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WASTE RESOURCE MANAGEMENT

CITY OF STOKE-ON-TRENT

BOOTH STREET, BOOTHEN, STOKE-ON-TRENT

GROUND CONDITIONS ASSESSMENT

JANUARY 2021

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DRAWINGS

Drawing No.	Title	Scale
ST17949-002-B	Site Investigation Location Plan	1:1,000

1 INTRODUCTION AND BACKGROUND

1.1 The report is prepared in accordance with Wardell Armstrong's proposal letter dated 23 January 2020.

1.2 It is understood that the City of Stoke-on-Trent Housing Growth Team have identified the site for potential future residential development. The Site is located at Booth Street in Boothen, Stoke-on-Trent and comprises three distinct areas, a council yard walled enclosure and a car park south of Booth Street and a fenced commercial area north of Booth Street. The Site south of Booth Street currently comprises an old warehouse and storage area, with a car park east of the walled area. The Site north of Booth Street also comprises a storage area with several warehouse structures.

1.3 The geology beneath the Site is indicated by British Geological Survey published geological mapping to comprise Superficial Glaciofluvial Deposits underlain by mudstone, sandstone and conglomerates of the Etruria Formation with no recorded coal seams subcropping within the Site boundary. Given the Site history, variable Made Ground deposits are anticipated.

1.4 This report presents the findings of a preliminary intrusive ground investigation. The report provides a factual summary and an interpretive assessment of the ground conditions encountered, in the context of the proposed residential development of the Site.

1.5 The interpretation of the preliminary ground conditions provided in this report is based on extrapolation of ground conditions from individual investigation locations. Whilst these have been designed to allow sufficient coverage for reasonable extrapolation, the potential for unexpected ground conditions in areas between investigation locations cannot be discounted.

2 GROUND INVESTIGATION

Introduction and Rationale

2.1 Wardell Armstrong prepared a Phase 1 Geoenvironmental Desk Study in February 2020 (report reference ST17949/0001). This report should be read in conjunction with the Desk Study report.

2.2 As indicated by the desk study report, the Site was used for various commercial purposes, originally hosting a refuse destructor in the walled enclosure from the 1920's and several buildings appearing throughout time in the walled enclosure and the area north of Booth Street. The walled enclosure is named as a corporation yard from the 1950's. The land surrounding the Site has several structures present on the earliest available mapping (1877), including structures such as brick and tile works, clay pits, railway tracks. The surrounding land shows significant development over time, with structures such as electricity works, tile works and potteries.

2.3 The Desk Study report identified the likely presence of Made Ground beneath the Site with the possibility of it containing asbestos, due to the age and nature of structures present on Site. Below the Made Ground, the Site was recorded to be underlain by deposits of Superficial Glaciofluvial deposits, beneath which are mudstones of the Etruria Formation.

2.4 Published mapping shows that no coal seams are inferred to subcrop within the Site boundary, but the potential presence of coal seams at the Site cannot be discounted.

2.5 A Coal Authority (CA) CON29 Mining Report was obtained for the Site as part of the desk study, which showed no recorded mine entries within, or within 20m of the Site boundary. The CA report recorded past underground mining in three seams of coal at 520 to 800m depth, with the last date of working in 1941. Any movement associated with these workings should now have ceased.

2.6 The Superifical Glaciofluvial Deposits are classed as a Secondary A Aquifer and the underlying Etruria Formation is also classed as a Secondary A Aquifer. There are no groundwater or surface water abstractions within 950m of the Site. The Site does not lie within a Source Protection Zone.

2.7 The nearest graded surface watercourse is the River Trent c. 270m east of the Site.

2.8 There are nine recorded landfills within 1km of the Site, the closest located 254m southwest of the Site, which accepted unspecified waste including household waste.

2.9 The Desk Study report identified the following potential sources of contamination at the Site:

- Made Ground associated with former activities at the Site, including demolition rubble and asbestos containing materials;
- Above ground oil storage tank in the walled enclosure;
- Hydrocarbons associated with parked cars in the current car park south of Booth Street; and
- Migration of ground gas from coal seams beneath the Site.

2.10 The Desk Study report identified the following potential sources of off-Site contamination:

- Made Ground deposits associated within industrial land use of surrounding areas;
- Migration of contaminations and ground gas from recorded historical landfills;
- Areas of infilled land with unknown materials; and
- An electricity substation and former electricity works immediately south of Site.

2.11 Based on the significant number of potential sources of contamination identified within the Desk Study report, it was recommended that a Phase 2 ground investigation be undertaken to investigate the nature and thickness of the Made Ground and Superficial deposits and determine the depth to rockhead, with the potential mining setting beneath the Site.

Ground Investigation Works

2.12 An intrusive ground investigation was undertaken between 24 November and 1 December 2020, comprising six windowless sampling boreholes and three cable percussion boreholes. The investigation was completed under the supervision of a Wardell Armstrong Engineer with all arisings from the boreholes logged by a WA Engineer. The logs from the ground investigation are provided in Appendix 1.

2.13 The ground investigation locations, shown on Drawing ST17949-002, were positioned in order to provide a general coverage across the Site, as well as targeting

the specific potential contaminant sources as identified within the Phase 1 Desk study report and discussed above.

2.14 The Site investigation works were carried out by Strata Renewables Limited (SRL). All investigation locations were cleared using ground penetrating radar (GPR) and CAT scanned prior to investigation by Avoin Maa, a specialist service clearance contractor. All locations were preceded with a hand dug inspection pit prior to drilling.

Dynamic Windowless Sampling

2.15 Six dynamic windowless sample boreholes were drilled (WS01 to WS06) between a depth of 1.00 and 4.00m. The boreholes were designed to investigate the in-situ geotechnical properties of the underlying Made Ground and Superficial Deposits and to acquire samples for geochemical and geotechnical analysis.

2.16 Standard Penetration Tests (SPTs) were carried out at 1m intervals in each borehole to provide an indication of the in-situ properties of the near surface geology. All boreholes were completed following SPT or sampler refusal, or at a maximum depth of 4.00m.

Cable Percussion

2.17 Three cable percussion boreholes were drilled to a maximum depth of 8.00m (BH01 to BH03). The purpose of the cable percussion boreholes was to investigate the thickness of the Superficial Deposits.

2.18 Standard Penetration Tests (SPTs) were carried out at 1m intervals in each borehole to provide an indication of the in-situ properties of the near surface geology. All boreholes were completed following SPT or sampler refusal at a maximum depth of 8.00m.

Gas and Groundwater Monitoring and Sampling

2.19 Three boreholes were installed with gas and groundwater monitoring standpipes, constructed using 50mm diameter HDPE pipe set within a clean gravel surround. The standpipes were fitted with a gas tight assembly at ground level, suitable for connection to portable gas monitoring equipment with a flush lockable cover.

2.20 Three rounds of gas monitoring were carried out by a WA Engineer between 9 and 18 December 2020. The standpipes were all monitored for concentrations of methane (CH_4), carbon dioxide (CO_2), hydrogen sulphide (H_2S), carbon monoxide (CO) and oxygen (O_2) using a calibrated and MCERTS accredited hand-held gas analyser (GFM 436). Gas flow and atmospheric pressure were also measured. Gas measurements were recorded for a minimum of 60 seconds at each location, at which point the maximum and steady concentration of CH_4 and CO_2 together with the lowest concentration of O_2 were recorded.

2.21 Groundwater level monitoring was undertaken using an electronic dip meter to record the depth to groundwater. The results of the gas and groundwater monitoring visits are presented in Appendix 2.

Laboratory Testing

Chemical Laboratory Testing

2.22 A total of fourteen samples were sent to Envirolab Ltd, a UKAS accredited laboratory, and a range of testing was scheduled. Eight samples were tested for a range of contaminants including metals, asbestos, cyanide, speciated petroleum hydrocarbons ('TPH-CWG' method), polycyclic aromatic hydrocarbons, volatile organic compounds, pH, and phenols. Three samples were tested for a soil leachate suite and the remaining three were scheduled for Waste Acceptance Criteria (WAC) testing.

2.23 The results and laboratory certificates for the geochemical tests are provided in Appendix 3.

Geotechnical Laboratory Testing

2.24 Thirteen samples were scheduled for a range of geotechnical testing, including Atterberg Limits, particle size distribution (PSD) tests and compaction testing. The geotechnical laboratory testing was undertaken at the Strata Renewables Limited laboratory. The results of the geotechnical laboratory testing are attached in Appendix 5.

3 GROUND CONDITIONS AND MATERIALS PROPERTIES

Geology

3.1 The ground conditions encountered at the Site during the intrusive investigation were found to comprise hardstanding overlying Made Ground deposits, which were underlain by natural Superficial Deposits. The (weathered) solid strata of the Etruria Formation were encountered within the cable percussive boreholes. The encountered geology is summarised below in Table 3.1.

Table 3.1
Summary of Ground Conditions

Strata Type	Depths From (m)	Depths To (m)	Thickness (m)
Concrete/Hardstanding	0	0.10 – 0.50	0.10 – 0.50
Buried Concrete	1.00 – 1.20	>>*	>>*
Made Ground	0.10 – 0.50	0.45 – 1.30	0.30 – 1.00
Natural Superficial Deposits	0.45 – 1.30	6.28 – 7.50**	5.83 – 6.50**
Weathered Etruria Formation (mudstone)	6.28 – 7.50	>>***	>>***

*The base of the concrete at depth within WS05 and WS06 was not encountered.
**The base of the superficial deposits was not encountered in any of the WS locations.
***The base of the solid strata of the Etruria Formation was not encountered in any of the exploratory locations.

Concrete and Hardstanding

3.2 Hardstanding was encountered in all exploratory locations, requiring the use of a mechanical breaker and circular saw to remove and allow the hand dug pit to be excavated prior to drilling. This was found at variable thicknesses across the Site and variable compositions, including tarmac, concrete, concrete with metal reinforcement and 'Type 1' aggregate hardstanding.

Buried Concrete

3.3 Concrete was observed at depth within the hand dug pits of WS05 and WS06 and both locations were terminated at shallow depth, as further penetration could not be achieved. Buried concrete was not observed within any other exploratory locations.

Made Ground

3.4 Made Ground deposits were encountered within all exploratory locations and comprised deposits of variable thicknesses and materials, up to a maximum proven depth of 1.30m. The deposits generally comprised black clayey gravelly fine to coarse sand. The gravel comprised brick, concrete, sandstone and mudstone, with rare

ceramic and glass. Cobbles of sandstone were recorded within BH02 and cobbles of brick were recorded within BH03, WS05 and WS06. Gravel sized pockets of soft black clay were identified within WS04.

Natural Superficial Deposits

3.5 Natural Superficial Deposits were encountered within all exploratory locations able to penetrate through the Made Ground and can be split into two deposits based on their in-situ properties.

3.6 The upper unit generally comprised a soft mottled grey, orange and reddish slightly gravelly slightly sandy CLAY. The gravel consisted of sandstone and mudstone. A band of firm grey and dark grey clay was recorded in WS01 between 1.60 and 1.80m. The lower unit generally comprised brown, occasionally orangish brown, sand and gravels, with gravel of sandstone, mudstone and quartzite. These deposits showed an increasing cobble content with depth, with cobbles of sandstone and mudstone.

3.7 The base of the Superficial Deposits was not proven within any of the windowless sample boreholes but was encountered within the cable percussion boreholes at a maximum depth of 7.50m.

Solid Strata

3.8 The solid strata was encountered underlying the Superficial Deposits in all three cable percussion boreholes from a minimum depth of 6.28m. These deposits were recovered as stiff to very stiff brown and light grey mottled clay, which were interpreted as weathered mudstone.

Contamination

3.9 No visual or olfactory evidence of contamination was encountered during the investigation within any materials.

Groundwater Conditions

3.10 Groundwater was encountered within three windowless sample boreholes (WS02, WS03 and WS04) and all three cable percussion boreholes during drilling. The groundwater level was encountered at depths between 2.00 and 3.00m, with standing water levels after 20 minutes recorded between 1.70 and 3.10m.

3.11 During the gas and groundwater monitoring programme, following the intrusive investigation, groundwater was recorded at depths between 2.10mbgl and 2.69mbgl. The groundwater levels are summarised below in Table 3.2.

Table 3.2
Groundwater Monitoring Results

Borehole ID	Depth to Base of Installation (m)	Groundwater Level (m)	
		Max	Min
BH01	8.00	2.61	2.69
WS02	3.10	2.10	2.21
WS03	3.50	2.57	2.67

Ground Gas

3.12 Two windowless sample boreholes (WS02 and WS03) and one cable percussion borehole (BH01) were fitted with ground gas monitoring apparatus and were monitored across three visits.

3.13 Methane is a flammable gas and constitutes an explosive risk when present at concentrations of between 5% and 15% by volume (v/v) in air. Carbon dioxide is an asphyxiant and is hazardous if allowed to accumulate in an unventilated confined space.

3.14 The results of the ground gas monitoring are provided in Appendix 2 and a summary of the results is presented below in Table 3.3.

Table 3.3
Ground Gas Monitoring Results

Borehole ID	Minimum Oxygen Concentration (%v/v)	Maximum Oxygen Concentration (%v/v)	Minimum Carbon Dioxide Concentration (%v/v)	Maximum Carbon Dioxide Concentration (%v/v)
BH01	14.0	14.2	3.6	3.7
WS02	12.3	20.3	0.0	1.1
WS03	18.2	19.7	0.9	1.6

3.15 The results of the ground gas monitoring indicate a low gas risk setting. No concentrations of methane, carbon monoxide or hydrogen sulphide were recorded in any of the boreholes during the monitoring programme. No gas flow was recorded during any of the monitoring visits. Carbon dioxide was measured up to a maximum

concentration of 3.7 %v/v (BH01, Visit 1) and oxygen was measured at a minimum concentration of 12.3 %v/v (WS02, Visit 1).

4 RESULTS OF CHEMICAL TESTING AND QUALITATIVE RISK ASSESSMENT

4.1 Wardell Armstrong LLP has undertaken a qualitative risk assessment to determine if any potential contaminants within the underlying soils pose an unacceptable level of risk to the identified receptors.

Human Health Risk Assessment

4.2 Current best practice in the assessment of contaminated land is to develop a conceptual site model (CSM) in which all of the potential sources, pathways and receptors and the relationships between them are described. As the proposed development is residential the results of the chemical soil analysis have been screened against Generic Assessment Criteria (GAC) for residential with plant uptake.

4.3 The GACs used included Environment Agency/DEFRA Soil Guideline Values and 'Suitable for Use Levels'. The latter were jointly published by Land Quality Management and the Chartered Institute of Environmental Health. Assessment criteria for organic contaminants vary dependent on the soil organic matter (SOM) in the material. The levels of SOM recorded in the samples tested were variable between 0.3 and 2%. Therefore, a conservative estimate of 1% SOM has been applied to all soils for the purposes of this initial assessment.

Brownfield Suite Testing

4.4 Eight samples were scheduled for a brownfield testing suite including a range of commonly occurring contaminants, including metals, polycyclic aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH). The full results and testing certificates are provided in Appendix 3.

4.5 The samples were taken from a range of depths between 0.80 and 4.00m within the Superficial Deposits and Made Ground. When compared to the assessment criteria for residential end use with plant uptake, the eight samples did not record any exceedances in excess of the assessment criteria of any determinands. The results of the chemical testing indicates that the ground beneath the site does not pose a

significant risk to human health and that the material is suitable for use in in a residential development.

4.6 It should be noted that the risk assessment is limited due to the preliminary nature of this investigation and is based on eight soil samples. Hotspots of unexpected contamination may be present in the Made Ground beneath the site and an appropriate watching brief is reccommended during site clearance, due to the potential for encountering previously unidentified contamination. Furthermore, due to the potential presence of asbestos within the fabric of buildings remaining on site, it is recommended that an appropriate asbestos survey is undertaken prior to demolition and that the demolition and site clearance activities are subject to watching brief and confirmatory post clearance sampling for the presence of fugitive asbestos.

Waste Acceptance Criteria Testing

4.7 Waste Acceptance Criteria (WAC) testing was undertaken within three samples of Made Ground (WS01 ES1 – 0.50m , WS02 ES1 – 0.40m , WS03 ES1 – 0.40m), to establish the potential disposal requirements for these materials. The results and laboratory certificates are provided in Appendix 3 and associated assessment is discussed in Section 5 of this report. Exceedances are summarised below in Table 4.1.

Table 4.1
Waste Acceptance Criteria Testing Results

Determinand	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Exceedance of Landfill Criteria?
Total Organic Carbon	3.97 (%)	9.20 (%)	3 x I* 2 x HW**
Loss on Ignition	6.60 (%)	10.40 (%)	1 x I* 1 x HW**
Lead	<0.01	4.10	1 x I*
Fluoride	5.00	13.00	1 x I*
Sulphate as SO_4	81	1602	1 x I*

* I - Exceedance of Inert Waste Landfill criteria
** HW - Exceedance of Hazardous Waste Landfill criteria.

4.8 The results of the WAC testing show several exceedances against Inert Landfill criteria from samples across the Site. There were two recorded exceedances of total organic carbon and one of loss of ignition above hazardous waste landfill criteria.

4.9 Only recovered materials scheduled for disposal off-site should undergo WAC tests to classify a suitable disposal route as required. The current batch of WAC test results provides an indication of the potential waste disposal route and indicates that this material is not suitable for disposal to an inert landfill.

Controlled Waters Risk Assessment

4.10 The Site is underlain by Superficial Glaciofluvial deposits, which have been classified by the Environment Agency as a Secondary A Aquifer The underlying solid strata of the Etruria Formation have also been classed as a Secondary A Aquifer. No groundwater abstractions have been recorded within 950m of the Site. The Superficial Deposits generally comprise an upper cohesive layer of up to c2m thick, underlain by predominantly granular (sand and gravel) deposits. The cohesive soils may provide a low permeability barrier, able to effectively retard the vertical migration of contaminants into the underlying strata.

4.11 The River Trent, located c. 265m east of Site, and the underlying Secondary A Aquifer of the Superficial Deposits, are potential controlled waters receptors to be considered. Therefore, leachability laboratory test analysis has been compared to the Environmental Quality Standards for fresh waters (EQS) and the published UK Drinking Water Standards (DWS), where available, for the initial assessment of risk to controlled waters.

4.12 Three samples underwent leachate analysis. These samples were obtained from WS04 (0.80m), BH01 (1.20 to 1.65m) and BH03 (1.20 to 1.65m). The results from the leachate testing and the laboratory certificates are presented in Appendix 3.

4.13 Several exceedances were identified within the samples subject to leachate testing. All three samples recorded exceedances of copper up to a maximum concentration of 81 µg/l, above a screening value of 1 µg/l. Two exceedances of lead were recorded at 49 and 391 µg/l, above the screening value of 1.2 µg/l for EQS. One exceedance for EQS of calcium was identified within WS04 ES1 at 370 mg/l above the screening value of 250 mg/l. All other exceedances were recorded within the

sample ES1 from BH03 at 1.20 to 1.65m. Exceedances for EQS within this sample included determinands such as cyanide, nickel and several PAHs. Exceedances in DWS were recorded in lead in BH03 in addition to some minor exceedances in some PAHs.

4.14 The concentrations of copper and nickel can be reassessed using the Metals Bioavailability Assessment Tool (m-BAT) to calculate the bioavailable concentrations. Upon reassessment, the concentration of nickel within BH03 ES1 fell below the screening criteria and one copper concentration fell below the screening criteria. The remaining copper concentrations showed bioavailable concentrations of 1.35 and 1.97 µg/l, only marginally above the screening criteria of 1 µg/l.

4.15 In cognisance of the relatively minor level of the exceedances and the distance to the potential receptor being in excess of 250m, the site is not considered to pose a significant risk to surface waters.

