
		205-883-8	191-24-2								
Total:									0.132 %		

#### 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 MW3



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Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00783%)

## Classification of sample: TP105A

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

## Sample details

Sample Name:	TP105A	LoW Code:	
Sample Depth:	0.20 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	27.2% (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 27.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	26.407	mg/kg	0.00264 %		
	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 }				73 mg/kg	1.462	106.694	mg/kg	0.0107 %		
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				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	209 mg/kg	1.56	326.001	mg/kg	0.0209 %		
	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 }				42 mg/kg	2.976	125.003	mg/kg	0.0125 %		
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.6 mg/kg	2.554	4.086	mg/kg	0.000409 %		
	034-002-00-8										
10	zinc { zinc sulphate }				256 mg/kg	2.469	632.14	mg/kg	0.0632 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
11	TPH (C6 to C40) petroleum group		TPH		62.33 mg/kg		62.33	mg/kg	0.00623 %		
12	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>						
13	benzene				<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	pH				6.5 pH		6.5 pH	6.5 pH		
			PH							
18	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
19	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8							
20	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		201-469-6	83-32-9							
21	fluorene				0.03 mg/kg		0.03 mg/kg	0.000003 %		
		201-695-5	86-73-7							
22	phenanthrene				0.49 mg/kg		0.49 mg/kg	0.000049 %		
		201-581-5	85-01-8							
23	anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		204-371-1	120-12-7							
24	fluoranthene				0.78 mg/kg		0.78 mg/kg	0.000078 %		
		205-912-4	206-44-0							
25	pyrene				0.65 mg/kg		0.65 mg/kg	0.000065 %		
		204-927-3	129-00-0							
26	benzo[a]anthracene				0.37 mg/kg		0.37 mg/kg	0.000037 %		
	601-033-00-9	200-280-6	56-55-3							
27	chrysene				0.53 mg/kg		0.53 mg/kg	0.000053 %		
	601-048-00-0	205-923-4	218-01-9							
28	benzo[b]fluoranthene				0.53 mg/kg		0.53 mg/kg	0.000053 %		
	601-034-00-4	205-911-9	205-99-2							
29	benzo[k]fluoranthene				0.23 mg/kg		0.23 mg/kg	0.000023 %		
	601-036-00-5	205-916-6	207-08-9							
30	benzo[a]pyrene; benzo[def]chrysene				0.42 mg/kg		0.42 mg/kg	0.000042 %		
	601-032-00-3	200-028-5	50-32-8							
31	indeno[123-cd]pyrene				0.31 mg/kg		0.31 mg/kg	0.000031 %		
		205-893-2	193-39-5							
32	dibenz[a,h]anthracene				0.08 mg/kg		0.08 mg/kg	0.000008 %		
	601-041-00-2	200-181-8	53-70-3							
33	benzo[ghi]perylene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
		205-883-8	191-24-2							
Total:								0.125 %		

#### 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 MW3



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Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00623%)



## Classification of sample: TP106

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

## Sample details

Sample Name:	TP106	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.20 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	28.1% (no correction)			

