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PHASE 2: GROUND INVESTIGATION REPORT

ADEPT CONSULTING ENGINEERS

PROPOSED RESIDENTIAL DEVELOPMENT

QUEENS DRIVE

KIRKHALT

ROCHDALE

OL11 2NP

Project No: 25-446

Prepared by:

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Date:



19/11/2025

Approved by:

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Date:



24/11/2025

The information and / or advice contained in this Phase 2: Ground Investigation Report is based solely on, and is limited to, the boundaries of the site, the immediate area around the site, and the historical use(s) unless otherwise stated. This 'Report' has been prepared to collate information relating to the physical, environmental, and industrial setting of the site, and to highlight, where possible, the likely problems that might be encountered when considering the future development of this site for the proposed end use. All comments, opinions, diagrams, cross sections and / or sketches contained within the report, and / or any configuration of the findings is conjectural and given for guidance only and confirmation of the anticipated ground conditions should be considered before development proceeds. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Arc Environmental Limited (ARC). If a change in the proposed land use is envisaged, then a reassessment of the site should be carried out.

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Appendix I	Site Location Plan, Ariel Photograph Plan, Proposed Development Layout, Exploratory Hole Location Plan, Borehole Record Sheets, Trial Pit Record Sheet & Foundation Drawings
Appendix II	Gas Monitoring Sheets, LWD Results & Falling Head Test Results
Appendix III	Laboratory Results (Geotechnical & Ground Contamination)
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1.0 Introduction

November 2025

As requested by Adept Consulting Engineers and following the results of the Phase 1 Desk Top Study Report (Ref. 25-446, Arc Environmental Ltd, July 2025), Phase 2: Ground Investigation works have been carried out at a parcel of land adjacent to Queen's Drive, Rochdale, OL11 2NW, where the site is currently proposed for development as a combination of terrace houses and apartments with associated access, car parking, gardens and soft landscaped areas.

The intrusive investigation works undertaken comprised 7 no. windowless sampling boreholes (WS01 to WS07 inclusive), 4 no. mechanically excavated trial pits (TP01 to TP04 inclusive), 8 no. hand excavated trial pits with LWD testing (HP01 to HP08 inclusive) and the installation of 3 no. monitoring wells (WS01, WS03 & WS07).

The positions of the investigation locations can be seen on the Exploratory Hole Location Plan, a copy of which is attached in Appendix I. It should be noted that this plan is for orientating purposes only, as the plan is not to a standard scale.

2.0 Site Details

Table 2.1

N = north, E = east, S = south & W = west.

Site Name & Address:	Land adjacent to Queens Drive, Kirkhale, Rochdale, OL11 2NP.
National Grid Reference:	389270, 411300 (representative of the central part of the site).
Description of Location:	The eastern portion of the site forms a car park and the western portion is occupied by a medical centre and allotments. It is located in the southwest of Rochdale. Site access is gained off a minor private carriageway to the north of Queens Drive.
Site Boundaries:	N = Queens Drive, E = residential dwellings, S = open undeveloped land, W = residential dwellings / Queens Drive.
Site Shape:	The site is irregular in layout, occupying a total area of c.0.51 Hectares (Ha).
General Topography:	The ground profile at the site is relatively level with a slight decline to the west (with the standard contour height recorded between c.143m to c.145mAOD). A recent detailed topographical / utility survey has not been undertaken.
Site surfacing:	Areas of dense cover of wild grasses, shrubbery and trees. Hardstanding (asphalt) cover within car parking and footpath, demolition rubble and fly-tipping / allotment waste (wood, concrete posts etc).
Above Ground Structures:	Electrical substation in the northeastern corner of the site.
Sub-surface Structures & Services:	Surface water drainage inspection covers were noted on site. Potential other services beneath the site associated with the historical on site and existing adjacent developments. Relic concrete in ground structures / foundations associated with historical development.
Summary of Site History:	From the historical records reviewed since c.1851, the site was encompassed by undeveloped land (agricultural). A minor carriageway and drain / small surface water course spanned over the western site boundary. By c.1956 several semi-detached buildings are recorded on site (which were demolished by c.2024). A new building is constructed in the central portion of the site by c.2024. Recently an electrical substation has been constructed in the northeastern portion of the site. Salient adjacent features have included Rochdale Canal, Crest Mill with tank and filter bed, two historical infilled ponds, schools, road infrastructure and residential and an increase in light commercial end use.