4.16 Exceedances in DWS are relatively minor and generally within the same order of magnitude as the assessment criteria. In cognisance of the low sensitivity of the underlying aquifer and the presence of low permeability soils, the site is considered unlikely to pose a significant risk to the underlying Secondary A Aquifer. The risk assessment should be reviewed pending confirmation of the development proposal/layout and these conclusions should be considered as preliminary.

Ground Gas Risk Assessment

4.17 For proposed low rise residential development incorporating a sub-floor void, either the NHBC “traffic lights” system or CIRIA system can be used to determine whether any gas protection measures would need to be incorporated into the development. Therefore, assessments have been made in line with guidance contained in the following documents:

- CIRIA C665 ‘Assessing risks posed by hazardous ground gases to buildings’;
- NHBC ‘Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present’. This document assesses the risk of gases based on a “Traffic Light” system ranging from green (no gas precautions required) to red (development precluded).

4.18 The development of the Site is classified under "CIRIA situation B" for low rise housing with a ventilated under floor void.

4.19 An initial 3 rounds of limited gas monitoring were undertaken at the site in order to gain an overview of the current ground gas regime. No methane was detected and relatively low levels of carbon dioxide were recorded in all three monitoring wells at between 0.0 and 3.7 %v/v. No gas flow rates were observed during the monitoring period and as such, the limit of detection for flow rate on the monitoring device of 0.1 l/hr has been used for this assessment to determine the worst case scenario. Using the same principle, a maximum concentration of 0.3 %v/v for methane has been used for this assessment.

4.20 The NHBC "traffic light" system has been adopted to provide an initial ground gas risk assessment based upon Situation B (residential development). Using this method, a Gas Screening Value (GSV) of 0.0037 has been determined for carbon dioxide and a GSV of 0.0003 for methane. This classifies the site as 'green' for both gases on the NHBC system, therefore identifying a negligible gas regime and that no gas protection measures are likely to be required. In the event that the proposed form of construction omits a sub-floor void, then the ground gas risks should be assessed in accordance with the modified Wilson and Card classification system (as referred to in CIRIA C665), such that the site would classify as Characteristic Situation 1 (very low gas risk, requiring no special precautions).

4.21 This is regarded to be a provisional assessment as it is based on a very limited dataset (3 rounds of monitoring of 3 boreholes). A longer period of gas monitoring, i.e. CIRIA 665 requires at least 6 rounds over a period of 3 months (or otherwise agreed with the Local Authority Contaminated Land Officer), would be required in order to satisfy industry best practice. Upon completion of any extended monitoring period, the ground gas risk assessment should be updated.

4.22 In the absence of any identified significant ground gas sources or deposits of putrescible material encountered during the ground investigation, it is considered unlikely that ground gas will present a significant constraint to the proposed residential development.

Mining Risk Assessment

4.23 The mining setting of the Site was discussed within the Wardell Armstrong desk study produced for the Site and discussed in Section 2 of this report.

4.24 The Site is within an area that could be affected from past underground mining within three coal seams between 520 and 800m depth, which were last worked in 1941 and any associated movement should now have ceased. There are no recorded coal seams at shallow depth beneath the Site. There are no recorded mine entries within or within 20m of the Site boundary.

Conceptual Site Model

4.25 Following the completion of the intrusive site investigation, chemical analysis and risk assessment, a conceptual model (based on the Desk Study report) has been prepared for the proposed future land use, and is presented in Table 4.2, below. This summarises the understanding of potential contaminant sources, transport pathways and receptors. The risk assessment criteria are presented as Table 4.3.

Table 4.2
Risk Assessment Matrix

		Receptor Sensitivity		
		Low	**Medium**	**High**
Contaminant Source (Potential Severity of Contamination)	**Low**	Low	Low to Moderate	Moderate
	Moderate	Low to Moderate	Moderate	Moderate to High
	High	Moderate	Moderate to High	High

Notes
Where either contaminant source or receptor sensitivity is considered to be negligible, a classification of "very low" risk is used by default.
The classification of "high", "moderate" or "low" is made based on qualitative judgement. Discussion of the risk classification assigned in the CSM is provided below.

Table 4.3
Conceptual Site Model

Source	Pathway	Receptor	Potential Risk	Recommended remediation and further investigation
Potential for soils to be contaminated from substances associated with the former structures and surrounding land uses	• Ingestion of soil; • Ingestion of indoor dust; • Dermal contact with soil; • Dermal contact with indoor dust; • Inhalation of fugitive soil dust; • Inhalation of fugitive indoor dust.	Human Health, (female child 0-6 years of age) Construction workers.	**Currently Low** Soil chemical results have recorded values generally below the assessment criteria including PAHs, hydrocarbons, metals and asbestos. The few exceedances are recorded in PAH and are marginal.	Further sampling and testing of Made Ground. Some areas may require hotspot removal of placement below a cover system.
	• Leaching from soil and subsequent infiltration.	Controlled Waters (Secondary Aquifer) and Surface Waters	**Very Low Risk** low levels of contaminants recorded in the soil samples tested. No visual or olfactory contamination was observed during the ground investigation. Superficial Deposits likely to create a low permeability barrier. Underlying aquifer of low sensitivity. Surface waters in excess of 250m from site.	Sampling of groundwater within standpipes. Requirement for remedial measures unlikely
	• Vertical and lateral migration of gas into enclosed spaces.	Future site users (female child 0-6 years of age)	**Very Low Risk** Based on the initial rounds of gas monitoring this has indicated an NHBC classification of 'green' meaning that no protection measures are necessary.	Supplementary gas monitoring is likely to be required due to the sensitivity of the development. This should be agreed with the Local Authority beforehand.

5 WASTE ASSESSMENT

Introduction

5.1 In order to determine the waste classification of relevant soils and materials at the site, WA have undertaken a process of waste assessment. This process utilises appropriate soil sampling and chemical analysis.

5.2 The classifications are based on reviewing the absolute abundance of a suite of elements and compounds within material from the site.

5.3 The objective of the waste classification is to assess soils scheduled to be reused or removed as part of future works at site. The relevant samples have been recovered from boreholes advanced during the site investigation. This comprised the recovery

of samples from 3 no. exploratory locations. Exploratory hole depths ranged from between 1.00m and 8.00m (positions are shown on Drawing ST17949-002-B – Site Investigation Location Plan).

5.4 There were two different types of materials recovered during the sampling process:

- Made Ground deposits generally comprised black clayey gravelly fine to coarse sand. The gravel comprised brick, concrete, sandstone and mudstone, with rare ceramic and glass.
- Natural Superficial Deposits generally comprised a soft greyish brown, orangish brown, brown or grey, mottled greyish, orangish and reddish brown, black and grey, slightly gravelly slightly sandy CLAY. The gravel was recorded as sandstone and mudstone.

5.5 As stated on page 21 of published Environment Agency Waste Classification Technical Guidance WM3, "Landfill WAC analysis (specifically leaching test results) must not be used for waste classification and hazardous waste assessment purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous."

5.6 The assessment of waste considers the presence of asbestos as:

- Fibres that are free and dispersed – "If the waste contains fibres that are free and dispersed then the waste will be hazardous if the waste as a whole contains 0.1% or more asbestos;"
- Identifiable pieces of asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye) - "The waste is hazardous if the concentration of asbestos in the piece of asbestos containing material is 0.1% or more."

Level 1 Basic Characterisation of Waste Material

5.7 Waste producers are responsible for describing their waste in detail. This will include background information on the source and origin of the waste. As part of the waste assessment, specific chemical test data is required (unless there is a justifiable reason why testing is not required). The Basic Characterisation must include:

- Waste source and origin;
- The code applicable to the waste under the European Waste Catalogue (EWC);

- Determination if the waste has any hazardous properties as per WM3;
- In the case of hazardous waste, the properties which render it hazardous;
- The process producing the waste (including a description of the process, its SIC code and characteristics of its raw materials and products which may affect its behaviour under landfill conditions);
- The appearance of the waste (including smell, colour, consistency, and physical form); and
- The class of landfill the waste can be disposed at.

Summary of Soil Sampling & Laboratory Analysis

Soil Sampling

5.8 This is discussed in Section 4.

Chemical Analysis of Soils

5.9 Chemical analysis if the soils is discussed in Section 4.

5.10 The scheduled determinants in relation to specific testing against Generic Assessment Criteria (GAC) for residential with plant uptake is outlined in Section 4.

5.11 The results of the soil geochemical analyses are attached at Appendix 3.

Hazardous Waste – Excavated Soil & Fill Material

5.12 None of the samples analysed have been classified as hazardous waste as shown inn Table 5.1 below.

Non-Hazardous Waste – Excavated Soil & Fill Material

5.13 The material relating to the samples identified in Table 5.1 has been classified as non-hazardous 17 05 04 (soil and stones other than those mentioned in 17 05 03). Therefore, it is considered that this excavated material may be accepted at a permitted non-hazardous waste landfill (pending suitable WAC test results for acceptance at an inert waste landfill).

5.14 It should be noted that this classification is based on forcing the potential 'flammable' hazardous property - HP 3(i) to non-hazardous. This is due to the waste not being a liquid and not having any free draining liquid.

Table 5.1: Non-Hazardous Waste Summary

Sample ID	Depth (m)	Classification	Commentary
BH01	4-4.5	HP 3(i)*	No Asbestos Detected
BH02	1.2-1.7	Non-Hazardous	No Asbestos Detected
BH03	2-2.5	HP 3(i)*	No Asbestos Detected
WS01	1.4	Non-Hazardous	No Asbestos Detected
WS02	1.5	Non-Hazardous	No Asbestos Detected
WS03	1.7	Non-Hazardous	No Asbestos Detected
WS04	1.3	HP 3(i)*	No Asbestos Detected
WS05	0.8	HP 3(i)*	No Asbestos Detected

Note:
Force potential hazardous property to non-hazardous
HP 3(i)*: Flammable hazardous property has been forced to non-hazardous classification. 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" – due to TPH (C6 to C40) petroleum group

Asbestos in Soil

5.15 All samples were screened for asbestos containing material (ACM).

5.16 Asbestos was not detected in any of the samples.

Other Considerations

Pieces of Asbestos Containing Material

5.17 ACM is considered to be identifiable by the naked eye by a competent person. The overall waste containing the piece(s) of ACM is hazardous if the concentration of asbestos fibres in the piece(s) of ACM is 0.1% or greater.

5.18 Should any visible pieces of ACM be recorded in excavated/sampled material, the material may be considered hazardous waste subject to further testing, removal, and separate disposal of pieces of ACM.

Gypsum Wastes (sulphate)

5.19 Gypsum wastes and other waste containing high sulphate content are neither inert nor stable and non-reactive because they will biodegrade. Gypsum-based and other high sulphate bearing materials are considered to be wastes with more than 10% sulphate in one load.

5.20 Where possible, samples from the site investigation should be assessed to see if they generally contain more than 10% sulphate. None of the samples within the current dataset contain total sulphate levels of more than 10%. The maximum total sulphate percentage is 0.17%.

5.21 Plasterboard is not considered to be a hazardous waste, and gypsum-based or high sulphate bearing wastes must not be mixed with biodegradable wastes.

Waste Acceptance Criteria for Landfill

5.22 Three samples have been tested for WAC analysis.

5.23 The Landfill Regulations require that waste is properly characterised and meets specific Waste Acceptance Criteria (WAC) prior to disposal at landfill and includes a combination of concentration limits for total composition and leachable content to ensure that waste is properly characterised. WAC limit values are used to decide which class of landfill is appropriate for a particular type of waste.

5.24 There are no defined WAC limit values for non-hazardous landfill sites. Acceptance of non-hazardous material is usually dependant on waste classification alone.

WAC Testing and Limits

5.25 Landfill operators generally accept statistical analysis of data sets where the waste producer believes that a test result that exceeds a WAC leaching limit is due to analytical uncertainty or is not representative of the waste population.

5.26 Where results exceed WAC leaching limits at the site of production, the waste producer can use this information to decide the most appropriate management option for his waste that may include further treatment before he sends his waste off site.

5.27 Any statistical analysis must be justified and agreed between the waste producer, the receiving landfill operator and Natural Resources Wales / the Environment Agency as part of the process that shows that the waste is acceptable at a particular class of landfill.

WAC Classification

5.28 A detailed overview of the WAC classification of the 3no. samples is provided in Appendix 3 and a summary is outlined overleaf.

5.29 Materials classified as Hazardous on account of their total analysis (waste classification) cannot be classified as Inert on account of Waste Acceptance Criteria testing.

5.30 The current classification process does not include an assessment of invasive plant species. If anomalous materials are encountered during excavation the classification should be revisited.

5.31 The WAC test results alone identified various WAC classifications summarised as follows:

- Identification of 1no. sample representing material that would require disposal at a Stable Non-Reactive Hazardous Waste (SNRHW) landfill (or hazardous waste landfill) based on total organic carbon, lead and fluoride.
- Identification of 2no. samples representing material that would only be acceptable at a Hazardous Waste landfill. These particular samples are indicative of material which exceeds Hazardous Waste landfill requirements (for total organic carbon and/or loss on ignition) and may require treatment before acceptance at this type of landfill.

5.32 The above summary is based on the assumption that the criteria is strict, and any exceedances define the exact landfill destination. In reality, the exceedances may be negligible, and the landfill operator may take an informed decision on what is acceptable or not.

Summary of Waste Classification & Potential Disposal at Landfill

5.33 Based on the results of the sampled material, the following classifications and disposal routes are considered appropriate:

- All of the sampled material is considered to be non-hazardous waste. Three separate samples were then WAC tested. It should be noted that WAC testing is not required for non-hazardous waste unless there is a requirement for disposing of this material at an inert landfill. As the WAC tests were not undertaken on any of the samples which underwent waste classification, the WAC tests are simply indicative.
- One of the WAC test results (WS02-0.4m) identifies material that would be best suited for disposal at a SNRHW landfill (or hazardous waste landfill) based on total organic carbon, lead and fluoride.
- Two of the WAC test results (WS01-0.5m and WS03-0.4m) identifies material that would be best suited for disposal at a Hazardous Waste landfill. These particular samples are indicative of material which exceeds Hazardous Waste landfill requirements (for total organic carbon and/or loss on ignition) and may require treatment before acceptance at this type of landfill.
- Where samples have been identified as exceeding WAC leaching criteria for a hazardous landfill (i.e. WS01 and WS03), treatment may be required. However, in this instance the only exceedances relate to Total Organic Carbon and/or Loss on Ignition. Subsequently, these specific exceedances should be considered further with individual landfill operators.
- Furthermore, the above is based on assessment of the WAC test results in isolation. It should not be discounted that non hazardous waste does not need WAC testing unless disposal to inert landfill is being considered.
- Only recovered materials scheduled for disposal should undergo WAC tests to classify a suitable disposal route as required. The current batch of WAC test results provides an indication that this material is not suitable for disposal at an inert landfill.
- It should also be noted that when material is excavated and scheduled for disposal, to determine the most suitable disposal route at that time, further WAC tests should be undertaken in relation to the specific waste stream requiring disposal.

- No asbestos was identified within any of the analysed material. A landfill operator can refuse entrance of material recorded to contain any level of asbestos. This decision is at the discretion of the landfill operator.
- No WAC leaching thresholds have been set for Non-Hazardous waste, and as such, no WAC testing is required for disposal of non-hazardous waste to a Non-Hazardous landfill.

5.34 A detailed summary of the WAC results is provided in Appendix 3.

Potential Re-Use of Material

5.35 Based on the proposed Site end use, the 'residential with plant uptake' criteria are deemed to be the most suitable criteria. The materials represented by the analysed samples are not considered to present a risk to human health.

5.36 The material could potentially be used in relation to the current and proposed land use.

5.37 If this material at any point is considered for disposal, it is deemed to be a waste.

5.38 If the 'waste' is to be reused on site it will need to be completed in accordance with a valid planning consent and under one of two options:

- under CL:AIRE Definition of Waste Code of Practice (DoWCoP) - Materials Management Plan.
- under an Environmental Permit for waste recovery.

5.39 To be able to use the waste under CL:AIRE DoWCoP certain factors would need to be demonstrated. It may also still be necessary to undertake some form of treatment or processing on the wastes to render them suitable for use and ensure that the principles can be demonstrated.

Deleterious Surface Materials

5.40 Site observations did not indicate the presence of any assorted debris or fly-tipped waste materials at the site surface, other than very small quantities in limited areas of dense vegetation. Asbestos containing materials were not identified during geochemical testing but may remain within the fabric of the structures still on site.

5.41 Any deleterious materials should be cleared from site as part of any site preparation works and disposed of to a suitably permitted waste disposal facility with due care to minimise pollution on site. In addition, any prohibited waste (in accordance with the site permit) should also be removed from site and suitably disposed of (carpet, trommel fines, hazardous waste etc).

Table 5.2: Waste Analysis & Classification Overview					
Sample ID	**Depth**	**Human Health Risk Assessment (Residential Land Use)**	**Waste Classification**	**Waste Acceptance Criteria – Test Results**	**Commentary**
BH01	4-4.5m	No Human Health Exceedances	Non-Hazardous	N/A	HP 3(i)*
BH02	1.2-1.7m	No Human Health Exceedances	Non-Hazardous	N/A	
BH03	2-2.5m	No Human Health Exceedances	Non-Hazardous	N/A	HP 3(i)*
WS01	0.5m	N/A	N/A	Hazardous Waste Landfill	Waste classification has not been undertaken in relation to this sample, but based on all available information, this sample is very likely to be non-hazardous. Non-hazardous material will be accepted at a non-hazardous landfill.
WS01	1.4m	No Human Health Exceedances	Non-Hazardous	N/A	
WS02	0.4m	N/A	N/A	Stable Non-Reactive HW Landfill	Waste classification has not been undertaken in relation to this sample, but based on all available information, this sample is very likely to be non-hazardous. Non-hazardous material will be accepted at a non-hazardous landfill.
WS02	1.5m	No Human Health Exceedances	Non-Hazardous	N/A	
WS03	0.4m	N/A	N/A	Hazardous Waste Landfill	Waste classification has not been undertaken in relation to this sample, but based on all available information, this sample is very likely to be non-hazardous. Non-hazardous material will be accepted at a non-hazardous landfill.
WS03	1.7m	No Human Health Exceedances	Non-Hazardous	N/A	
WS04	1.3m	No Human Health Exceedances	Non-Hazardous	N/A	HP 3(i)*
WS05	0.8m	No Human Health Exceedances	Non-Hazardous	N/A	HP 3(i)*

Note:
Force potential hazardous property to non-hazardous
HP 3(i)*: Flammable hazardous property has been forced to non-hazardous classification. 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" – due to TPH (C6 to C40) petroleum group

6 GEOTECHNICAL TESTING

In-Situ Geotechnical Testing

Standard Penetration Tests

6.1 Standard Penetration Tests (SPT) were undertaken at 1m intervals in the windowless sample and cable percussion boreholes. The field SPT 'N' values ranged from 0 (self weight penetration) to 50 (refusal). SPT 'N60' values have been calculated and ranged between 0 and 60, with an average result of 24. The SPT 'N60' results are shown below in Figure 1.