## Hazard properties

None identified

## Determinands

Moisture content: 28.1% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	antimony { antimony trioxide }				3.6	mg/kg	1.197	4.31	mg/kg	0.000431 %		
	051-005-00-X	215-175-0	1309-64-4									
2	arsenic { arsenic trioxide }				21	mg/kg	1.32	27.727	mg/kg	0.00277 %		
	033-003-00-0	215-481-4	1327-53-3									
3	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									
4	chromium in chromium(III) compounds { chromium(III) oxide }				89	mg/kg	1.462	130.078	mg/kg	0.013 %		
		215-160-9	1308-38-9									
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
6	copper { dicopper oxide; copper (I) oxide }				61	mg/kg	1.126	68.679	mg/kg	0.00687 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	136	mg/kg	1.56	212.135	mg/kg	0.0136 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	molybdenum { molybdenum(VI) oxide }				7	mg/kg	1.5	10.501	mg/kg	0.00105 %		
	042-001-00-9	215-204-7	1313-27-5									
10	nickel { nickel chromate }				51	mg/kg	2.976	151.79	mg/kg	0.0152 %		
	028-035-00-7	238-766-5	14721-18-7									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.9	mg/kg	2.554	4.852	mg/kg	0.000485 %		
	034-002-00-8											
12	zinc { zinc sulphate }				273	mg/kg	2.469	674.118	mg/kg	0.0674 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
13	TPH (C6 to C40) petroleum group				81.33	mg/kg		81.33	mg/kg	0.00813 %		
			TPH									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>						
15	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
17	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
19	pH				7.4 pH		7.4 pH	7.4 pH			
			PH								
20	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
21	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		205-917-1	208-96-8								
22	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-469-6	83-32-9								
23	fluorene				0.02 mg/kg		0.02 mg/kg	0.000002 %			
		201-695-5	86-73-7								
24	phenanthrene				0.42 mg/kg		0.42 mg/kg	0.000042 %			
		201-581-5	85-01-8								
25	anthracene				0.11 mg/kg		0.11 mg/kg	0.000011 %			
		204-371-1	120-12-7								
26	fluoranthene				0.97 mg/kg		0.97 mg/kg	0.000097 %			
		205-912-4	206-44-0								
27	pyrene				0.74 mg/kg		0.74 mg/kg	0.000074 %			
		204-927-3	129-00-0								
28	benzo[a]anthracene				0.46 mg/kg		0.46 mg/kg	0.000046 %			
	601-033-00-9	200-280-6	56-55-3								
29	chrysene				0.57 mg/kg		0.57 mg/kg	0.000057 %			
	601-048-00-0	205-923-4	218-01-9								
30	benzo[b]fluoranthene				0.66 mg/kg		0.66 mg/kg	0.000066 %			
	601-034-00-4	205-911-9	205-99-2								
31	benzo[k]fluoranthene				0.25 mg/kg		0.25 mg/kg	0.000025 %			
	601-036-00-5	205-916-6	207-08-9								
32	benzo[a]pyrene; benzo[def]chrysene				0.49 mg/kg		0.49 mg/kg	0.000049 %			
	601-032-00-3	200-028-5	50-32-8								
33	indeno[123-cd]pyrene				0.38 mg/kg		0.38 mg/kg	0.000038 %			
		205-893-2	193-39-5								
34	dibenz[a,h]anthracene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
	601-041-00-2	200-181-8	53-70-3								
35	benzo[ghi]perylene				0.38 mg/kg		0.38 mg/kg	0.000038 %			
		205-883-8	191-24-2								
Total:									0.13 %		

#### 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



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### Supplementary Hazardous Property Information

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**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 MW3

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00813%)

## Classification of sample: TP107

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

## Sample details

Sample Name:	TP107	LoW Code:	
Sample Depth:	0.20 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	26.9% (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 26.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				19 mg/kg	1.32	25.086 mg/kg	0.00251 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %			
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide }				73 mg/kg	1.462	106.694 mg/kg	0.0107 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				61 mg/kg	1.126	68.679 mg/kg	0.00687 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	143 mg/kg	1.56	223.054 mg/kg	0.0143 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.7 mg/kg	1.353	0.947 mg/kg	0.0000947 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				42 mg/kg	2.976	125.003 mg/kg	0.0125 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.6 mg/kg	2.554	4.086 mg/kg	0.000409 %			
	034-002-00-8										
10	zinc { zinc sulphate }				434 mg/kg	2.469	1071.675 mg/kg	0.107 %			
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
11	TPH (C6 to C40) petroleum group		TPH		71.33 mg/kg		71.33 mg/kg	0.00713 %			
12	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>						
13	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	pH				7.2 pH		7.2 pH	7.2 pH		
			PH							
18	naphthalene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
19	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8							
20	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		201-469-6	83-32-9							
21	fluorene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		201-695-5	86-73-7							
22	phenanthrene				0.18 mg/kg		0.18 mg/kg	0.000018 %		
		201-581-5	85-01-8							
23	anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		204-371-1	120-12-7							
24	fluoranthene				0.35 mg/kg		0.35 mg/kg	0.000035 %		
		205-912-4	206-44-0							
25	pyrene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
		204-927-3	129-00-0							
26	benzo[a]anthracene				0.15 mg/kg		0.15 mg/kg	0.000015 %		
	601-033-00-9	200-280-6	56-55-3							
27	chrysene				0.23 mg/kg		0.23 mg/kg	0.000023 %		
	601-048-00-0	205-923-4	218-01-9							
28	benzo[b]fluoranthene				0.26 mg/kg		0.26 mg/kg	0.000026 %		
	601-034-00-4	205-911-9	205-99-2							
29	benzo[k]fluoranthene				0.09 mg/kg		0.09 mg/kg	0.000009 %		
	601-036-00-5	205-916-6	207-08-9							
30	benzo[a]pyrene; benzo[def]chrysene				0.2 mg/kg		0.2 mg/kg	0.00002 %		
	601-032-00-3	200-028-5	50-32-8							
31	indeno[123-cd]pyrene				0.16 mg/kg		0.16 mg/kg	0.000016 %		
		205-893-2	193-39-5							
32	dibenz[a,h]anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
	601-041-00-2	200-181-8	53-70-3							
33	benzo[ghi]perylene				0.15 mg/kg		0.15 mg/kg	0.000015 %		
		205-883-8	191-24-2							
Total:								0.162 %		