3.0 Scope of Works

Table 3.1

Client:	MSV Housing
Consulting Engineers:	Adept Consulting Engineers
Project Type:	Proposed residential development with associated gardens, access, car parking and soft landscaping.
Site Location Plan:	See Appendix I.
Aerial Photograph:	See Appendix I.

3.0 Scope of Works (Cont'd): -

Table 3.1 Cont'd

Existing Site Layout:	See Appendix I.
Proposed Development Layout:	See Appendix I.
Intrusive Investigation Works:	7 no. windowless sampling boreholes (WS01 to WS07 inclusive) 4 no. mechanically excavated trial pits (TP01 to TP04 inclusive) 8 no. hand excavated trial pits with LWD testing (HP01 to HP08 inclusive) 3 no. monitoring wells (WS01, WS03 & WS07).
Laboratory Testing:	Geotechnical & Ground Contamination.
CLEA Classification:	Level 1 GQRA – <i>Residential with Homegrown Produce (Housing) & Residential without Homegrown Product (Apartments)</i>

4.0 Investigation Rationale

The information contained in this report is limited to the areas of the site, as indicated on the Site Investigation Location Plan, and to those areas accessible during the ground investigation. The depths of strata on the record sheets are recorded in m below current ground levels (m bgl).

When considering the full scope of the development, any features and / or issues not specifically mentioned in this report cannot be assumed to have been covered. This ground investigation has been designed to provide information on the general ground and groundwater conditions where access would allow, within the boundaries of the site.

The rationale behind the location of each exploratory location is summarised in Table 4.1 below.

Table 4.1

Potential issue	Exploratory hole
Determine the nature of the underlying ground conditions, including shallow groundwater.	WS01 to WS07, TP01 to TP04, HP01 to HP08
Determine the levels of contamination present within the initial deposits with a view to determining the risks posed towards the future site end users.	WS01 to WS07, TP01 to TP04, HP01 to HP08
Undertake gas monitoring to determine the risk to the proposed development from the potential migration of gas.	WS01, WS03 & WS07
Determine shallow CBR values for design of access roads, footpaths and hardstanding areas.	HP01 to HP08 (LWD)

4.1 Contamination Related Sampling & Site Protocols: -

All works associated with this ground contamination assessment and investigations have generally been completed in accordance with BS10175:2011+A2:2017: Investigation of potentially contaminated sites – Code of practice & Land Contamination Risk Management (LCRM: October 2020) with the following precautions specific to this project.

4.1.1 Ground Contamination Sampling: -

Samples were recovered by a representative of ARC Environmental Ltd. during the intrusive investigation works. All samples were stored at approximately c.2-8°C using cool boxes and ice packs prior to delivery to a UKAS / MCERTS accredited laboratory. Sampling was carried out in accordance with 'Technical Policy Statement 63: UKAS Policy on Deviating Samples'.

4.0 Investigation Rationale (Cont'd): -

4.1 Contamination Related Sampling & Site Protocols (Cont'd): -

4.1.2 Onsite Health & Safety Requirements: -

All site representatives wore relevant and appropriate PPE including (where appropriate) safety footwear, high visibility jacket / vest, hard hat, eye protection and overalls. In addition, disposable latex gloves were used when handling any potentially contaminated materials and when rinsing all sampling tools. Each site vehicle contained a suitable First Aid kit with hand wash station / cleansing products (i.e., sanitary wipes).

4.1.3 Avoiding Cross-Contamination between Sample Locations: -

To avoid cross-contamination of materials between soil horizons, drill casing was used to seal off the made ground. In addition, plastic liners were used to collect samples from the windowless sampling boreholes.

With regards to the trial pits, the samples were recovered manually using dedicated disposable plastic gloves replaces between each sample recovery.

5.0 Ground Conditions

For an accurate description of the ground conditions encountered at each investigation position, reference should be made to the Trial Pit and Borehole Record Sheets attached in Appendix I. It should be noted that there is always the possibility of variation in the ground conditions around and between the exploratory hole locations.