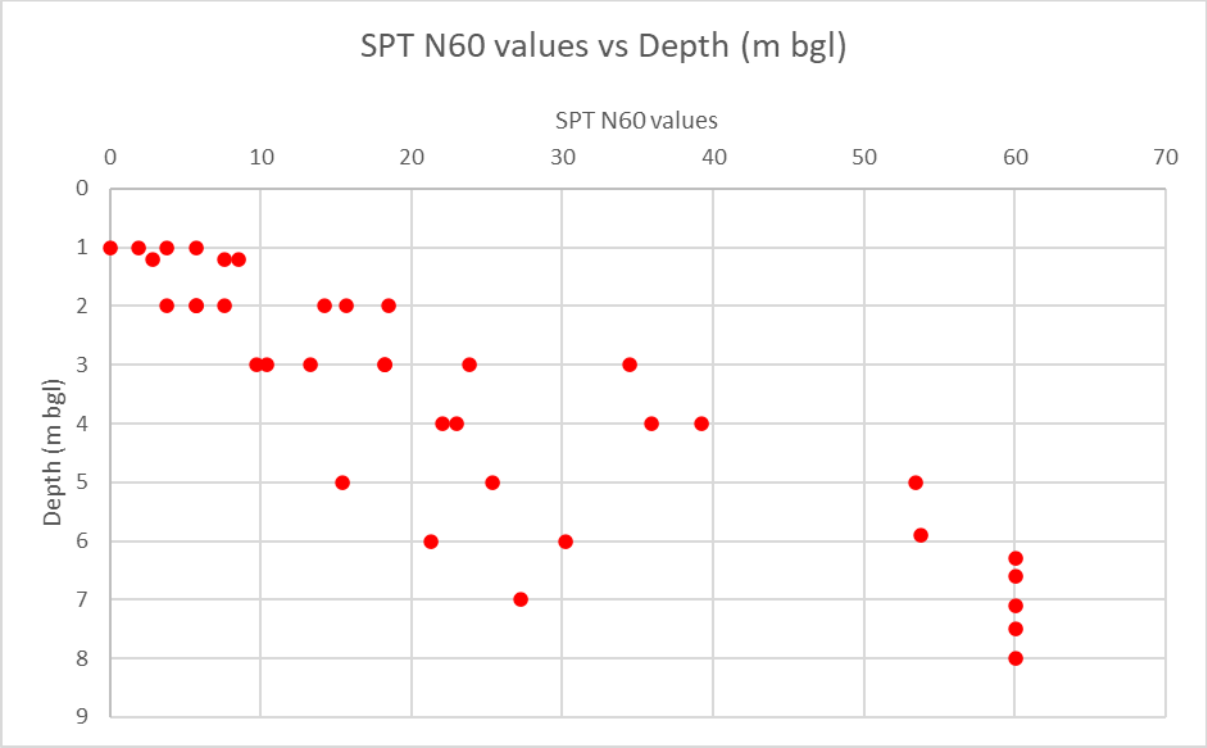

Figure 1. SPT 'N60' Values vs Depth.

6.2 The SPT 'N60' values show a clear increasing trend with depth with refusal within the stiff clays (weathered mudstone) of the Etruria Formation. It can be seen on Figure 1 above that the Made Ground materials recorded the lowest SPT 'N60' values, which as such may be the least geotechnically suitable for reuse within the proposed development.

Laboratory Geotechnical Testing

6.3 Laboratory geotechnical tests were undertaken on thirteen disturbed samples collected from the boreholes during the intrusive ground investigation. Laboratory test certificates are included as Appendix 5, for reference.

Atterberg Limits and Moisture Content Testing

6.4 Atterberg Limit and Moisture Content testing was undertaken on three samples (BH01 – 1.20 to 1.65m , BH02 – 1.20 to 1.65m , BH03 – 2.00 to 2.45m) within the Superficial Deposits. The results from this testing are summarised below in Table 6.1.

Table 6.1
Summary of Geotechnical Test Results

Property	Minimum Result (%)	Maximum Result (%)
Moisture Content	21	21.9
Liquid Limit	18	33
Plastic Limit	11	18
Plasticity Index	7	15
% Passing 0.425 mm	56	81
Modified Plasticity Index	3.92	12.15

6.5 The results of the Atterberg Limit testing show generally variable soils across the Site with all properties showing variable results. The modified plasticity index has been calculated for each of the three samples with a maximum result of 12.15 %. This suggests that the Superficial Deposits have a low volume change potential.

Particle Size Distribution Tests

6.6 Particle Size Distribution (PSD) tests were undertaken on eight samples across the Site at a range of depths between 1.00 and 3.00m within the Superficial Deposits. The results of the testing showed the soils to be largely variable across the Site, in line with the Engineer field descriptions during the Site investigation

6.7 Cobbles were only recorded in one sample obtained from BH02 at 3.00m and made up 12 % of the total sample volume with no clay or silt. One other sample taken from BH03 at 3.00m recorded no clay or silt. All other samples were identified as a combination of silt/clay, sand and gravel at varying proportions. Silt and clay were recorded as comprising between 1 and 42 % of the total sample volume where identified. Sand was recorded between proportions of 17 and 72 % of the total sample volume. Gravel was recorded between proportions of 2 and 83 % of the total sample volume.

Compaction Testing

6.8 Compaction testing was undertaken on two samples (BH01 – 2.00 to 2.45m , BH03 – 1.20 to 1.65m) from within the Superficial Deposits.

6.9 The sample from BH01 recorded a bulk density of 2.70 Mg/m^3, a moisture content as received of 18.8 %, an optimum moisture content of 11.2 % and a maximum dry density of 1.915 Mg/m^3. The sample from BH03 recorded a bulk density of 2.61 Mg/m^3, a moisture content as received of 28.9 %, an optimum moisture content of 15.5 % and a maximum dry density of 1.787 Mg/m^3. The results of the testing suggest that the soils are wetter than optimum.

Sulphates

6.10 A preliminary assessment of the sulphate conditions has been made in accordance with the methodology described within BRE Special Digest 1: *Concrete in Aggressive Ground*. It is considered that buried concrete may be designed assuming a typical Design Sulphate Class DS-1 and an Aggressive Chemical Environment for Concrete class AC-1, assuming mobile groundwater conditions at the Site.

6.11 It should be noted that this assessment is preliminary and that the concrete classification should be assessed further by a Structural Engineer, who may wish to carry out further testing.

7 GEOTECHNICAL ASSESSMENT

7.1 The Site currently comprises a storage yard with derelict buildings and a car park, and is proposed to be developed for conventional low rise residential housing.

Foundations

7.2 There is potential for excessive total and differential settlements within the variable Made Ground deposits. The underlying Superficial Deposits are considered as having a low volume change potential but also exhibited a high degree of variability, with the presence of soft sandy and gravelly clays underlying the Made Ground. Therefore, the bearing properties of the Superficial Deposits are unlikely to be suitable for the proposed development at depths shallower than 3m.

7.3 Whilst deep trench fill foundations could be considered to such depths, the presence of shallow groundwater monitored at depths of c2.10 to c2.60 would be expected to hinder excavation stability below, say c.2.50m.

7.4 It may therefore be more economic to consider the use of either a ground improvement solution, such as vibro compaction, in conjunction with reinforced strip foundations, or the use of a short driven pile solution.

7.5 The Made Ground was found to extend to a maximum proven depth of 1.30m (albeit the base of the Made Ground was not proven at two locations due to the presence of shallow obstructions).

7.6 In the event that plots are proposed to be located in close proximity to trees, foundations may need to be deepened and an assessment in accordance with the NHBC Standards Chapter 4.2 will be required.

Floor Slabs

7.7 Due to the cohesive nature of the natural Superficial Deposits on Site, and the Made Ground present across the majority of the Site, ground bearing slabs are likely to be unsuitable, and suspended floor slabs are likely to be required.

Groundwater

7.8 Groundwater was encountered during drilling with standing water between 1.70 and 3.10m . Groundwater was also recorded in all three boreholes during the monitoring programme at depths between 2.10 and 2.69m . Groundwater ingress for shallow excavations is not anticipated to present a significant constraint, consideration should be given to dewatering of any proposed deeper excavations.

Excavations

7.9 The observations during the ground investigation suggested low clay content within the Made Ground deposits and a high clay content within the upper Superficial Deposits. It is not considered likely that excavations would be required within the deeper Superficial Deposits comprising more gravelly materials. The presence of shallow groundwater could adversely affect excavation stability. and consideration should be given to provision of temporary support for deep excavations. Foundation excavations should be inspected on a regular basis by a qualified Engineer/technician

to ensure safety to workers and that structural concrete is being placed correctly.

Earthworks

7.10 Based on observations and the results of the ground investigation works, it is considered that a scheme of shallow turnover and grubbing out will be required prior to development, but that substantive earthworks are not likely to be necessary, subject to consideration of the proposed layout and desired finished levels of the development. The entire Site is covered by variable thicknesses and composition of hardstanding up to 0.50m, which will need breaking out and removal prior to construction. There are also several buildings, walls and other structures which will require removal prior to construction.

Buried Structures

7.11 Borehole WS05 was terminated at the base of the hand dug pit at 1.20m. The round conditions at this location were found to comprise 0.40m of concrete with an underlying Made Ground gravel with high cobble content, comprising bricks. During excavation, the bricks were generally visible in horizontal layers, suggesting they had been laid as part of a structure rather than being deposited as part of a fill. Below the aligned bricks, a second layer of concrete was encountered at depth. As such, the feature in this location was suspected to represent an old foundation.

7.12 Due to the shallow termination of WS05, a second hand dug pit was undertaken (WS06) 5m west of WS05, in order to be within the area cleared for buried services prior to investigation. WS06 was undertaken to investigate the extent of the feature identified within WS05 and the ground conditions were found to comprise 0.50m of concrete with the same underlying fill of laid bricks down to 1.00m , where the location was terminated.

7.13 Given the nature of the Site history and several recorded structures present on Site throughout time, it is expected that there may be other buried structures present on Site. There is also potential for unrecorded structures to be present on Site.

Underground Services

7.14 Service clearance was carried out at all borehole locations in advance of intrusive works being undertaken. In line with the historical presence of build development and buried structures discussed above, it is possible that redundant and unrecorded

underground services to be present at the Site. Current features such as old street lighting and manhole covers were identified during the investigation, giving further evidence of buried services. As such, it is recommended that a full utilities survey be undertaken across the Site in advance of development.

Soakaway Drainage

7.15 Infiltration testing was not undertaken as part of the intrusive investigation, however it is unlikely that soakaways would be a viable drainage solution for the Site due to the presence of Made Ground deposits, the underlying cohesive Superficial Deposits and comparatively shallow groundwater.

8 CONCLUSIONS

8.1 A preliminary ground investigation has been undertaken at the Booth Street Site in order to determine the nature and extent of the prevailing ground conditions, to provide indicative foundation options for residential development and to evaluate any ground related constraints for the redevelopment of the Site.

Contamination

8.2 Laboratory chemical testing was undertaken on Made Ground and natural Superficial Deposits from a range of depths across the Site. The chemical results were compared against screening values for a residential end use with plant uptake and no exceedances were recorded, suggesting the soils would be suitable for reuse within the proposed development. Asbestos screening was also undertaken on these samples and no asbestos was recorded in any of the samples.

8.3 Leachability laboratory testing was undertaken on three samples. As part of the controlled waters risk assessment, the results were compared to EQS and UK DWS. Several minor exceedances were identified, including copper, lead, nickel and multiple PAHs. The copper and nickel exceedances were reassessed with the m-BAT tool, calculating bioavailable concentrations which were shown as being below or very close to the screening criteria. Preliminary indications are that the site does not pose a potential significant risk to the underlying groundwater or surface water courses.

8.4 Waste Acceptance Criteria testing was undertaken on three samples from within the Made Ground to evaluate the potential disposal options. Exceedances of 'Inert Landfill' criteria were recorded within lead, fluoride and sulphate. Exceedances of 'Hazardous Waste Landfill' criteria were recorded within total organic carbon and loss on ignition. This would suggest that the materials require disposal in a hazardous waste landfill.

8.5 Waste Classification has indicated that all of the sampled material is considered to be non-hazardous waste. Three separate samples referred to above were subjected to WAC testing. It should be noted that WAC testing is not required for non-hazardous waste unless there is a requirement for disposing of this material at an inert landfill. As the WAC tests were not undertaken on any of the samples which underwent waste classification, the WAC tests are simply indicative.

8.6 One of the WAC test results (WS02-0.4m) identifies material that would be best suited for disposal at a SNRHW landfill (or hazardous waste landfill) based on total organic carbon, lead and fluoride.

8.7 Two of the WAC test results (WS01-0.5m and WS03-0.4m) identifies material that would be best suited for disposal at a Hazardous Waste landfill.

8.8 Where samples have been identified as exceeding WAC leaching criteria for a hazardous landfill (i.e. WS01 and WS03), treatment may be required. However, in this instance the only exceedances relate to Total Organic Carbon and/or Loss on Ignition. Subsequently, these specific exceedances should be considered further with individual landfill operators.

8.9 The preliminary ground gas monitoring programme identified a very low risk with regard to ground gas at the Site. The monitoring results showed a maximum carbon dioxide concentration of 3.7 %v/v and no methane. In line within NHBC guidance, the Site has been provisionally classified as 'Green' in line with the 'traffic light' system, suggesting no gas protection measures would be necessary for the proposed development. It is still recommended that a period of confirmatory gas monitoring is undertaken, or as otherwise agreed with the Local Authority Contaminated Land Officer.

Mining Legacy

8.10 No mine entries are recorded within or within 20m of the Site boundary and there are no recorded or potential mine workings at shallow depth beneath the site. As such, coal mining legacy is not considered to present a constraint to the proposed development.

Foundations

8.11 The Site is underlain entirely by variable and predominantly granular Made Ground deposits, with underlying natural Superficial Deposits. The upper Superficial Deposits comprise cohesive materials and the lower comprise granular materials, with solid strata present at depths in excess of 6m. The Made Ground and upper Superficial Deposits are not considered to be suitable founding horizons due the likelihood of excessive total and/or differential settlements arising from the variability of the deposits. It is considered that the foundations should be extended into the deeper Superficial Deposits (below any weathering softened upper cohesive materials) or to rockhead. The use of reinforced strip foundations in conjunction with a scheme of ground improvement, such as vibro compaction, or short driven piles, is anticipated to provide the most suitable foundation solution for conventional low-rise residential development at the site.

8.12 Due to the presence of variable and Made Ground across the site, the use of suspended ground floor slabs is anticipated.

8.13 The foundation requirements for the Site should be reassessed following review of final Site levels and proposed development layouts. The selection of a vibro ground improvement solution should be confirmed with an experienced specialist contractor, in cognisance of the presence of cohesive soils and shallow groundwater.

Buried Concrete

8.14 It is considered that buried concrete may be designed assuming a typical Design Sulphate Class DS-1, an Aggressive Chemical Environment for Concrete Class AC-1, assuming mobile groundwater conditions.

8.15 Additional delineation/confirmatory testing is recommended in order to further assess the area, with particular consideration to confirming the presence of mobile

groundwater across the Site.

Site Drainage

8.16 Soil infiltration tests have not been undertaken on Site. However, the presence of shallow groundwater, Made Ground deposits and underlying cohesive Superficial Deposits would suggest that soakaway drainage is unlikely to be viable at the Site.

Recommendations

8.17 The scope of investigation undertaken at the Site is regarded to be preliminary, and has identified the general ground conditions and potential constraints to the proposed development.

8.18 This preliminary investigation has not identified any significant constraints that are considered likely to prevent the residential development of the site, but has identified a number of matters that would merit further investigation:

- The foundation recommendations should be considered indicative, and do not take into account the finished ground levels or any planned layout. A reassessment of the results of this investigation is recommended once the development layout is set, and the finished levels are known;
- Whilst there are no significant areas of trees or hedgerows within the site, such are present in some areas, notably around the eastern site boundary to Yeaman Street. An arboricultural survey should be undertaken and used to confirm appropriate foundation depths, in accordance with NHBC guidelines;
- Ecological surveys to consider habitat for protected species and presence of invasive plant species. It would be prudent to extend ecological surveys to the presence of protected species within the remaining structures on site, prior to demolition;
- Confirmatory ground gas monitoring should be undertaken to supplement the preliminary dataset and confirm that no ground gas protection is required in the new development; and
- The completion of the intrusive ground investigation across the remainder of the site one the current buildings have been demolished, with an appropriate scope of chemical and geotechnical testing, following clearance. It would be recommended to undertake any further investigation to target the proposed development layout. It would also be prudent to maintain a watching brief

during clearance of the remaining structures on site, in order that any potential contamination risks identified during demolition and clearance can be logged and appropriate actions taken to mitigate, in the context of the proposed development.

APPENDICES

Appendix 1
Site Investigation Logs

Cable Percussive Borehole Log

BOREHOLE REFERENCE
BH01
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 26/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	8.00m

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.10			Tarmac.	
								Black slightly clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick and concrete. (MADE GROUND)	
					1.00				1
		1.20 – 1.65 1.20	ES SPT	N=9 (3,0/1,2,3,3)				Soft orangish brown mottled greyish brown and reddish brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	
		2.00 – 2.45 2.00	ES SPT	N=6 (2,1/1,1,2,2)					2
	▽	3.00	SPT	N=15 (2,3/4,3,4,4)	3.00			Brown medium dense to dense SAND AND GRAVEL. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	3
		4.00 – 4.45 4.00	ES SPT	N=32 (8,8/6,8,8,10)					4
		5.00 – 5.45 5.00	ES SPT	N=13 (4,4/3,3,3,4)					5
		6.00 – 6.45 6.00	ES SPT	N=27 (3,5/4,4,5,14)				*6.00m : From 6.00m bgl, low cobble content. Cobbles of mudstone and sandstone.*	6
		7.00	SPT	N=23 (3,3/3,4,8,8)				*7.00m : From 7.00m bgl, high cobble content. Cobbles of mudstone and sandstone.*	7
		7.50 – 7.95 7.50	ES SPT	N=50 (8,6/9,13,12,16)	7.50			Extremely weak reddish brown and grey CLAY. (WEATHERED MUDSTONE)	
		8.00	SPT	51 (9,10/11,13,15,12 for 50mm)	7.95			End of Borehole at 8.00m	8
									9

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Installation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Top	Base	Inclination	Orientation	Top	Base	Pipe Type	Diameter
				7.50m	8.00m	00:30						0.00m 1.50m	1.50m 8.00m	PLAIN SLOTTED	50mm 50mm

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole terminated at 8.00m bgl due to refusal. Groundwater encountered at 3.00m bgl, which was standing at 3.10m bgl after 20 minutes. Borehole installed with a gas monitoring standpipe with a flush lockable cover.

Log printed on 20/01/2021 at 15:01

Cable Percussive Borehole Log

BOREHOLE REFERENCE
BH02
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 27/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	6.30m

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.05			Tarmac.	
					0.15			Concrete.	
					0.45			Black slightly clayey very gravelly fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse of concrete and brick. Cobbles of sandstone. (MADE GROUND)	
		1.20 – 1.65 1.20	ES SPT	N=8 (1,1/1,2,2,3)				Soft greyish brown mottled brown orangish brown and black slightly gravelly CLAY. Gravel is angular fine of mudstone. *1.20m : From 1.20m bgl, mottled also reddish brown.*	1
	▽	2.00 – 2.45 2.00	ES SPT	N=10 (2,2/1,2,3,4)	2.00			Orangish brown slightly gravelly fine to coarse SAND. Gravel is angular to rounded fine to medium of sandstone and mudstone.	2
		3.00	SPT	N=18 (4,8/5,4,5,4)	3.00			Brown medium dense very sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of sandstone mudstone and quartzite. Cobbles of mudstone.	3
		4.00 – 4.45 4.00	ES SPT	N=19 (8,5/6,5,4,4)				*4.00m : From 4.00m bgl, rare gravel of coal now present.*	4
		5.00	SPT	N=20 (4,6/6,5,4,5)				*5.00m : From 5.00m bgl, becoming sandy gravel with low cobble content.*	5
		5.90 – 6.28 5.90	ES SPT	50 (10,15/10,19,21,0 for 0mm)	5.90			Very stiff dark brown slightly gravelly CLAY. Gravel is angular fine to medium of mudstone.	6
		6.30	SPT	N=50 (10,13/15,13,11,11)	6.28			Stiff to very stiff brown mottled light grey CLAY. (WEATHERED MUDSTONE)	
					6.75			End of Borehole at 6.30m	7
									8
									9

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Installation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Top	Base	Inclination	Orientation	Top	Base	Pipe Type	Diameter
				5.90m	6.30m	00:30									

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole terminated at 6.30m bgl due to refusal. Groundwater encountered at 2.00m bgl, which was standing at 2.10m bgl after 20 minutes. Borehole backfilled with arisings upon completion.