#### 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 MW3



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Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00713%)



## Classification of sample: TP108

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

## Sample details

Sample Name:	TP108	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.20 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	38.1% (no correction)			

## Hazard properties

None identified

## Determinands

Moisture content: 38.1% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				17	mg/kg	1.32	22.446	mg/kg	0.00224 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.8	mg/kg	1.142	0.914	mg/kg	0.0000914 %		
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide }				73	mg/kg	1.462	106.694	mg/kg	0.0107 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				74	mg/kg	1.126	83.316	mg/kg	0.00833 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	362	mg/kg	1.56	564.653	mg/kg	0.0362 %		
	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 }				40	mg/kg	2.976	119.051	mg/kg	0.0119 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.4	mg/kg	2.554	3.575	mg/kg	0.000358 %		
	034-002-00-8											
10	zinc { zinc sulphate }				678	mg/kg	2.469	1674.183	mg/kg	0.167 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
11	TPH (C6 to C40) petroleum group				101.33	mg/kg		101.33	mg/kg	0.0101 %		
			TPH									
12	confirm TPH has NOT arisen from diesel or petrol				☑							
13	benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
15	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
16	xylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
17	pH				7.1 pH		7.1 pH	7.1 pH			
			PH								
18	naphthalene				0.03 mg/kg		0.03 mg/kg	0.000003 %			
	601-052-00-2	202-049-5	91-20-3								
19	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %			
		205-917-1	208-96-8								
20	acenaphthene				0.03 mg/kg		0.03 mg/kg	0.000003 %			
		201-469-6	83-32-9								
21	fluorene				0.03 mg/kg		0.03 mg/kg	0.000003 %			
		201-695-5	86-73-7								
22	phenanthrene				0.59 mg/kg		0.59 mg/kg	0.000059 %			
		201-581-5	85-01-8								
23	anthracene				0.12 mg/kg		0.12 mg/kg	0.000012 %			
		204-371-1	120-12-7								
24	fluoranthene				1.58 mg/kg		1.58 mg/kg	0.000158 %			
		205-912-4	206-44-0								
25	pyrene				1.3 mg/kg		1.3 mg/kg	0.00013 %			
		204-927-3	129-00-0								
26	benzo[a]anthracene				0.83 mg/kg		0.83 mg/kg	0.000083 %			
	601-033-00-9	200-280-6	56-55-3								
27	chrysene				1.1 mg/kg		1.1 mg/kg	0.00011 %			
	601-048-00-0	205-923-4	218-01-9								
28	benzo[b]fluoranthene				1.26 mg/kg		1.26 mg/kg	0.000126 %			
	601-034-00-4	205-911-9	205-99-2								
29	benzo[k]fluoranthene				0.51 mg/kg		0.51 mg/kg	0.000051 %			
	601-036-00-5	205-916-6	207-08-9								
30	benzo[a]pyrene; benzo[def]chrysene				1.07 mg/kg		1.07 mg/kg	0.000107 %			
	601-032-00-3	200-028-5	50-32-8								
31	indeno[123-cd]pyrene				0.74 mg/kg		0.74 mg/kg	0.000074 %			
		205-893-2	193-39-5								
32	dibenz[a,h]anthracene				0.19 mg/kg		0.19 mg/kg	0.000019 %			
	601-041-00-2	200-181-8	53-70-3								
33	benzo[ghi]perylene				0.76 mg/kg		0.76 mg/kg	0.000076 %			
		205-883-8	191-24-2								
Total:									0.249 %		

#### 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 MW3



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Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0101%)

## Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462

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

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

### • **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.

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

CLP index number: 601-023-00-4

Description/Comments:

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

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s):

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

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

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

### • **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 Chronic 1 H410 , Aquatic Acute 1 H400

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



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

• **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

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

• **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 Chronic 1 H410 , Aquatic Acute 1 H400

## 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}

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

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

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (edit as required)

### copper {dicopper oxide; copper (I) oxide}

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

### lead {lead chromate}

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

### mercury {mercury dichloride}

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

### nickel {nickel chromate}

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

### selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)



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**zinc {zinc sulphate}**

As the levels of Chromium VI is below the LOD.