5.1 Soil Profile: -

Hardstanding generally comprised asphalt from ground level (GL) to c.0.05m below ground level (bgl) underlain by sandy clayey gravel with gravel-sized constituents of limestone and concrete to depths between c.0.80m to c.1.00m bgl. The remainder of the site generally comprises vegetation overlying a slightly gravelly silty, sometimes clayey, sand with gravel constituents of sandstone, limestone, mudstone and gravel-sized fragments of brick, coal, concrete, glass, plastic and tile proven to depths between c.0.60 to c.1.30m bgl.

Deeper made ground was identified in TP04 as gravelly sand with moderate cobble content. Gravel constituents comprised sandstone, limestone, mudstone and gravel sized fragments of brick, coal, concrete, glass, metal and tile. Cobble constituents comprised brick and concrete, appearing to form larger sections of wall and possible relict footings from ground level to c.1.50m bgl. In addition, ash as noted within the matrix.

The underlying natural drift deposits generally comprised a combination of very sandy slightly gravelly clay with gravel constituents of sandstone, limestone, mudstone and quartz and slightly gravelly silty sand with gravel constituents of sandstone, limestone and quartz proven from between c.0.60m bgl (WS05) to c.6.45m bgl (WS07).

No suspected bedrock was encountered during the investigation.

5.0 Ground Conditions (Cont'd): -

5.2 Relic Foundations: -

Trial pits were undertaken around the footprint of the previous buildings recorded on site to determine the presence of potential relic foundations. No evidence of relic foundations / buried structures was encountered within the trial pits.

Whilst the made ground identified in TP04 comprised of suspected demolition waste, likely from the historic buildings on-site, no evidence of in-situ foundations or footings were identified.

5.3 Foundation Exposure: -

A manually excavated trial pit (HP05) was carried out in a single location on the existing sub-station to determine the foundation type and the immediate underlying strata. For an accurate description of the foundation details and ground conditions encountered, reference should be made to the drawings in Appendix I. The foundation details identified are summarised in Table 5.1 below.

Table 5.1

<u>Position</u>	<u>Description & General Comments</u>
HP05	The existing brick wall extended to a depth of c.0.20m bgl and was based on a concrete footing c.0.15m thick. The footing projected c.0.20m from the face of the wall and was noted to be based within made ground of slightly gravelly sand at a depth of c.0.35m bgl.

5.4 Groundwater & Stability: -

Groundwater was encountered in multiple locations during the investigation. In multiple instances, groundwater resulted in the collapse of trial pit faces and 'blowing sands' within the boreholes. and is summarised in Table 5.2 below.

Table 5.2

<u>Location</u>	<u>Depth (m)</u>	<u>20 Mins (m)</u>	<u>Comments</u>
WS01	2.20	1.80	Wet blowing sands encountered. *
WS02	2.50	2.10	Wet blowing sands encountered. *
WS03	3.00	3.00	Wet blowing sands encountered. *
WS05	5.50	2.20	~
TP01	2.30	~	Groundwater encountered within the natural sand strata resulting in unstable pit face collapse due to undermining from water.
TP02	2.20	~	Groundwater encountered within the natural sand strata resulting in unstable pit face collapse due to undermining from water.
TP04	0.80	~	Likely perched within granular made ground.
TP04	1.30	~	Likely perched within base of made ground unit.

* 'Blowing Sands' is the flowing of (commonly fine) fluidised sand upwards into a length of temporary casing or borehole due to pressure imbalances

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with several influences including season, rainfall, dewatering and pumping activities.

5.0 Ground Conditions (Cont'd): -

5.5 Historical Coal Mining Features & Mineral Extraction: -

The Phase 1: Desk Study Report (Ref. 25-944, Arc Environmental Ltd, Sept 2025) concluded that whilst the site lies within a 'Coal Mining Reporting Area', the site is not within an area of probable recorded or unrecorded shallow workings or an area of development high risk. Therefore, the site is not considered to be at risk of historical coal mining related activities and risks.

In addition, there are no records of any BGS recorded mineral sites within c.250m of the site.

The site does not lie within the Cheshire Brine Subsidence Compensation District, therefore there is no risk of subsidence due to brine extraction. As such, further investigation was not required.

6.0 In-situ Testing

6.1 Insitu Standard Penetration Tests: -

Standard penetration tests (SPT's) were carried out with the use of a normal split spoon sampler on the made ground and natural drift deposits noted within the boreholes to determine the relative density / strength of the materials tested. The results are shown as uncorrected 'N' values on the borehole record sheets, adjacent to the appropriate sample level. A summary of the results of the tests undertaken can be seen in Table 6.1 below.