Log printed on 20/01/2021 at 15:01

Cable Percussive Borehole Log

BOREHOLE REFERENCE
BH03
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 01/12/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	7.55m

Install. / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results					
					0.20			Concrete.	
								Black clayey gravelly fine to coarse SAND with low cobble content. Gravel is angular to rounded fine to coarse of brick concrete sandstone mudstone and glass. Cobbles of brick. (MADE GROUND)	1
		1.20 – 1.65 1.20	ES SPT	N=3 (1,0/1,0,1,1)	1.20			Soft to firm dark brown mottled black orangish brown and light grey slightly gravelly sandy CLAY. Gravel is angular to rounded fine to medium of mudstone and sandstone.	
		2.00 – 2.45 2.00	ES SPT	N=8 (1,2/2,1,2,3)				*2.00m : From 2.00m bgl, becoming brown and slightly sandy.*	2
	▽	3.00	SPT	N=15 (2,1/3,4,4,4)	3.00			Brown sandy GRAVEL. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of sandstone mudstone and quartzite.	3
		4.00 – 4.45 4.00	ES SPT	N=35 (2,3/5,5,8,17)				*4.00m : From 4.00m bgl, low cobble content with cobbles of sandstone and mudstone.*	4
		5.00	SPT	N=45 (6,13/14,11,10,10)					5
		6.00	SPT	N=19 (6,5/6,4,4,5)				*6.00m : From 6.00m bgl, also including angular fine gravel of coal.*	6
		6.60 – 7.05 6.60	ES SPT	50 (10,15/15,14,13,8 for 15mm)	6.60			Very stiff dark brown slightly gravelly CLAY. Gravel is angular to rounded fine to medium of mudstone.	7
		7.10	SPT	N=50 (15,14/14,14,11,11)	7.05			Very stiff brown mottled light grey CLAY. (WEATHERED MUDSTONE)	
					7.55			End of Borehole at 7.55m	8
									9

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Installation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Top	Base	Inclination	Orientation	Top	Base	Pipe Type	Diameter
				6.60m	7.10m	00:30									

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole terminated at 7.55m bgl due to refusal. Groundwater encountered at 3.00m bgl, which was standing at 2.80m bgl after 20 minutes. Borehole backfilled with arisings upon completion.

Log printed on 20/01/2021 at 15:01

Windowless Sample Borehole Log

BOREHOLE REFERENCE
WS01
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 24/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	4.00

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.05			Tarmac. Concrete with metal reinforcement.	
		0.50	ES		0.45			Black slightly clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick and concrete. (MADE GROUND)	
		1.00	SPT	N=4 (1,1/1,1,1,1)					1
		1.40	ES		1.30			Soft to firm orangish brown and brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is rounded fine to coarse of sandstone and mudstone.	
					1.60			Firm grey and dark grey CLAY.	
					1.80			Soft to firm orangish brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is rounded fine to coarse of sandstone and mudstone.	
		2.00	SPT	N=4 (2,2/1,1,1,1)				*2.00m : From 2.00m bgl, light grey mottling also present.*	2
		2.20	ES					*2.30m : From 2.30m bgl, becoming firm.*	
					2.70			Medium dense light brown slightly gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	
		3.00	SPT	N=11 (1,2/2,3,3,3)					3
		4.00	SPT	N=21 (3,3/5,5,5,6)	4.00			End of Borehole at 4.00m	4

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

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole completed at 4.00m bgl. Groundwater not encountered. Borehole backfilled with arisings upon completion.

Log printed on 20/01/2021 at 15:01

Windowless Sample Borehole Log

BOREHOLE REFERENCE
WS02
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 24/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	4.00

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.05			Tarmac. Concrete.	
					0.20			Black slightly clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of concrete brick and ceramic with rare glass. (MADE GROUND)	
		0.40	ES						
					0.70			Soft to firm brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	
		1.00	ES						1
		1.00	SPT	N=4 (1,0/1,1,1,1)					
					1.30			Firm grey slightly gravelly CLAY. Gravel is angular to rounded fine to coarse of sandstone and mudstone. *1.40m : From 1.40m bgl, mottled black and light orangish brown.*	
		1.50	ES						
					1.90			Medium dense orangish brown mottled brown and light grey clayey slightly gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of sandstone and mudstone. *2.00m - 2.50m : Between 2.00 and 2.50m bgl, no gravel.*	
		2.00	SPT	N=11 (1,2/2,3,3,3)					2
		2.50	ES					*2.50m : From 2.50m bgl, also mottled greenish grey.*	
	▽	3.00	SPT	N=8 (2,2/2,1,2,3)				*3.00m : From 3.00m bgl, becoming very gravelly and loose. Gravel also including angular fine coal.*	3
					4.00			End of Borehole at 4.00m	4

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Installation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Top	Base	Inclination	Orientation	Top	Base	Pipe Type	Diameter
												0.00m 0.70m	0.70m 3.10m	PLAIN SLOTTED	50mm 50mm

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole completed at 4.00m bgl. Groundwater encountered at 3.00m bgl, which was standing at 2.50m bgl after 20 minutes. Borehole installed with a gas monitoring standpipe with a flush lockable cover from 1.00m bgl to 3.10m bgl, borehole collapsed from 4.00 to 3.10m bgl prior to installation.

Log printed on 20/01/2021 at 15:01

Windowless Sample Borehole Log

BOREHOLE REFERENCE
WS03
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 24/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	4.00

Install. / Backfill	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.30			Tarmac.	
		0.40	ES					Black and dark brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick and concrete. (MADE GROUND)	
		1.00	SPT	N=0 (1,1/0,0,0,0)					1
					1.30			Firm dark grey mottled light grey slightly gravelly CLAY. Gravel is rounded fine to coarse of sandstone and mudstone.	
		1.70	ES		1.70			Soft to firm orangish brown mottled light brown and grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is rounded fine to coarse of sandstone and mudstone.	
		2.00	SPT	N=6 (1,1/1,1,2,2)					2
								2.10m : From 2.10m bgl, also mottled reddish brown black and grey.	
		2.50	ES						
	▽	3.00	SPT	N=11 (2,2/3,2,3,3)	2.90			Firm brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	3
					3.40			Medium dense brown clayey gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	
					4.00			End of Borehole at 4.00m	4

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Installation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Top	Base	Inclination	Orientation	Top	Base	Pipe Type	Diameter
												0.00m 1.00m	1.00m 3.50m	PLAIN SLOTTED	50mm 50mm

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole completed at 4.00m bgl. Groundwater encountered at 3.00m bgl, which was standing at 2.90m bgl after 20 minutes. Borehole installed with gas monitoring standpipe with a flush lockable cover from 1.00m bgl to 3.50m bgl, borehole collapsed from 4.00 to 3.50m bgl prior to installation.

Log printed on 20/01/2021 at 15:01

Windowless Sample Borehole Log

BOREHOLE REFERENCE
WS04
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 25/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	69%	3.00

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.05			Tarmac. Concrete.	
					0.25			Black slightly clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick concrete and ceramic. Occasional gravel sized pockets of soft black clay. (MADE GROUND)	
		0.80	ES						
		1.00	SPT	N=2 (0,0/0,0,1,1)	1.00			Soft greyish brown slightly gravelly CLAY. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	1
		1.30	ES						
					1.50			Medium dense light brown clayey gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of sandstone and mudstone.	
		1.80	ES						
	▽	2.00	SPT	N=13 (2,3/2,4,4,3)					2
								2.20m : From 2.20m bgl, becoming slightly gravelly.	
		3.00	SPT	N=26 (3,5/6,6,7,7)	3.00			End of Borehole at 3.00m	3
									4

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

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole terminated at 3.00m bgl due to collapse in granular deposits. Groundwater encountered at 2.00m bgl, which was standing at 1.70m bgl after 20 minutes. Borehole backfilled with arisings following completion.

Log printed on 20/01/2021 at 15:01

Windowless Sample Borehole Log

BOREHOLE REFERENCE
WS05
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 25/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	%	1.20

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.15			M.O.T	
					0.40			Concrete.	
		0.80	ES		1.20			Brown slightly clayey sandy GRAVEL with high cobble content. Gravel is angular fine to coarse of bricks and concrete. Cobbles of bricks.	1
								End of Borehole at 1.20m	2
									3
									4

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

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.20m bgl. Borehole terminated at 1.20m bgl due to concrete obstruction. Groundwater not encountered. Borehole backfilled with arisings.

Log printed on 20/01/2021 at 15:01

Windowless Sample Borehole Log

BOREHOLE REFERENCE
WS06
Sheet 1 of 1

Project Name: Booth Street	Client: Stoke Council	Date: 25/11/2020
Location: Booth Street, Stoke-on-Trent, ST4 4AN	Contractor: Strata Renewables Ltd	
Project No. : ST17949	Drilling Equipment:	Level :

Logged By	Checked By	Approved By	SPT Energy Ratio	Final Depth
S Goodreid	RB	CS	%	1.00

Install. / Backfill	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	Scale
					0.20			M.O.T	
								Concrete.	
		0.70	ES		0.50			Brown sandy GRAVEL with high cobble content. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles of brick. (MADE GROUND)	
					1.00			End of Borehole at 1.00m	1
									2
									3
									4

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

Remarks

Location scanned for services using Ground Penetrating Radar prior to drilling. Hand dug inspection pit excavated to 1.00m bgl. Borehole terminated at 1.00m bgl due to concrete obstruction. Groundwater not encountered. Borehole backfilled with arisings.

Log printed on 20/01/2021 at 15:01

Appendix 2
Gas and Groundwater Monitoring Results

Client:	Stoke-on-Trent City Council	**Job No:**	**ST17949**		
Site:	Booth Street	**Visit No:**	**1**	**of**	3
Date:	09/12/2020	**Operator:**	**B. Littlejohn**		

Monitoring Point	GAS CONCENTRATIONS								VOLATILES		FLOW DATA			WELL AND WATER DATA				Comments
	Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Water level (mbgl)	Depth of well (m)	Reduced level (mAOD)	Water level (mAOD)	
	Peak	Steady	Peak	Steady	Peak	Peak	Peak	Steady			Peak	Steady						
BH01	0	0	3.7	3.7	0	0	14	14			0	0	0	2.69	7.82			No flow.
WS02	0	0	1.1	1.1	0	0	12.3	12.4			0	0	0	2.21	3.19			No flow.
WS03	0	0	0.9	0.9	0	0	19.7	19.7			0	0	0	2.67	3.36			No flow.

METEOROLOGICAL AND SITE INFORMATION:

State of ground:		Dry	x	Wet		Snow		Frozen
Wind:	x	Calm		Moderate		Strong	
Cloud cover:	x	None		Cloudy	x	Overcast	
Preciptation:	x	None		Moderate		Heavy	
Barometric pressure (mbar):			993	Before	991	After	
Pressure trend:	x	Falling		Steady		Rising	

Ground gas meter: GasData GFM-436 Ser. 12890
Date of last calibration: 15/09/2020
30m dipmeter (D1)

Client:	Stoke-on-Trent City Council	**Job No:**	**ST17949**		
Site:	Booth Street	**Visit No:**	**2**	**of**	3
Date:	14/12/2020	**Operator:**	**B. Littlejohn**		

Monitoring Point	GAS CONCENTRATIONS								VOLATILES		FLOW DATA			WELL AND WATER DATA				Comments
	Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Water level (mbgl)	Depth of well (m)	Reduced level (mAOD)	Water level (mAOD)	
	Peak	Steady	Peak	Steady	Peak	Peak	Peak	Steady			Peak	Steady						
BH01	0	0	3.7	3.6	0	0	14.2	14.2			0	0	0	2.61	7.84			No flow.
WS02	0	0	0.3	0.3	0	0	19.4	19.4			0	0	0	2.1	3.2			No flow.
WS03	0	0	1.4	1.4	0	0	18.2	18.2			0	0	0	2.57	3.35			No flow.

METEOROLOGICAL AND SITE INFORMATION:

State of ground:		Dry	x	Wet		Snow		Frozen
Wind:	x	Calm		Moderate		Strong	
Cloud cover:		None	x	Cloudy		Overcast	
Preciptation:		None	x	Moderate		Heavy	
Barometric pressure (mbar):			980	Before	979	After	
Pressure trend:	x	Falling		Steady		Rising	

Ground gas meter: GasData GFM-436 Ser. 12890
Date of last calibration: 15/09/2020
30m dipmeter (D1)

Client:	Stoke-on-Trent City Council	**Job No:**	**ST17949**		
Site:	Booth Street	**Visit No:**	**3**	**of**	3
Date:	18/12/2020	**Operator:**	**B. Littlejohn**		

Monitoring Point	GAS CONCENTRATIONS								VOLATILES		FLOW DATA			WELL AND WATER DATA				Comments
	Methane (%v/v)		Carbon dioxide (%v/v)		Carbon monoxide (ppm)	Hydrogen sulphide (ppm)	Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Water level (mbgl)	Depth of well (m)	Reduced level (mAOD)	Water level (mAOD)	
	Peak	Steady	Peak	Steady	Peak	Peak	Peak	Steady			Peak	Steady						
BH01	0	0	3.6	3.6	0	0	14.2	14.2			0	0	0	2.63	7.78			No flow.
WS02	0	0	0.1	0	0	0	20.2	20.3			0	0	0	2.12	3.19			No flow.
WS03	0	0	1.6	1.6	0	0	18.6	18.6			0	0	0	2.61	3.35			No flow.

METEOROLOGICAL AND SITE INFORMATION:

State of ground:		Dry	x	Wet		Snow		Frozen
Wind:	x	Calm		Moderate		Strong		
Cloud cover:		None	x	Cloudy		Overcast		
Preciptation:	x	None		Moderate		Heavy		
Barometric pressure (mbar):			993	Before	991	After		
Pressure trend:	x	Falling		Steady		Rising		

Ground gas meter: GasData GFM-436 Ser. 12890
Date of last calibration: 15/09/2020
30m dipmeter (D1)

Appendix 3
Chemical Laboratory Test Results

envirolab
Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	20/10518		
Issue Number:	1	Date:	16-Dec-20

Client: Wardell Armstrong (Stoke on Trent)
Sir Henry Doulton House
Forge Lane
Etruria
Stoke on Trent
ST1 5BD

Project Manager:	Sorrel Goodreid
Project Name:	Booth Street
Project Ref:	ST17949
Order No:	TBC
Date Samples Received:	26-Nov-20
Date Instructions Received:	5-Dec-20
Date Analysis Completed:	16-Dec-20

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

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

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

Holly Neary-King

Holly Neary-King
Client Services Supervisor

envirolab

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/10518/1				
Client Sample Number				ES1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				WS01				
Depth to Top				0.5				
Depth to Bottom				0.50				
Date Sampled				24/11/2020				
Sample Type				Soil - ES				
Sample Matrix Code				2AB				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**10.05**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**6.6**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**8.92**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**4.59**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.006	**0.060**	0.5	2	25
Barium	A-T-025	N	N	0.021	**0.210**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.004	**0.040**	0.5	10	70
Copper	A-T-025	N	N	0.007	**0.070**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.005	**0.050**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	<0.001	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	0.06	0.7	5
Selenium	A-T-025	N	N	0.001	**0.010**	0.1	0.5	7
Zinc	A-T-025	N	N	0.006	**0.060**	4	50	200
Chloride	A-T-026	N	N	4	**38**	800	15000	25000
Fluoride	A-T-026	N	N	0.5	**5.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	78	**781**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	171	**1710**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	10.5				
Conductivity (µS/cm)	A-T-037	N	N	342				
Mass Sample (kg)				0.199				
Dry Matter (%)	A-T-044	N	N	88.1				

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/10518/4				
Client Sample Number				ES1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				WS02				
Depth to Top				0.4				
Depth to Bottom				0.40				
Date Sampled				24/11/2020				
Sample Type				Soil - ES				
Sample Matrix Code				2AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**9.20**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.16**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**9.3**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**3.97**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**6.7**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**16**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.021	**0.210**	0.5	2	25
Barium	A-T-025	N	N	0.114	**1.140**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.002	**0.020**	0.5	10	70
Copper	A-T-025	N	N	0.085	**0.850**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.006	**0.060**	0.5	10	30
Nickel	A-T-025	N	N	0.005	**0.050**	0.4	10	40
Lead	A-T-025	N	N	0.410	**4.100**	0.5	10	50
Antimony	A-T-025	N	N	0.005	**0.050**	0.06	0.7	5
Selenium	A-T-025	N	N	0.004	**0.040**	0.1	0.5	7
Zinc	A-T-025	N	N	0.110	**1.100**	4	50	200
Chloride	A-T-026	N	N	25	**249**	800	15000	25000
Fluoride	A-T-026	N	N	1.3	**13.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	8	**81**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	130	**1300**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	8.2				
Conductivity (µS/cm)	A-T-037	N	N	259				
Mass Sample (kg)				0.202				
Dry Matter (%)	A-T-044	N	N	86.6				

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Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/10518/8				
Client Sample Number				ES1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				WS03				
Depth to Top				0.4				
Depth to Bottom				0.40				
Date Sampled				24/11/2020				
Sample Type				Soil - ES				
Sample Matrix Code				2AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**7.74**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.28**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**10.4**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**9.2**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**0.23**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1** mg/l	**10:1** mg/kg	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.003	**0.030**	0.5	2	25
Barium	A-T-025	N	N	0.071	**0.710**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	<0.001	**<0.01**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.021	**0.210**	0.5	10	30
Nickel	A-T-025	N	N	0.002	**0.020**	0.4	10	40
Lead	A-T-025	N	N	0.003	**0.030**	0.5	10	50
Antimony	A-T-025	N	N	0.003	**0.030**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.005	**0.050**	4	50	200
Chloride	A-T-026	N	N	2	**23**	800	15000	25000
Fluoride	A-T-026	N	N	0.8	**8.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	160	**1602**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	209	**2090**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.6				
Conductivity (µS/cm)	A-T-037	N	N	418				
Mass Sample (kg)				0.215				
Dry Matter (%)	A-T-044	N	N	81.5				

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 20/10518
Issue Number: 1 **Date:** 16 December, 2020

Client: Wardell Armstrong (Stoke on Trent)
Sir Henry Doulton House
Forge Lane
Etruria
Stoke on Trent
ST1 5BD

Project Manager: Sorrel Goodreid
Project Name: Booth Street
Project Ref: ST17949
Order No: TBC
Date Samples Received: 26/11/20
Date Instructions Received: 05/12/20
Date Analysis Completed: 16/12/20

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Holly Neary-King
Client Services Supervisor

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Envirolab Job Number: 20/10518

Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/11	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES1			
Client Sample ID	WS01	WS01	WS02	WS02	WS03	WS03	WS04			
Depth to Top	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Depth To Bottom	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Date Sampled	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AB	5A	2AE	5A	2AE	4A	4A			
% Stones >10mm$_A$	26.8	9.8	17.6	<0.1	19.6	1.5	12.4	% w/w	0.1	A-T-044
pH$_D^{M\#}$	10.05	8.29	9.20	7.45	7.74	7.73	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D^{M\#}$	-	0.05	-	0.02	-	<0.01	-	g/l	0.01	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	-	390	-	290	-	<200	-	mg/kg	200	A-T-028s
Cyanide (total)$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	-	<0.2	-	<0.2	-	<0.2	-	mg/kg	0.2	A-T-050s
Sulphide$_A$	-	<5	-	91	-	<5	-	mg/kg	5	A-T-S2-s
Organic matter$_D^{M\#}$	-	1.2	-	0.6	-	0.2	-	% w/w	0.1	A-T-032 OM
Arsenic$_D^{M\#}$	-	5	-	<1	-	<1	-	mg/kg	1	A-T-024s
Boron (water soluble)$_D^{M\#}$	-	1.1	-	1.8	-	<1.0	-	mg/kg	1	A-T-027s
Cadmium$_D^{M\#}$	-	1.3	-	<0.5	-	<0.5	-	mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	-	16	-	7	-	7	-	mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	-	21	-	28	-	11	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-040s
Lead$_D^{M\#}$	-	68	-	71	-	14	-	mg/kg	1	A-T-024s
Mercury$_D$	-	<0.17	-	<0.17	-	<0.17	-	mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	-	19	-	18	-	9	-	mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	-	47	-	65	-	22	-	mg/kg	5	A-T-024s
Leachate Prep BS EN 12457-1 (2:1) (1 no)$_A$	-	-	-	-	-	-	*			A-T-001
pH (leachable)$_A^{\#}$	-	-	-	-	-	-	7.52	pH	0.01	A-T-031w
Alkalinity (total) (leachable) Colorimetry$_A$	-	-	-	-	-	-	37	mg/l Ca CO3	20	A-T-038w
Sulphate (leachable)$_A^{\#}$	-	-	-	-	-	-	1030	mg/l	1	A-T-026w
Cyanide (free) (leachable)$_A^{\#}$	-	-	-	-	-	-	<0.005	mg/l	0.005	A-T-042wFCN
Cyanide (total) (leachable)$_A^{\#}$	-	-	-	-	-	-	<0.005	mg/l	0.005	A-T-042wTCN
Thiocyanate (leachable)$_A$	-	-	-	-	-	-	0.8	mg/l	0.1	A-T-041w
Phenols (total by HPLC) (leachable)$_A$	-	-	-	-	-	-	<0.01	mg/l	0.01	A-T-050w
Sulphide (leachable)$_A$	-	-	-	-	-	-	<0.1	mg/l	0.1	A-T-S2-w
DOC (leachable)$_A^{\#}$	-	-	-	-	-	-	2.2	mg/l	0.2	A-T-032w
Arsenic (leachable)$_A^{\#}$	-	-	-	-	-	-	5	µg/l	1	A-T-025w
Boron (leachable)$_A^{\#}$	-	-	-	-	-	-	57	µg/l	10	A-T-025w
Cadmium (leachable)$_A^{\#}$	-	-	-	-	-	-	<1	µg/l	1	A-T-025w
Copper (leachable)$_A^{\#}$	-	-	-	-	-	-	2	µg/l	1	A-T-025w

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/11	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES1			
Client Sample ID	WS01	WS01	WS02	WS02	WS03	WS03	WS04			
Depth to Top	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Depth To Bottom	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Date Sampled	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AB	5A	2AE	5A	2AE	4A	4A			
Chromium (leachable)$_{A}^{\#}$	-	-	-	-	-	-	1	µg/l	1	A-T-025w
Chromium (hexavalent) (leachable)$_{A}$	-	-	-	-	-	-	<0.05	mg/l	0.05	A-T-040w
Lead (leachable)$_{A}^{\#}$	-	-	-	-	-	-	1	µg/l	1	A-T-025w
Mercury (leachable)$_{A}^{\#}$	-	-	-	-	-	-	<0.1	µg/l	0.1	A-T-025w
Nickel (leachable)$_{A}^{\#}$	-	-	-	-	-	-	2	µg/l	1	A-T-025w
Selenium (leachable)$_{A}^{\#}$	-	-	-	-	-	-	6	µg/l	1	A-T-025w
Calcium (leachable)$_{A}$	-	-	-	-	-	-	370	mg/l	1	A-T-049w

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

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Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/11	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES1			
Client Sample ID	WS01	WS01	WS02	WS02	WS03	WS03	WS04			
Depth to Top	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Depth To Bottom	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Date Sampled	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AB	5A	2AE	5A	2AE	4A	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	-	NAD	-	NAD	-	NAD	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	-	N/A	-	N/A	-	N/A	-			A-T-045

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/11	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES1			
Client Sample ID	WS01	WS01	WS02	WS02	WS03	WS03	WS04			
Depth to Top	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Depth To Bottom	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Date Sampled	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AB	5A	2AE	5A	2AE	4A	4A			
PAH-16MS										
Acenaphthene$_A^{M\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	-	<0.02	-	<0.02	-	<0.02	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	-	<0.04	-	<0.04	-	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	-	<0.04	-	<0.04	-	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	-	<0.05	-	<0.05	-	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	-	<0.05	-	<0.05	-	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	-	<0.07	-	<0.07	-	<0.07	-	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	-	<0.06	-	<0.06	-	<0.06	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	-	<0.04	-	<0.04	-	<0.04	-	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	-	<0.08	-	<0.08	-	<0.08	-	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	-	<0.03	-	<0.03	-	<0.03	-	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	-	<0.03	-	<0.03	-	<0.03	-	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	-	<0.03	-	<0.03	-	<0.03	-	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	-	<0.07	-	<0.07	-	<0.07	-	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	-	<0.08	-	<0.08	-	<0.08	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/11	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES1			
Client Sample ID	WS01	WS01	WS02	WS02	WS03	WS03	WS04			
Depth to Top	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Depth To Bottom	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Date Sampled	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AB	5A	2AE	5A	2AE	4A	4A			
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable) $_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Naphthalene (leachable) $_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w
Total PAH 16MS (leachable)$_A$	-	-	-	-	-	-	<0.02	µg/l	0.02	A-T-019w

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/11	Units	Limit of Detection	Method ref
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES1			
Client Sample ID	WS01	WS01	WS02	WS02	WS03	WS03	WS04			
Depth to Top	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Depth To Bottom	0.5	1.4	0.4	1.5	0.4	1.7	0.8			
Date Sampled	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20	24-Nov-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AB	5A	2AE	5A	2AE	4A	4A			
TPH CWG										
Ali >C5-C6$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Ali >C21-C35$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Aro >C10-C12$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	-	<1	-	<1	-	<1	-	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	<0.01	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-022s

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

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Lab Sample ID	20/10518/12	20/10518/14	20/10518/16	20/10518/18	20/10518/22	20/10518/26	20/10518/27	Units	Limit of Detection	Method ref
Client Sample No	ES2	ES1	ES1	ES3	ES1	ES1	ES2			
Client Sample ID	WS04	WS05	BH01	BH01	BH02	BH03	BH03			
Depth to Top	1.3	0.8	1.2	4	1.2	1.2	2			
Depth To Bottom	1.3	0.8	1.65	4.45	1.65	1.65	2.45			
Date Sampled	24-Nov-20	25-Nov-20	27-Nov-20	27-Nov-20	01-Dec-20	02-Dec-20	02-Dec-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	4A	5A	4A	5A	5A	5A			
% Stones >10mm$_A$	<0.1	24.8	7.4	<0.1	21.6	1.0	3.4	% w/w	0.1	A-T-044
pH$_D$[M#]	7.80	10.68	-	8.67	8.63	-	9.52	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$[M#]	0.04	0.07	-	0.01	0.14	-	<0.02	g/l	0.01	A-T-026s
Sulphate (acid soluble)$_D$[M#]	590	1700	-	<200	530	-	<200	mg/kg	200	A-T-028s
Cyanide (total)$_A$[M#]	<1	<1	-	<1	6	-	1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	mg/kg	0.2	A-T-050s
Sulphide$_A$	190	<5	-	8	<5	-	7	mg/kg	5	A-T-S2-s
Organic matter$_D$[M#]	3.0	3.0	-	<0.1	0.6	-	0.6	% w/w	0.1	A-T-032 OM
Arsenic$_D$[M#]	<1	5	-	3	<1	-	<1	mg/kg	1	A-T-024s
Boron (water soluble)$_D$[M#]	4.2	<1.0	-	<1.0	1.3	-	<1.0	mg/kg	1	A-T-027s
Cadmium$_D$[M#]	0.6	0.7	-	0.6	0.8	-	0.6	mg/kg	0.5	A-T-024s
Copper$_D$[M#]	13	21	-	11	12	-	15	mg/kg	1	A-T-024s
Chromium$_D$[M#]	16	8	-	8	22	-	18	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-040s
Lead$_D$[M#]	56	105	-	7	35	-	33	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.35	-	<0.17	<0.17	-	<0.17	mg/kg	0.17	A-T-024s
Nickel$_D$[M#]	14	13	-	8	20	-	18	mg/kg	1	A-T-024s
Selenium$_D$[M#]	<1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-024s
Zinc$_D$[M#]	49	156	-	22	48	-	40	mg/kg	5	A-T-024s
Leachate Prep BS EN 12457-1 (2:1) (1 no)$_A$	-	-	*	-	-	*	-			A-T-001
pH (leachable)$_A$[#]	-	-	7.71	-	-	7.34	-	pH	0.01	A-T-031w
Alkalinity (total) (leachable) Colorimetry$_A$	-	-	55	-	-	159	-	mg/l Ca CO3	20	A-T-038w
Sulphate (leachable)$_A$[#]	-	-	43.80	-	-	55.05	-	mg/l	1	A-T-026w
Cyanide (free) (leachable)$_A$[#]	-	-	<0.005	-	-	<0.005	-	mg/l	0.005	A-T-042wFCN
Cyanide (total) (leachable)$_A$[#]	-	-	<0.005	-	-	0.141	-	mg/l	0.005	A-T-042wTCN
Thiocyanate (leachable)$_A$	-	-	4.5	-	-	8.1	-	mg/l	0.1	A-T-041w
Phenols (total by HPLC) (leachable)$_A$	-	-	<0.01	-	-	<0.01	-	mg/l	0.01	A-T-050w
Sulphide (leachable)$_A$	-	-	0.5	-	-	1.1	-	mg/l	0.1	A-T-S2-w
DOC (leachable)$_A$[#]	-	-	1.4	-	-	205	-	mg/l	0.2	A-T-032w
Arsenic (leachable)$_A$[#]	-	-	2	-	-	9	-	µg/l	1	A-T-025w
Boron (leachable)$_A$[#]	-	-	65	-	-	172	-	µg/l	10	A-T-025w
Cadmium (leachable)$_A$[#]	-	-	<1	-	-	<1	-	µg/l	1	A-T-025w
Copper (leachable)$_A$[#]	-	-	10	-	-	81	-	µg/l	1	A-T-025w

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Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/12	20/10518/14	20/10518/16	20/10518/18	20/10518/22	20/10518/26	20/10518/27	Units	Limit of Detection	Method ref
Client Sample No	ES2	ES1	ES1	ES3	ES1	ES1	ES2			
Client Sample ID	WS04	WS05	BH01	BH01	BH02	BH03	BH03			
Depth to Top	1.3	0.8	1.2	4	1.2	1.2	2			
Depth To Bottom	1.3	0.8	1.65	4.45	1.65	1.65	2.45			
Date Sampled	24-Nov-20	25-Nov-20	27-Nov-20	27-Nov-20	01-Dec-20	02-Dec-20	02-Dec-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	4A	5A	4A	5A	5A	5A			
Chromium (leachable)$_{A}^{\#}$	-	-	<1	-	-	4	-	µg/l	1	A-T-025w
Chromium (hexavalent) (leachable)$_{A}$	-	-	<0.05	-	-	<0.05	-	mg/l	0.05	A-T-040w
Lead (leachable)$_{A}^{\#}$	-	-	49	-	-	391	-	µg/l	1	A-T-025w
Mercury (leachable)$_{A}^{\#}$	-	-	<0.1	-	-	<0.1	-	µg/l	0.1	A-T-025w
Nickel (leachable)$_{A}^{\#}$	-	-	3	-	-	21	-	µg/l	1	A-T-025w
Selenium (leachable)$_{A}^{\#}$	-	-	3	-	-	7	-	µg/l	1	A-T-025w
Calcium (leachable)$_{A}$	-	-	12	-	-	66	-	mg/l	1	A-T-049w

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Lab Sample ID	20/10518/12	20/10518/14	20/10518/16	20/10518/18	20/10518/22	20/10518/26	20/10518/27	Units	Limit of Detection	Method ref
Client Sample No	ES2	ES1	ES1	ES3	ES1	ES1	ES2			
Client Sample ID	WS04	WS05	BH01	BH01	BH02	BH03	BH03			
Depth to Top	1.3	0.8	1.2	4	1.2	1.2	2			
Depth To Bottom	1.3	0.8	1.65	4.45	1.65	1.65	2.45			
Date Sampled	24-Nov-20	25-Nov-20	27-Nov-20	27-Nov-20	01-Dec-20	02-Dec-20	02-Dec-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	4A	5A	4A	5A	5A	5A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	NAD	NAD	-	NAD	NAD	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	N/A	N/A	-	N/A	N/A	-	N/A			A-T-045

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Lab Sample ID	20/10518/12	20/10518/14	20/10518/16	20/10518/18	20/10518/22	20/10518/26	20/10518/27	Units	Limit of Detection	Method ref
Client Sample No	ES2	ES1	ES1	ES3	ES1	ES1	ES2			
Client Sample ID	WS04	WS05	BH01	BH01	BH02	BH03	BH03			
Depth to Top	1.3	0.8	1.2	4	1.2	1.2	2			
Depth To Bottom	1.3	0.8	1.65	4.45	1.65	1.65	2.45			
Date Sampled	24-Nov-20	25-Nov-20	27-Nov-20	27-Nov-20	01-Dec-20	02-Dec-20	02-Dec-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	4A	5A	4A	5A	5A	5A			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	0.02	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	0.02	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	0.03	-	<0.02	<0.02	-	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	0.13	-	<0.04	<0.04	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	0.13	-	<0.04	<0.04	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	0.16	-	<0.05	<0.05	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	0.09	-	<0.05	<0.05	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	-	<0.07	<0.07	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	0.16	-	<0.06	<0.06	-	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	0.29	-	<0.08	<0.08	-	<0.08	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	0.13	-	<0.03	<0.03	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03	-	<0.03	<0.03	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	0.17	-	<0.03	<0.03	-	<0.03	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	0.26	-	<0.07	<0.07	-	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	1.59	-	<0.08	<0.08	-	<0.08	mg/kg	0.01	A-T-019s

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Lab Sample ID	20/10518/12	20/10518/14	20/10518/16	20/10518/18	20/10518/22	20/10518/26	20/10518/27	Units	Limit of Detection	Method ref
Client Sample No	ES2	ES1	ES1	ES3	ES1	ES1	ES2			
Client Sample ID	WS04	WS05	BH01	BH01	BH02	BH03	BH03			
Depth to Top	1.3	0.8	1.2	4	1.2	1.2	2			
Depth To Bottom	1.3	0.8	1.65	4.45	1.65	1.65	2.45			
Date Sampled	24-Nov-20	25-Nov-20	27-Nov-20	27-Nov-20	01-Dec-20	02-Dec-20	02-Dec-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	4A	5A	4A	5A	5A	5A			
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	-	-	<0.02	-	-	0.05	-	µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable) $_A$	-	-	<0.02	-	-	0.03	-	µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	-	-	<0.02	-	-	0.04	-	µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	-	-	<0.02	-	-	0.08	-	µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	-	-	<0.02	-	-	0.18	-	µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Naphthalene (leachable) $_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	-	-	<0.02	-	-	<0.02	-	µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	-	-	<0.02	-	-	0.15	-	µg/l	0.02	A-T-019w
Total PAH 16MS (leachable)$_A$	-	-	<0.02	-	-	0.53	-	µg/l	0.02	A-T-019w

Envirolab Job Number: 20/10518

Client Project Name: Booth Street

Client Project Ref: ST17949

Lab Sample ID	20/10518/12	20/10518/14	20/10518/16	20/10518/18	20/10518/22	20/10518/26	20/10518/27	Units	Limit of Detection	Method ref
Client Sample No	ES2	ES1	ES1	ES3	ES1	ES1	ES2			
Client Sample ID	WS04	WS05	BH01	BH01	BH02	BH03	BH03			
Depth to Top	1.3	0.8	1.2	4	1.2	1.2	2			
Depth To Bottom	1.3	0.8	1.65	4.45	1.65	1.65	2.45			
Date Sampled	24-Nov-20	25-Nov-20	27-Nov-20	27-Nov-20	01-Dec-20	02-Dec-20	02-Dec-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	4A	5A	4A	5A	5A	5A			
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35$_A$	23	14	-	1	<1	-	<1	mg/kg	1	A-T-055s
Total Aliphatics$_A$	25	15	-	1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	3	2	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12$_A^{M\#}$	<1	<1	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	3	2	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	7	4	-	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	29	17	-	<1	<1	-	1	mg/kg	1	A-T-055s
Total Aromatics$_A$	41	25	-	<1	<1	-	1	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	66	39	-	1	<1	-	1	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Wardell Armstrong (Stoke on Trent), Sir Henry Doulton House, Forge Lane, Etruria, Stoke on Trent, ST1 5BD

Project: Booth Street

Clients Project No: ST17949

Project No: 20/10518

Date Received: 05/12/2020 (am)

Cool Box Temperatures (°C): 6.0, 6.1, 6.0

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/12	20/10518/14	20/10518/18
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES2	ES1	ES3
Client Sample ID/Depth	WS01 0.5-0.5m	WS01 1.4-1.4m	WS02 0.4-0.4m	WS02 1.5-1.5m	WS03 0.4-0.4m	WS03 1.7-1.7m	WS04 1.3-1.3m	WS05 0.8-0.8m	BH01 4-4.45m
Date Sampled	24/11/20	24/11/20	24/11/20	24/11/20	24/11/20	24/11/20	24/11/20	25/11/20	27/11/20
Deviation Code									
F	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	20/10518/1	20/10518/2	20/10518/4	20/10518/6	20/10518/8	20/10518/9	20/10518/12	20/10518/14	20/10518/18
Client Sample No	ES1	ES2	ES1	ES3	ES1	ES2	ES2	ES1	ES3
Client Sample ID/Depth	WS01 0.5-0.5m	WS01 1.4-1.4m	WS02 0.4-0.4m	WS02 1.5-1.5m	WS03 0.4-0.4m	WS03 1.7-1.7m	WS04 1.3-1.3m	WS05 0.8-0.8m	BH01 4-4.45m
Date Sampled	24/11/20	24/11/20	24/11/20	24/11/20	24/11/20	24/11/20	24/11/20	25/11/20	27/11/20
PAH (total 17)	✓		✓		✓				
BTEX (total)	✓		✓		✓				
Sulphide		✓		✓		✓	✓	✓	✓
PAH-16MS		✓		✓		✓	✓		
VPHCWG		✓		✓		✓	✓		

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Appendix 4
Waste Classification report

Waste Classification Report

2BJ9J-K9KNU-Q66AG

Job name

Booth Street Phase 2 SI - Indicative Waste Classification

Description/Comments

Waste Classification of some samples recovered during the site investigation to provide indicative waste classification.