---

**antimony {antimony trioxide}**

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

---

**molybdenum {molybdenum(VI) oxide}**

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

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**Appendix C: Version**

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

HazWasteOnline Classification Engine Version: 2020.44.4173.8310 (14 Feb 2020)

HazWasteOnline Database: 2020.44.4173.8310 (14 Feb 2020)

This classification utilises the following guidance and legislation:

**WM3 v1.1 - Waste Classification** - 1st Edition v1.1 - May 2018  
**CLP Regulation** - Regulation 1272/2008/EC of 16 December 2008  
**1st ATP** - Regulation 790/2009/EC of 10 August 2009  
**2nd ATP** - Regulation 286/2011/EC of 10 March 2011  
**3rd ATP** - Regulation 618/2012/EU of 10 July 2012  
**4th ATP** - Regulation 487/2013/EU of 8 May 2013  
**Correction to 1st ATP** - Regulation 758/2013/EU of 7 August 2013  
**5th ATP** - Regulation 944/2013/EU of 2 October 2013  
**6th ATP** - Regulation 605/2014/EU of 5 June 2014  
**WFD Annex III replacement** - Regulation 1357/2014/EU of 18 December 2014  
**Revised List of Wastes 2014** - Decision 2014/955/EU of 18 December 2014  
**7th ATP** - Regulation 2015/1221/EU of 24 July 2015  
**8th ATP** - Regulation (EU) 2016/918 of 19 May 2016  
**9th ATP** - Regulation (EU) 2016/1179 of 19 July 2016  
**10th ATP** - Regulation (EU) 2017/776 of 4 May 2017  
**HP14 amendment** - Regulation (EU) 2017/997 of 8 June 2017  
**13th ATP** - Regulation (EU) 2018/1480 of 4 October 2018  
**POPs Regulation 2004** - Regulation 850/2004/EC of 29 April 2004  
**1st ATP to POPs Regulation** - Regulation 756/2010/EU of 24 August 2010  
**2nd ATP to POPs Regulation** - Regulation 757/2010/EU of 24 August 2010



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

CONSTITUENT	ORIGIN OF RISK ASSESSMENT VALUE
Arsenic	PC4SL - DEFRA
Cadmium	P4CSL - DEFRA
Chromium	P4CSL - DEFRA
Lead	P4CSL - DEFRA
Mercury	2014 LQM/CIEH S4ULs - methylmercury
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 <sup>(i)</sup>	
Chrysene	
Benzo(b/k)Fluoranthene <sup>(iii)</sup>	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C <sub>5</sub> -C <sub>6</sub> (aliphatic)	
TPH C <sub>6</sub> -C <sub>8</sub> (aliphatic)	
TPH C <sub>8</sub> -C <sub>10</sub> (aliphatic)	
TPH C <sub>10</sub> -C <sub>12</sub> (aliphatic)	
TPH C <sub>12</sub> -C <sub>16</sub> (aromatic)	
TPH C <sub>16</sub> -C <sub>21</sub> (aromatic)	
TPH C <sub>21</sub> -C <sub>35</sub> (aromatic)	



**APPENDIX VII  
GEOTECHNICAL TESTING  
RESULTS**

# Laboratory Report Front Sheet

Site name

Carlton Ave, Blyth

Job number

20-596

Solmek

12-16 Yarm Road,  
Stockton on Tees,  
TS18 3NA

01642 607083

lab@solmek.com



7607

## Client details:

Reference: 20-596

Name: Ergo Environmental

Address: Hoult's Yard  
Walker Rd,  
Newcastle upon Tyne,  
NE6 2HL

Telephone: 0191 3896200

Email: abecker@ergoenvironmental.com

FAO: A Becker

Date commenced: 13/07/2020

Date reported: 16/07/2020

## 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.

Solmek are not UKAS Accredited for the following tests; Density by Linear Measurement, Particle Density by Gas Jar, Point Load, Triaxial UU Multi Specimen, Triaxial UU Multistage and California Bearing Ratio.

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

Signature:

Approved Signatories:

- ☒ K Watkin (Lab Manager)
- ☐ U Mazhar (Assistant Lab Manager)
- ☐



## Summary of Classification Tests

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



Site name	Job number
Carlton Ave, Blyth	20-596

[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                      Single point	-s	BS 1377:1990 Part 2 Clause 4.4
	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	KW
Approval date	16/07/2020 13:09
Date report generated	
Report Number	