Project

Booth Street Phase 2 SI - ST17949

Site

Booth Street, Shelton

Related Documents

#	Name	Description
1	20-10518.hwol	.hwol file used to create the Job

Waste Stream Template

Waste Stream template not used when importing the .hwol file

Classified by

Name:
Sam Folarin
Date:
12 Jan 2021 15:33 GMT
Telephone:
07812 555376

Company:
Wardell Armstrong
22 Windsor Place
Cardiff
CF10 3BY

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Sam Folarin
Created date: 12 Jan 2021 15:33 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	BH01 (20201127)	4-4.5m	Non Hazardous		2
2	BH02 (20201201)	1.2-1.7m	Non Hazardous		5
3	BH03 (20201202)	2-2.5m	Non Hazardous		8
4	WS01 (20201124)	1.4m	Non Hazardous		11
5	WS02 (20201124)	1.5m	Non Hazardous		14
6	WS03 (20201124)	1.7m	Non Hazardous		17
7	WS04 (20201124)	1.3m	Non Hazardous		20
8	WS05 (20201125)	0.8m	Non Hazardous		23

Classification of sample: BH01 (20201127)

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

Sample details

Sample Name:
BH01 (20201127)
Sample Depth:
4-4.5m m

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.67 pH		8.67 pH	8.67 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		3 mg/kg	1.32	3.961 mg/kg	0.000396 %		
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<**LOD**
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %		
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		11 mg/kg	1.252	13.77 mg/kg	0.00138 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**LOD**
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	7 mg/kg		7 mg/kg	0.0007 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<**LOD**
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		8 mg/kg	1.273	10.181 mg/kg	0.00102 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		22 mg/kg	1.245	27.384 mg/kg	0.00274 %		
14	TPH (C6 to C40) petroleum group			TPH		1 mg/kg		1 mg/kg	0.0001 %		
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<LOD
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				8	mg/kg	1.462	11.692	mg/kg	0.00117 %		
			215-160-9	1308-38-9									
										Total:	0.00848 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - 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 Non-hazardous by HP 3(i). Appendix C of WM3 v1.1 Figure C3.1. The Waste is not a liquid and does not have a free draining liquid phase. Furthermore, concentrations of TPH, PAH and BTEX reported at or below the inert landfill WAC limit are very unlikely to display flammable hazardous property.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0001%)

Classification of sample: BH02 (20201201)

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

Sample details

Sample Name:	LoW Code:
BH02 (20201201)	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	
1.2-1.7m m	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.63 pH		8.63 pH	8.63 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				6 mg/kg	1.884	11.304 mg/kg	0.00113 %		
3	monohydric phenols			P1186		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %		<LOD
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.3 mg/kg	3.22	4.186 mg/kg	0.000419 %		
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		12 mg/kg	1.252	15.021 mg/kg	0.0015 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	35 mg/kg		35 mg/kg	0.0035 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		20 mg/kg	1.273	25.452 mg/kg	0.00255 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		48 mg/kg	1.245	59.746 mg/kg	0.00597 %		
14	TPH (C6 to C40) petroleum group			TPH		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<LOD
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
			215-160-9	1308-38-9									
										Total:	0.019 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH03 (20201202)

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

Sample details

Sample Name:
BH03 (20201202)
Sample Depth:
2-2.5m m

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.52 pH		9.52 pH	9.52 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				1 mg/kg	1.884	1.884 mg/kg	0.000188 %		
3	monohydric phenols			P1186		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %		<LOD
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1 mg/kg	3.22	<3.22 mg/kg	<0.000322 %		<LOD
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %		
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		15 mg/kg	1.252	18.777 mg/kg	0.00188 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	33 mg/kg		33 mg/kg	0.0033 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		18 mg/kg	1.273	22.907 mg/kg	0.00229 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		40 mg/kg	1.245	49.789 mg/kg	0.00498 %		
14	TPH (C6 to C40) petroleum group			TPH		1 mg/kg		1 mg/kg	0.0001 %		
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<LOD
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
			215-160-9	1308-38-9									
										Total:	0.0163 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - 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 Non-hazardous by HP 3(i). Appendix C of WM3 v1.1 Figure C3.1. The Waste is not a liquid and does not have a free draining liquid phase. Furthermore, concentrations of TPH, PAH and BTEX reported at or below the inert landfill WAC limit are very unlikely to display flammable hazardous property.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0001%)

Classification of sample: WS01 (20201124)

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

Sample details

Sample Name:	LoW Code:
WS01 (20201124)	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	
1.4m m	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.29	pH		8.29	pH	8.29 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5	mg/kg	1.32	6.602	mg/kg	0.00066 %		
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.1	mg/kg	3.22	3.542	mg/kg	0.000354 %		
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.3	mg/kg	1.142	1.485	mg/kg	0.000149 %		
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		16	mg/kg	1.252	20.028	mg/kg	0.002 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<**LOD**
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	68	mg/kg		68	mg/kg	0.0068 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.17	mg/kg	1.353	<0.23	mg/kg	<0.000023 %		<**LOD**
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		19	mg/kg	1.273	24.179	mg/kg	0.00242 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		47	mg/kg	1.245	58.502	mg/kg	0.00585 %		
14	TPH (C6 to C40) petroleum group			TPH		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<**LOD**
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<**LOD**
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
			215-160-9	1308-38-9									
										Total:	0.022 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS02 (20201124)

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

Sample details

Sample Name:
WS02 (20201124)
Sample Depth:
1.5m m

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.45 pH		7.45 pH	7.45 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %		<**LOD**
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.8 mg/kg	3.22	5.796 mg/kg	0.00058 %		
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %		<**LOD**
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		7 mg/kg	1.252	8.762 mg/kg	0.000876 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**LOD**
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	71 mg/kg		71 mg/kg	0.0071 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<**LOD**
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		18 mg/kg	1.273	22.907 mg/kg	0.00229 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		65 mg/kg	1.245	80.906 mg/kg	0.00809 %		
14	TPH (C6 to C40) petroleum group			TPH		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<LOD
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				28	mg/kg	1.462	40.924	mg/kg	0.00409 %		
			215-160-9	1308-38-9									
										Total:	0.0239 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS03 (20201124)

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

Sample details

Sample Name:	LoW Code:
WS03 (20201124)	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	
1.7m m	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.73	pH		7.73	pH	7.73 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		<1	mg/kg	1.32	<1.32	mg/kg	<0.000132 %		<**LOD**
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<**LOD**
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.5	mg/kg	1.142	<0.571	mg/kg	<0.0000571 %		<**LOD**
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		7	mg/kg	1.252	8.762	mg/kg	0.000876 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<**LOD**
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	14	mg/kg		14	mg/kg	0.0014 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.17	mg/kg	1.353	<0.23	mg/kg	<0.000023 %		<**LOD**
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		9	mg/kg	1.273	11.453	mg/kg	0.00115 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		22	mg/kg	1.245	27.384	mg/kg	0.00274 %		
14	TPH (C6 to C40) petroleum group			TPH		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<**LOD**
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<**LOD**
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11	mg/kg	1.462	16.077	mg/kg	0.00161 %		
			215-160-9	1308-38-9									
										Total:	0.00897 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS04 (20201124)

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

Sample details

Sample Name:
WS04 (20201124)
Sample Depth:
1.3m m

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

Hazard properties

None identified

Determinands

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

#		Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number / EC Number / CAS Number							
1		pH PH		7.8 pH		7.8 pH	7.8 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5		<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		monohydric phenols P1186		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<**LOD**
4		arsenic { arsenic trioxide } 033-003-00-0 / 215-481-4 / 1327-53-3		<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %		<**LOD**
5		boron { diboron trioxide; boric oxide } 005-008-00-8 / 215-125-8 / 1303-86-2		4.2 mg/kg	3.22	13.523 mg/kg	0.00135 %		
6		cadmium { cadmium oxide } 048-002-00-0 / 215-146-2 / 1306-19-0		0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %		
7		copper { copper(II) oxide } 029-016-00-6 / 215-269-1 / 1317-38-0		13 mg/kg	1.252	16.273 mg/kg	0.00163 %		
8		chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 / 215-607-8 / 1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**LOD**
9		lead { lead compounds with the exception of those specified elsewhere in this Annex } 082-001-00-6	1	56 mg/kg		56 mg/kg	0.0056 %		
10		mercury { mercury dichloride } 080-010-00-X / 231-299-8 / 7487-94-7		<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<**LOD**
11		nickel { nickel(II) oxide (nickel monoxide) } 028-003-00-2 / 215-215-7 [1] 234-323-5 [2] - [3] / 1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		14 mg/kg	1.273	17.816 mg/kg	0.00178 %		
12		selenium { selenium } 034-001-00-2 / 231-957-4 / 7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
13		zinc { zinc oxide } 030-013-00-7 / 215-222-5 / 1314-13-2		49 mg/kg	1.245	60.991 mg/kg	0.0061 %		
14		TPH (C6 to C40) petroleum group TPH		66 mg/kg		66 mg/kg	0.0066 %		
15		benzene 601-020-00-8 / 200-753-7 / 71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		anthracene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			204-371-1	120-12-7									
24		benzo[a]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				<0.08	mg/kg		<0.08	mg/kg	<0.000008 %		<LOD
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
36		pyrene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
			215-160-9	1308-38-9									
										Total:	0.0262 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - 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 Non-hazardous by HP 3(i). Appendix C of WM3 v1.1 Figure C3.1. The Waste is not a liquid and does not have a free draining liquid phase. Furthermore, concentrations of TPH, PAH and BTEX reported at or below the inert landfill WAC limit are very unlikely to display flammable hazardous property.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0066%)

Classification of sample: WS05 (20201125)

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

Sample details

Sample Name:	LoW Code:
WS05 (20201125)	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	
0.8m m	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

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

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.68	pH		10.68	pH	10.68 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
4	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5	mg/kg	1.32	6.602	mg/kg	0.00066 %		
5	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<**LOD**
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7	mg/kg	1.142	0.8	mg/kg	0.00008 %		
7	copper { copper(II) oxide }	029-016-00-6	215-269-1	1317-38-0		21	mg/kg	1.252	26.287	mg/kg	0.00263 %		
8	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<**LOD**
9	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	105	mg/kg		105	mg/kg	0.0105 %		
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.35	mg/kg	1.353	0.474	mg/kg	0.0000474 %		
11	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		13	mg/kg	1.273	16.544	mg/kg	0.00165 %		
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		156	mg/kg	1.245	194.175	mg/kg	0.0194 %		
14	TPH (C6 to C40) petroleum group			TPH		39	mg/kg		39	mg/kg	0.0039 %		
15	benzene	601-020-00-8	200-753-7	71-43-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
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				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**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]									
20		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
21		acenaphthene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
			201-469-6	83-32-9									
22		acenaphthylene				0.02	mg/kg		0.02	mg/kg	0.000002 %		
			205-917-1	208-96-8									
23		anthracene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
			204-371-1	120-12-7									
24		benzo[a]anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-033-00-9	200-280-6	56-55-3									
25		benzo[a]pyrene; benzo[def]chrysene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-032-00-3	200-028-5	50-32-8									
26		benzo[b]fluoranthene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		601-034-00-4	205-911-9	205-99-2									
27		benzo[ghi]perylene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
			205-883-8	191-24-2									
28		benzo[k]fluoranthene				<0.07	mg/kg		<0.07	mg/kg	<0.000007 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		chrysene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		601-048-00-0	205-923-4	218-01-9									
30		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
31		fluoranthene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
			205-912-4	206-44-0									
32		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
33		indeno[123-cd]pyrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			205-893-2	193-39-5									
34		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
35		phenanthrene				0.17	mg/kg		0.17	mg/kg	0.000017 %		
			201-581-5	85-01-8									
36		pyrene				0.26	mg/kg		0.26	mg/kg	0.000026 %		
			204-927-3	129-00-0									
37		PAH total 17 (inclusive of Coronene)				1.59	mg/kg		1.59	mg/kg	0.000159 %		
				PAH Total									
38		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				8	mg/kg	1.462	11.692	mg/kg	0.00117 %		
			215-160-9	1308-38-9									
										Total:	0.0412 %		

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)
	Determinand defined by classifier (see Appendix A)
	Speciated Deteminand - 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 Non-hazardous by HP 3(i). Appendix C of WM3 v1.1 Figure C3.1. The Waste is not a liquid and does not have a free draining liquid phase. Furthermore, concentrations of TPH, PAH and BTEX reported at or below the inert landfill WAC limit are very unlikely to display flammable hazardous property.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0039%)

Appendix A: Classifier defined and non CLP determinands

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

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

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

monohydric phenols (CAS Number: P1186)

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

lead compounds with the exception of those specified elsewhere in this Annex

CLP index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following CLP protocols, considers many simple lead compounds to be Carcinogenic category 2
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
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 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

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

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

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

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

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

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

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

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

PAH total 17 (inclusive of Coronene) (CAS Number: PAH Total)

Description/Comments: No threshold analysis - just for ID purposes
Data source: ALS HWOL Data File
Data source date: 17 Apr 2018
Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

Appendix B: Rationale for selection of metal species

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

Only selectable species (worst case)

arsenic {arsenic trioxide}

Oxides considered to be the most likely metal species due to handling of material and exposure to atmosphere.

boron {diboron trioxide; boric oxide}

Oxides considered to be the most likely metal species due to handling of material and exposure to atmosphere.

cadmium {cadmium oxide}

Oxides considered to be the most likely metal species in Made Ground. Historically, shallow soils will have undergone disturbance and exposure to the atmosphere during site redevelopment / Oxides considered to be the most likely metal species in the natural soils.

copper {copper(II) oxide}

Oxides considered to be the most likely metal species due to handling of material and exposure to atmosphere. Conservative species of copper oxide selected.

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

Most relevant species.

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Reasonable CLP - no hexavalent chromium

mercury {mercury dichloride}

Worst case CLP species based on hazard statements.

nickel {nickel(II) oxide (nickel monoxide)}

Oxides considered to be the most likely metal species due to handling of material and exposure to atmosphere. Conservative species of nickel oxide selected.

selenium {selenium}

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

zinc {zinc oxide}

Oxides considered to be the most likely metal species due to handling of material and exposure to atmosphere.

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

Most relevant species

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.346.4563.8832 (11 Dec 2020)
HazWasteOnline Database: 2020.346.4563.8832 (11 Dec 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 Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

Appendix 5
Geotechnical Laboratory Test Results

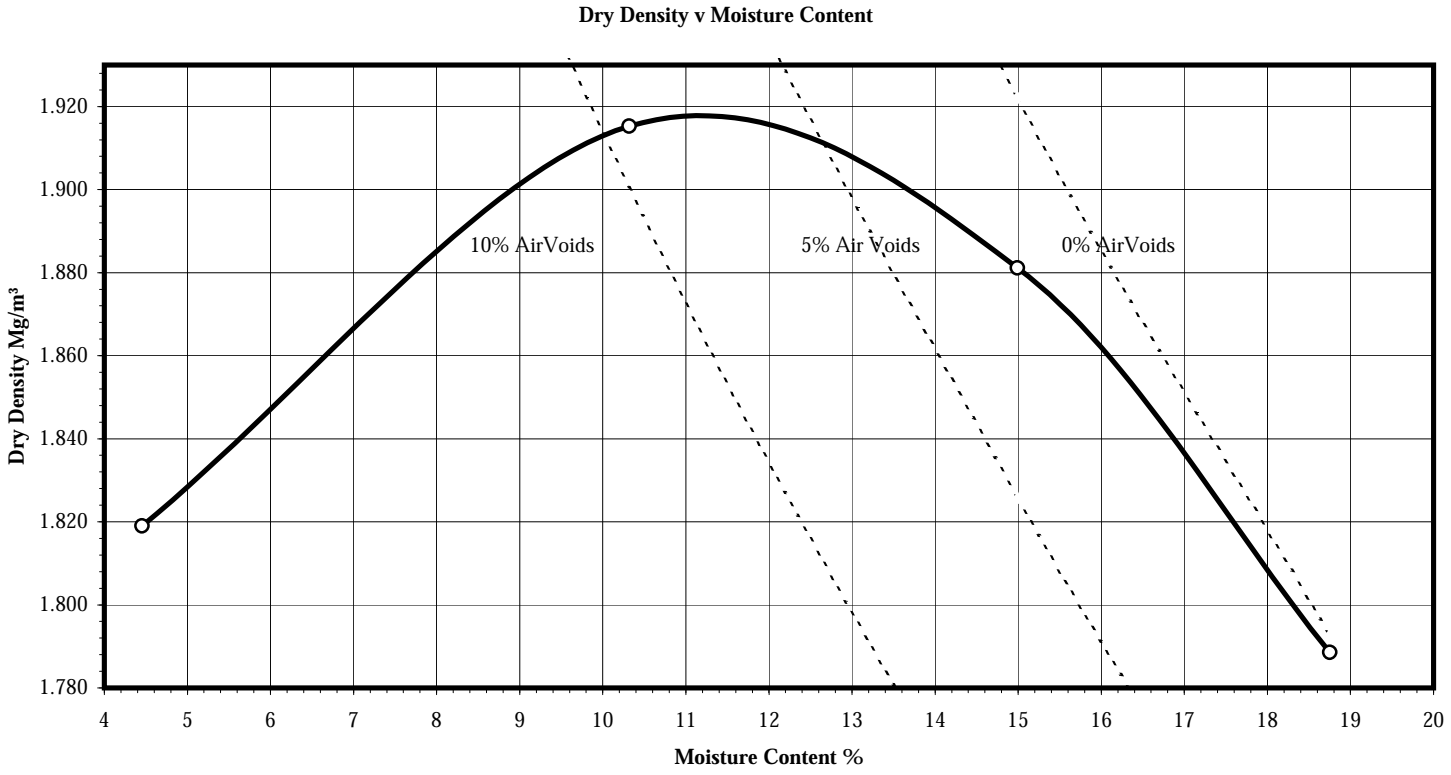
Dry Density and Moisture Content Relationship
BS1377:Part 4 :1990 Test 3.3/3.4(2.5kg rammer) and 3.5/3.6 (4.5kg rammer)

Job No SRL1273		Site Name: Booth Street, Boothen			
Borehole		**Sample.**		**Depth**	
BH01		**B2**		**2.45 m**	

Soil Description	Procedure *
MADEGROUND (Brown grey black mottled fine-coarse sandy CLAY and fine-coarse subrounded subangular GRAVEL)	2.5Kg B.S. rammer: Blows/layer__27____ . 1litre Mould (Volume 1000cm³) Single sample

Initial Mass of sample g	4695	Particle Density	2.70	Mg/m³. Assumed	
Retained on 20mm	672.00 g	37.5mm	778 g	Sieves	Percent(%) 30.88

Test No.	1	2	3	As Received		
Mass of mould+base+test specimen	6200	6412	6462	6423		
Mass of mould +base g	4308	4308	4308	4308		
Mass of compacted specimen g	1892	2104	2154	2115		
Bulk Density Mg/m³	1.900	2.113	2.163	2.124		
Mass of Tin and Wet sample g	110	103.38	132.29	193.01		
Mass of Tin and Dry sample g	107	97.42	120.31	168.8		
Mass of Tin g	39.65	39.65	40.39	39.68		
Water Content %	4.5	10.3	15.0	18.8		
Dry Density Mg/m³	1.819	1.915	1.881	1.789		



Maximum Dry Density	1.915	Mg/m ³
Optimum Water Content	11.2	%

SRL
STRATA RENEWABLES LTD

Tested By Carl
Date 18/12/2020

Approved: CAF
Date 22/12/2020

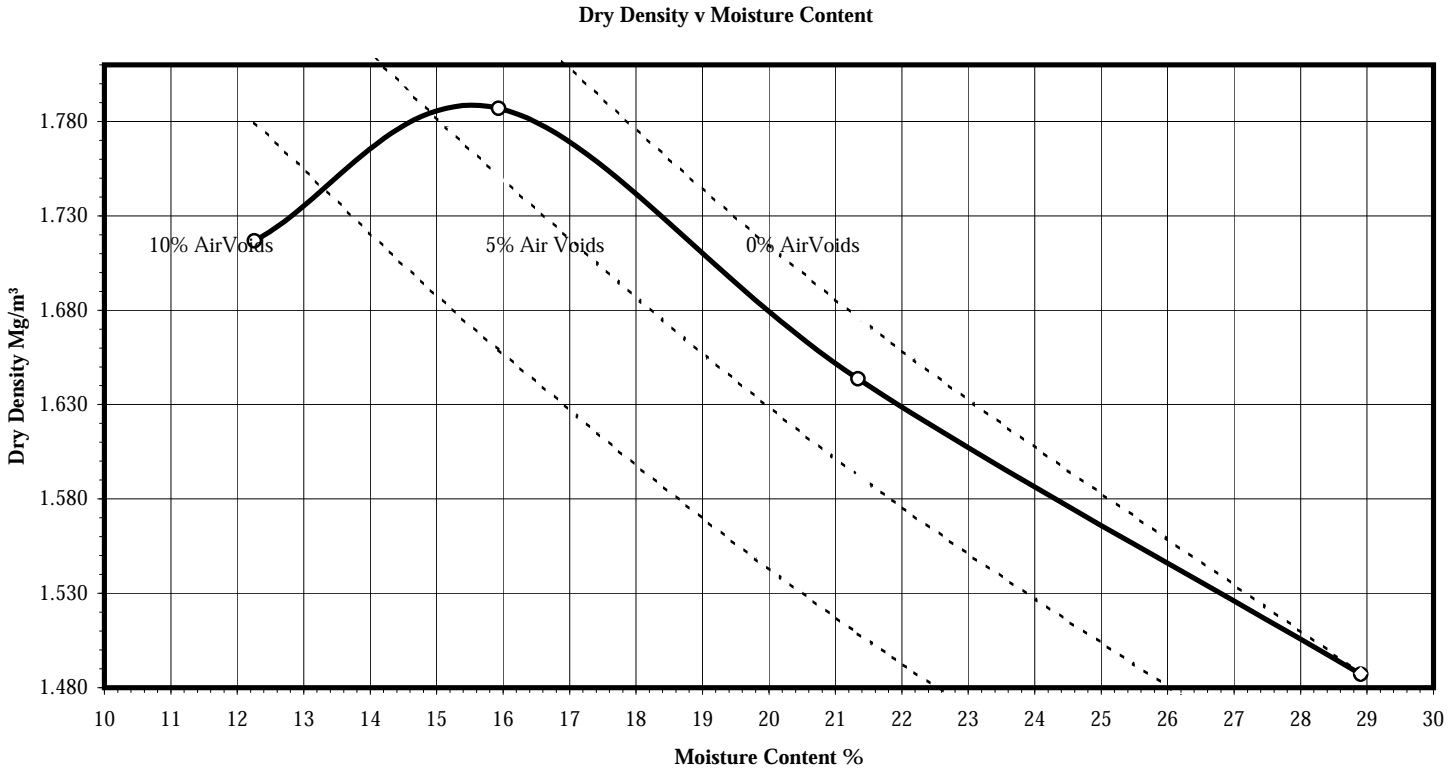
Dry Density and Moisture Content Relationship
BS1377:Part 4 :1990 Test 3.3/3.4(2.5kg rammer) and 3.5/3.6 (4.5kg rammer)

Job No SRL1273		Site Name: Booth Street, Boothen			
Borehole		**Sample.**		**Depth**	
BH03		**B1**		**1.20 m**	

Soil Description	Procedure *
MADEGROUND (Grey brown mottled slightly fine sandy silty CLAY)	2.5Kg B.S. rammer: Blows/layer__27____ . 1litre Mould (Volume 1000cm³) Single sample

Initial Mass of sample g	3001	Particle Density	2.61	Mg/m³. Assumed	
Retained on 20mm	g 37.5mm	g Sieves	Percent(%)		

Test No.		1	2	3	As Received		
Mass of mould+base+test specimen		6227	6371	6294	6217		
Mass of mould +base	g	4308	4308	4308	4308		
Mass of compacted specimen	g	1919	2063	1986	1909		
Bulk Density	Mg/m³	1.927	2.072	1.994	1.917		
Mass of Tin and Wet sample	g	90.63	110.56	177.13	201.2		
Mass of Tin and Dry sample	g	85.07	100.9	153	165.06		
Mass of Tin	g	39.72	40.27	39.94	40.03		
Water Content	%	12.3	15.9	21.3	28.9		
Dry Density	Mg/m³	1.717	1.787	1.644	1.487		



Maximum Dry Density	1.787	Mg/m ³
Optimum Water Content	15.5	%

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Tested By Carl
Date 18/12/2020

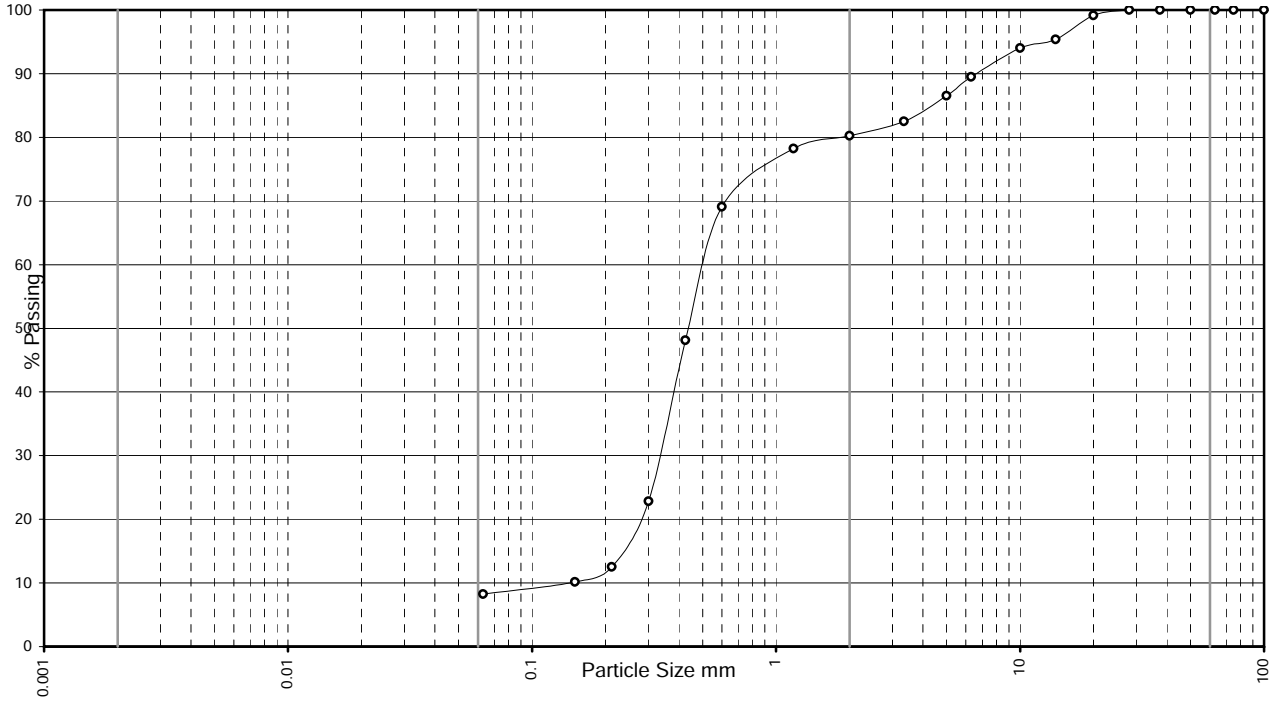
Approved: CAF
Date 22/12/2020

Job No SRL1273

Site: Booth Street, Boothen

Borehole No BH01 **Sample** B 3 **Depth** 3.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES
		SILT			SAND			GRAVEL		
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

Brown fine-coarse SAND with some fine-coarse subrounded subangular gravel

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	100
38	100
28	100
20	99
14	95
10	94
6.30	89
5	87

Sieve Size mm	% Passing
3.35	82
2	80
1.18	78
0.6	69
0.425	48
0.3	23
0.212	13
0.15	10
0.063	8

Cobbles	
Gravel	20
Sand	72
Silt/Clay	8

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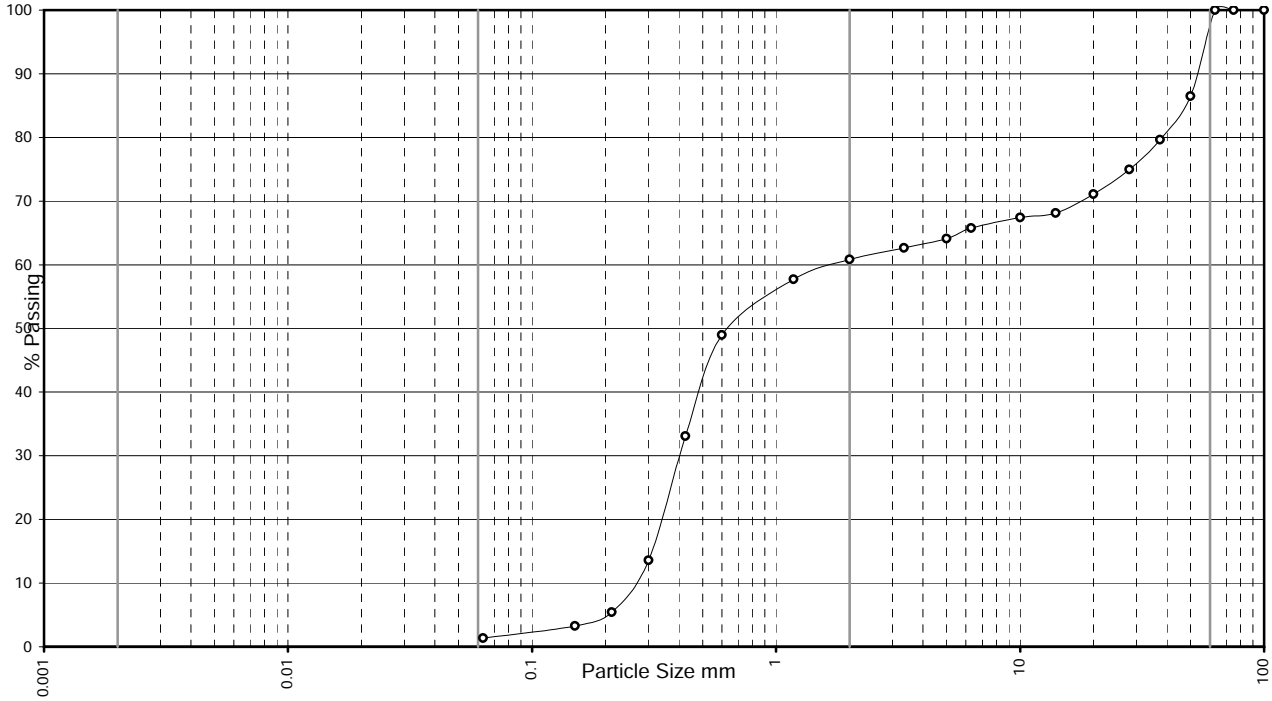
Job No SRL1273

Site: Booth Street, Boothen

Borehole No BH01 **Sample** B 4 **Depth** 4.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES
		SILT			SAND			GRAVEL		
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

Light brown fine-coarse SAND and subrounded subangular GRAVEL

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	87
38	80
28	75
20	71
14	68
10	67
6.30	66
5	64

Sieve Size mm	% Passing
3.35	63
2	61
1.18	58
0.6	49
0.425	33
0.3	14
0.212	5
0.15	3
0.063	1

Cobbles	
Gravel	39
Sand	59
Silt/Clay	1

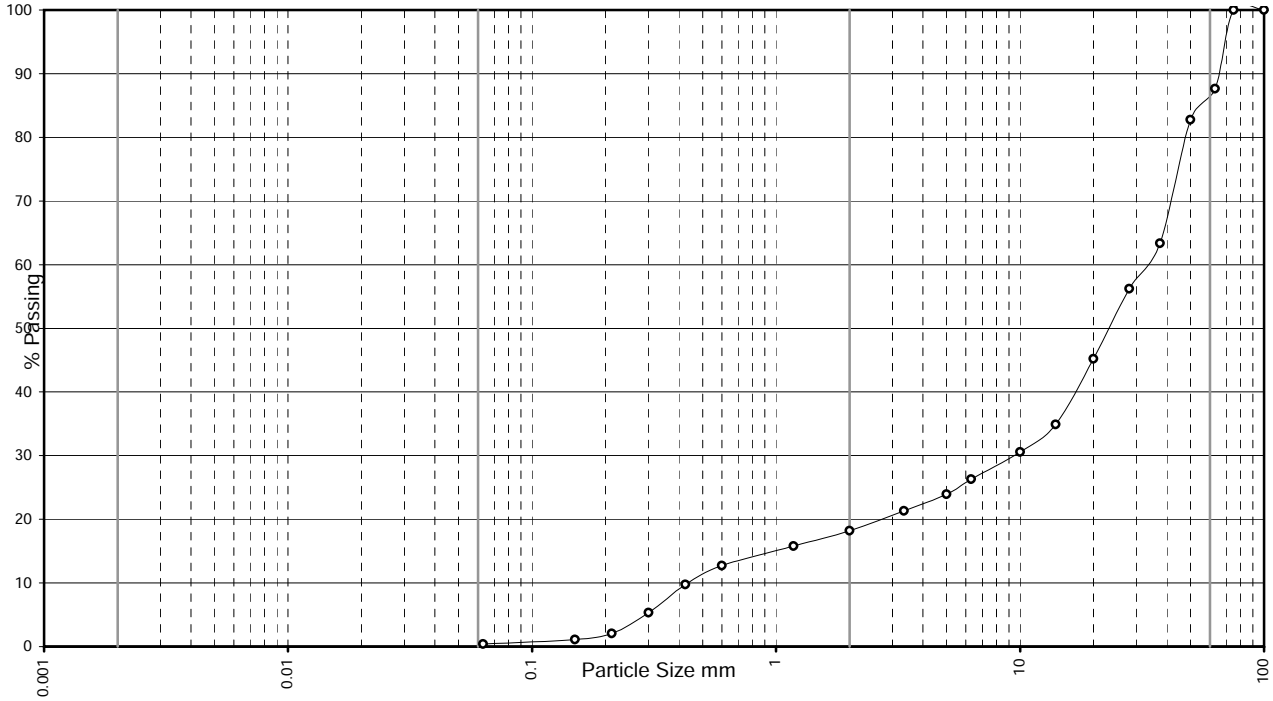
SRL
STRATA RENEWABLES LTD

Job No SRL1273

Site: Booth Street, Boothen

Borehole No BH02 **Sample** B 3 **Depth:** 3.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY		SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

Brown fine-coarse sandy angular subangular subrounded GRAVEL with occasional cobbles

Sieve Size mm	% Passing
125	100
100	100
75	100
63	88
50	83
38	63
28	56
20	45
14	35
10	31
6.30	26
5	24

Sieve Size mm	% Passing
3.35	21
2	18
1.18	16
0.6	13
0.425	10
0.3	5
0.212	2
0.15	1
0.063	0

Cobbles	12
Gravel	69
Sand	18
Silt/Clay	

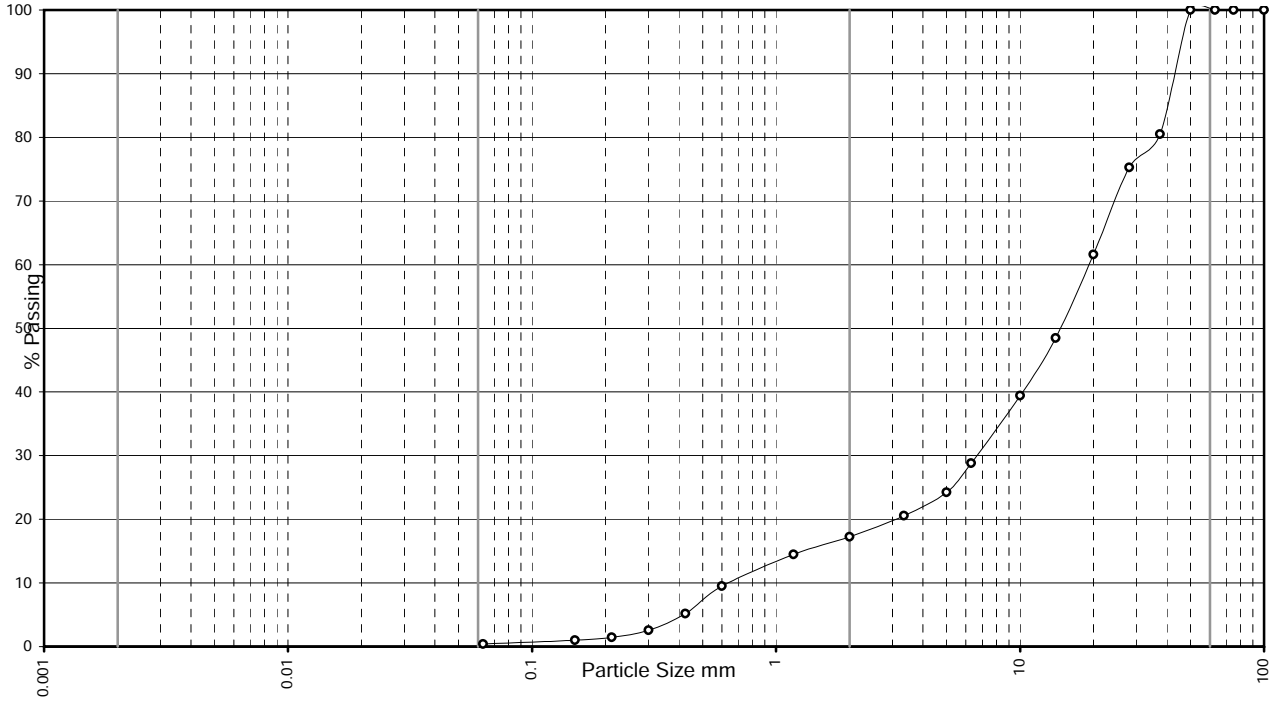
SRL
STRATA RENEWABLES LTD

Job No SRL1273

Site: Booth Street, Boothen

Borehole No BH03 **Sample** B 3 **Depth** 3.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

Brown slightly sandy fine-coarse subrounded subangular GRAVEL

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	100
38	81
28	75
20	62
14	48
10	39
6.30	29
5	24

Sieve Size mm	% Passing
3.35	21
2	17
1.18	14
0.6	9
0.425	5
0.3	3
0.212	1
0.15	1
0.063	0

Cobbles	
Gravel	83
Sand	17
Silt/Clay	

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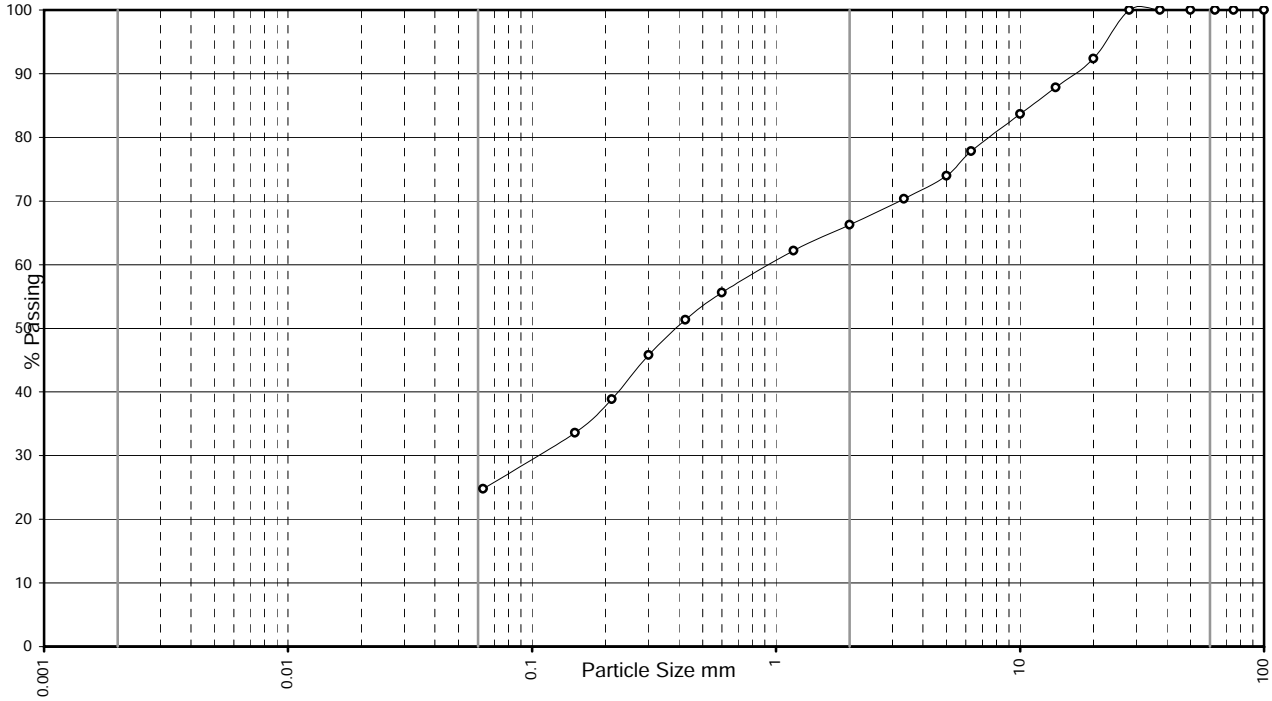
STRATA RENEWABLES LTD

Job No SRL1273

Site: Booth Street, Boothen

Borehole No WS01 **Sample** S 1 **Depth** 1.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

MADEGROUND (Brown black grey silty fine-medium sandy fine-coarse gravelly CLAY gravel is angular subangular includes cinder brick and pottery)

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	100
38	100
28	100
20	92
14	88
10	84
6.30	78
5	74

Sieve Size mm	% Passing
3.35	70
2	66
1.18	62
0.6	56
0.425	51
0.3	46
0.212	39
0.15	34
0.063	25

Cobbles	
Gravel	34
Sand	41
Silt/Clay	42

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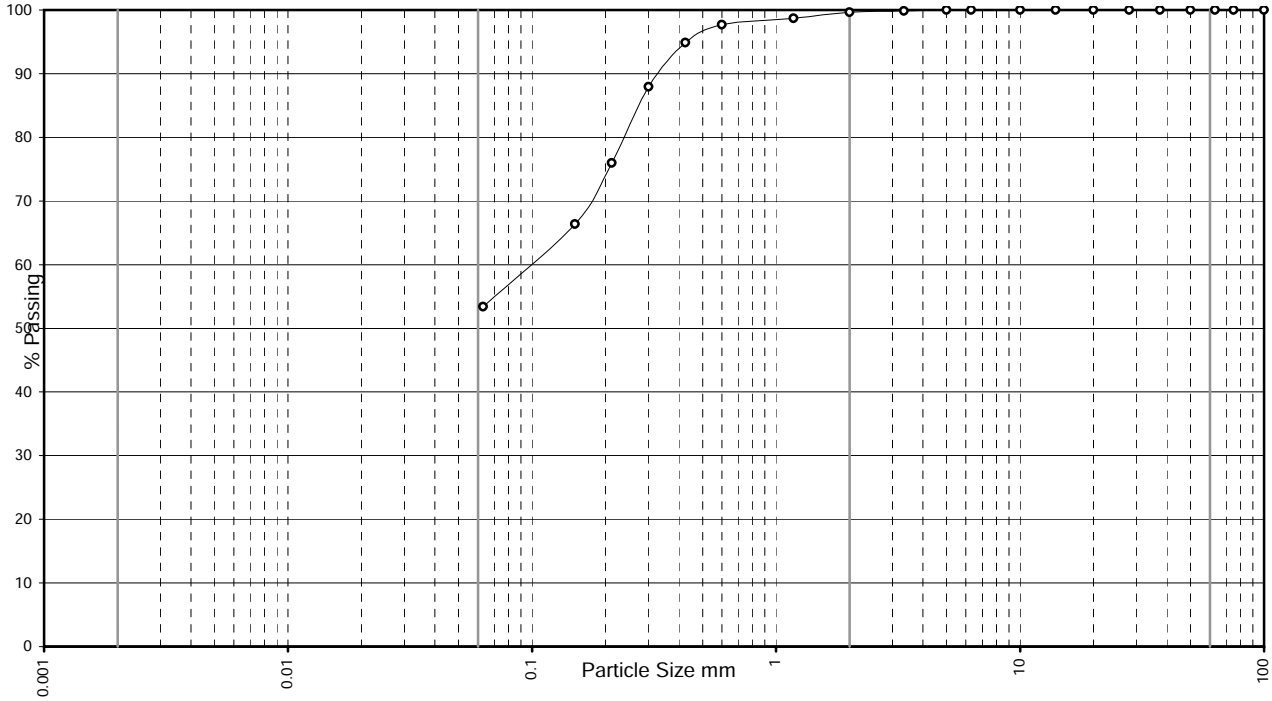
STRATA RENEWABLES LTD

Job No SRL1273

Site: Booth Street, Boothen

Borehole No WS02 **Sample** S 1 **Depth** 1.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

MADEGROUND (Light brown grey mottled silty fine-medium sandy CLAY)

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	100
38	100
28	100
20	100
14	100
10	100
6.30	100
5	100

Sieve Size mm	% Passing
3.35	100
2	100
1.18	99
0.6	98
0.425	95
0.3	88
0.212	76
0.15	66
0.063	53

Cobbles	
Gravel	0
Sand	46
Silt/Clay	42

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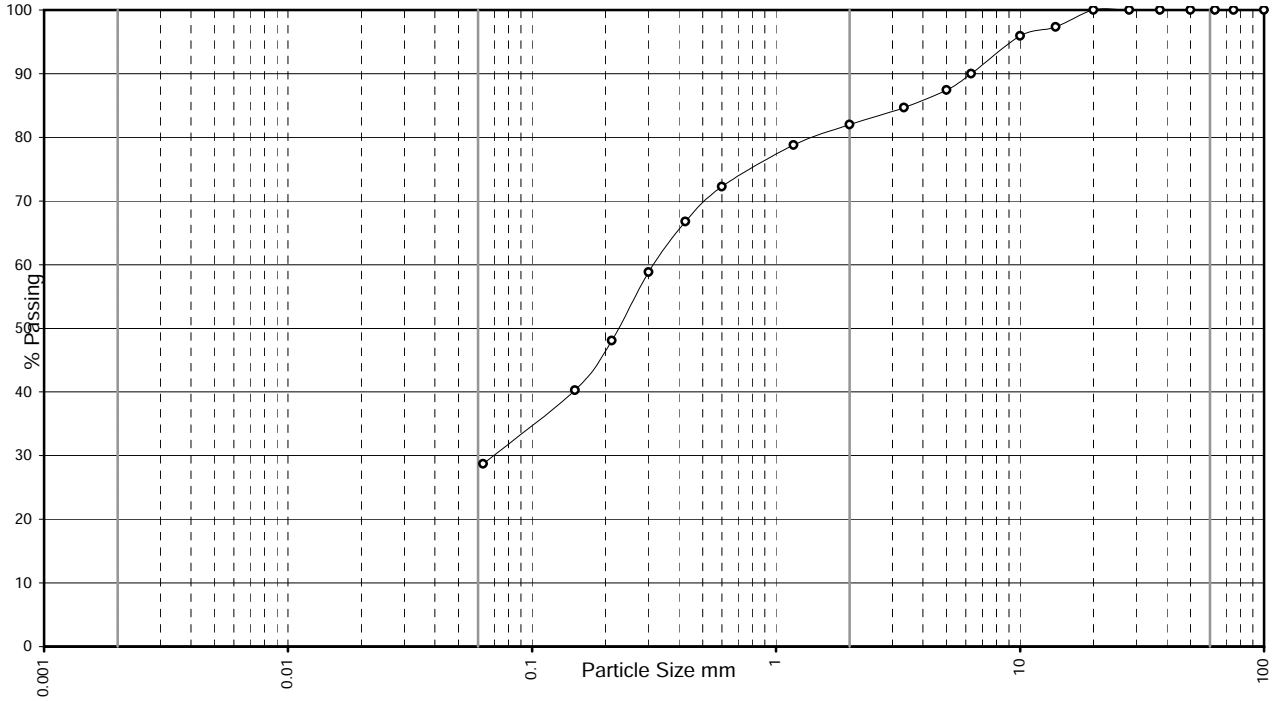
STRATA RENEWABLES LTD

Job No SRL1273

Site: Booth Street, Boothen

Borehole No WS03 **Sample** S 1 **Depth:** 1.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES
		SILT			SAND			GRAVEL		
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

MADEGROUND (Black grey brown fine-medium sandy silty CLAY with a little cinder gravel)

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	100
38	100
28	100
20	100
14	97
10	96
6.30	90
5	87

Sieve Size mm	% Passing
3.35	85
2	82
1.18	79
0.6	72
0.425	67
0.3	59
0.212	48
0.15	40
0.063	29

Cobbles	
Gravel	18
Sand	53
Silt/Clay	42

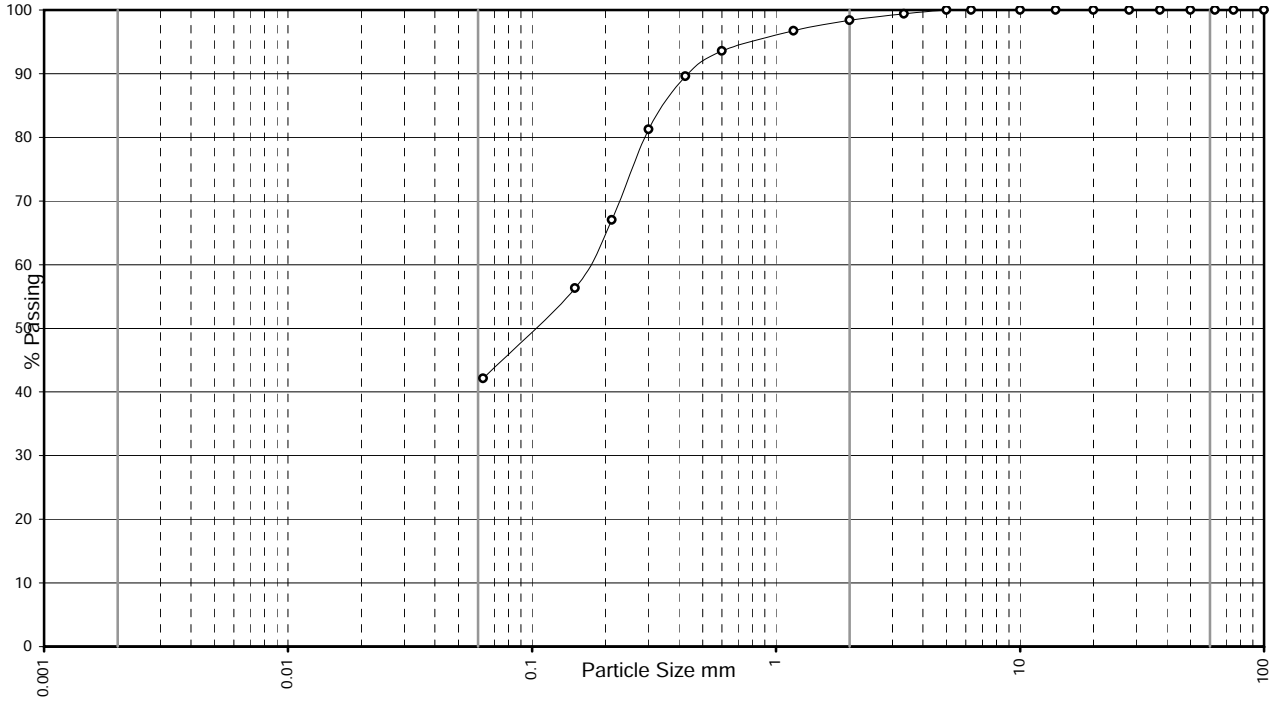
SRL
STRATA RENEWABLES LTD

Job No SRL1273

Site: Booth Street, Boothen

Borehole No WS04 **Sample** S 1 **Depth:** 1.00 m

Particle Size Distribution BS1377 :1990 Part 2
Test 9.2 Wet Sieving, 9.4 Sedimentation - Pipette Method



CLAY		SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

SAMPLE DESCRIPTION

MADEGROUND (Black grey brown fine-medium sandy silty CLAY)

Sieve Size mm	% Passing
125	100
100	100
75	100
63	100
50	100
38	100
28	100
20	100
14	100
10	100
6.30	100
5	100

Sieve Size mm	% Passing
3.35	99
2	98
1.18	97
0.6	94
0.425	90
0.3	81
0.212	67
0.15	56
0.063	42

Cobbles	
Gravel	2
Sand	56
Silt/Clay	42

SRL
STRATA RENEWABLES LTD

Client: Wardell Armstrong LLP

Job No: SRL1273

Site Name: Booth Street, Boothen

Date 22/12/2020

Laboratory Test Result Summary

BS EN 17892-12:2018

BS EN 17892-1:2014

					Classification (Fall Cone Method)					Additional			
Location Number	Sample Type No.	Sample Depth Top m	Sample Depth Bottom m	Description	LL	PL	PI	Proportion of sample passing 0.4mm %	Water Content %	Grading	Compaction		
BH01	B1	1.20	1.65	MADEGROUND (Black brown fine-coarse sandy CLAY and fine-coarse angular subangular GRAVEL includes brick cinder pottery)	33	18	15	81	21.9				
BH01	B2	2.45	2.90	MADEGROUND (Brown grey black mottled fine-coarse sandy CLAY and fine-coarse subrounded subangular GRAVEL)							✓		
BH01	B3	3.00	3.45	Brown fine-coarse SAND with some fine-coarse subrounded subangular gravel						✓			
BH01	B4	4.00	4.45	Light brown fine-coarse SAND and subrounded subangular GRAVEL						✓			
BH02	B1	1.20	1.65	MADEGROUND (Light brown grey black fine-coarse sandy CLAY with fine-coarse angular subrounded subangular gravel)	23	14	9	62	21				
BH02	B3	3.00	3.45	Brown fine-coarse sandy angular subangular subrounded GRAVEL with occasional cobbles						✓			
BH03	B1	1.20	1.65	MADEGROUND (Grey brown mottled slightly fine sandy silty CLAY)							✓		
BH03	B2	2.00	2.45	Light brown very sandy CLAY with fine-coarse subangular subrounded gravel	18	11	7	56	21				

Client: Wardell Armstrong LLP

Job No: SRL1273

Site Name: Booth Street, Boothen

Date 22/12/2020

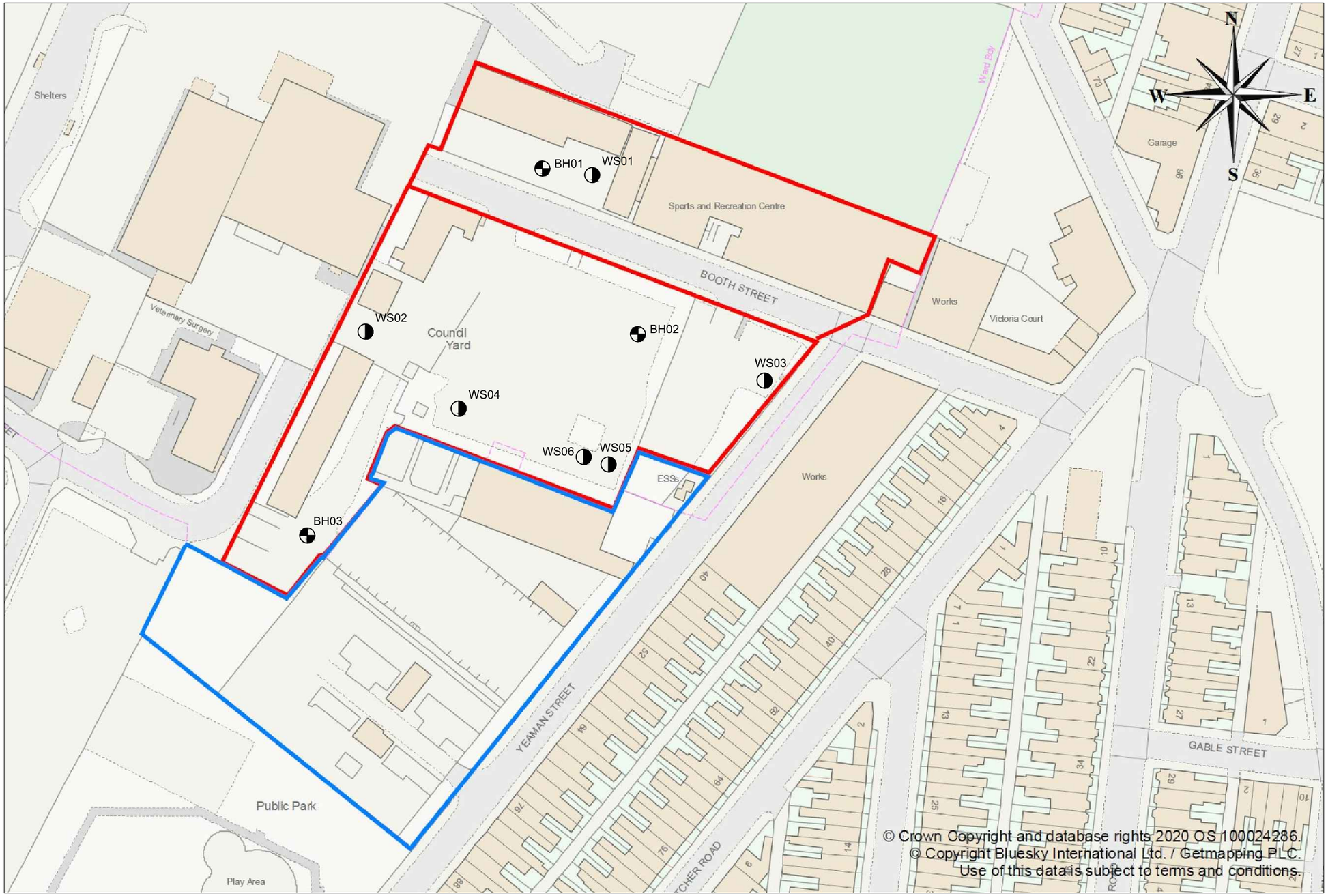
Laboratory Test Result Summary

BS EN 17892-12:2018

BS EN 17892-1:2014

					Classification (Fall Cone Method)					Additional			
Location Number	Sample Type No.	Sample Depth Top m	Sample Depth Bottom m	Description	LL	PL	PI	Proportion of sample passing 0.4mm %	Water Content %	Grading	Compaction		
BH03	B3	3.00	3.45	Brown slightly sandy fine-coarse subrounded subangular GRAVEL						✓			
WS01	SPT1	1.00		MADEGROUND (Brown black grey silty fine-medium sandy fine-coarse gravelly CLAY gravel is angular subangular includes cinder brick and pottery)						✓			
WS02	SPT1	1.00		MADEGROUND (Light brown grey mottled silty fine-medium sandy CLAY)						✓			
WS03	SPT1	1.00		MADEGROUND (Black grey brown fine-medium sandy silty CLAY with a little cinder gravel)						✓			
WS04	SPT1	1.00		MADEGROUND (Black grey brown fine-medium sandy silty CLAY)						✓			

DRAWINGS



DO NOT SCALE FROM THIS DRAWING

KEY

SITE BOUNDARY

WS01 WINDOW SAMPLE

BH01 SHELL & AUGER BOREHOLE

OS DATA SUPPLIED BY CLIENT

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D
B	AS DRILLED LOCATIONS	15/12/20	DR	SG	CS
A	FIRST ISSUE	21/09/20	DR	RF	CS

CLIENT

CITY OF STOKE-ON-TRENT

PROJECT

BOOTH STREET,
BOOTHEN,
STOKE-ON-TRENT

DRAWING TITLE

SITE INVESTIGATION PLAN

DRG No.	REV
ST17949-002	B

DRG SIZE	SCALE	DATE
A3	1:1000	21/09/20

DRAWN BY	CHECKED BY	APPROVED BY
DR	RF	CS

wardell armstrong
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N:\ST\ST17949 - BOOTH STREET SHELTON\03 - DESIGN\AUTOCAD\ST17949-002-B SITE INVESTIGATION PLAN.DWG