Table 6.1

Type of Strata	Range of SPT 'N' Values	Result details
Made Ground - Granular	4 & 34	Indicates loose, medium dense and dense deposits with presence of large gravels / cobbles.
Natural Strata - Sandy gravelly Clay	8 to 22	Indicates comparative medium strength firm deposits.
Natural Strata - Silty Sand	4 to 30	Indicates very loose / loose, medium dense and dense deposits.
Natural Strata - Clayey silty gravelly Sand	6 to 16 between GL & 5.00m bgl 32 at 6.00m bgl	Indicates loose and medium dense deposits. Increasing density with depth.

6.2 Lightweight Deflectometer Testing: -

The Light Weight Deflectometer (LWD) is a portable device that measures the on-site dynamic modulus (Evd) of subgrade soils and pavements. It is suitable for cohesionless, cohesive and mixed types of soils with a maximum grain size of 63mm. It can be used on natural subgrade and subsoils, unbound base layers, granular layers, soil stabilised with lime or other additives.

The test method was originally designed to measure the dynamic modulus (Evd) of an in-situ material which indicates the material's stiffness. The test method is set out in BS1924-2:2018, 9.2 "Hydraulically bound and stabilised materials for civil engineering purposes, Part 2, Sample preparation and testing of materials during and after treatment" but is also referenced in ASTM Standard E2583- 07: 2011 "Standard test method for measuring deflections with a light weight deflectometer (LWD)."

The test zone by the LWD is 300mm in diameter and up to 600mm in depth.

6.0 In-situ Testing (Cont'd): -

6.2 Lightweight Deflectometer Testing (Cont'd): -

Numerous standards have been developed for the LWD and allow the characterisation of various materials based on Evd, including the estimation of the compaction degree of engineered fills, and bearing capacity.

The principle of this test was developed in 1981 and simulates a truck with a 10-tonne axle weight travelling on a road at 80km per hour. A steel plate of 300mm diameter is placed on the soil to be tested.

A 10kg weight drops from a height of 0.72m onto the plate. The load pulse creates a soil pressure of 100kN/m² under the plate.

The approximate duration of the load pulse is around 17ms (+/- 1.5ms) and it is created by means of engineered springs located above the plate.

An acceleration sensor is arranged on the load plate and the velocity and displacement (settlement) of the plate is calculated ranging from 0.1mm to 2mm (+/- 0.02mm).

LWD results can be used for determining dynamic soil modulus (Evd), spring stiffness (K₃₀₀), bearing capacity, degree of compaction and compaction quality control.

The LWD field results can be seen in Appendix II, the results were used to give estimates of static soil modulus (Ev1) and spring stiffness (K₃₀₀) to estimate a CBR value (%) summarised in Table 6.2 using both typical correlations and the following equations below:

Equation 1 $K_{300} = Ev1 / B * (1 - v^2)$

where B = plate width (0.3m), v = poisson's ratio (0.35 typical for crushed rock or sub-base gravel and 0.4 for clay)

Equation 2 $K_{762} = 0.44 * K_{300}$

where 0.44 is the conversion factor for smaller plate sizes

Equation 3 $CBR (\%) = 6.1 \times 10^{-8} * (K_{762})^{1.733}$

Table 6.2

Evd = Dynamic Modulus, Ev1 = Static Soil Modulus (based on a correlation with Evd)

Position	Depth (mbgl) / Strata	Δ mm	Evd MN/m ²	Ev1 MN/m ²	K ₃₀₀ kN/m ² /mm	K ₇₆₂ kN/m ² /mm	Soil Characterisation	CBR Equivalent %
HP01	0.20	0.372	60.5	61.4	233	102	Very Dense / Hard	29.5
HP01	0.50	0.537	41.9	39.8	151	66	Dense / Stiff	13.9
HP02	0.25	3.407	6.6	5.6	21	9	Very Loose / Very Soft	0.5
HP02	0.50	1.193	18.9	16.6	63	28	Loose / Soft	3.1
HP03	0.25	4.556	4.9	4.2	16	7	Very Loose / Very Soft	0.3
HP03	0.50	3.966	5.7	4.8	18	8	Very Loose / Very Soft	0.4
HP04	0.30	2.340	9.6	8.2	31	14	Very Loose / Very Soft	0.9
HP04	0.60	4.260	5.3	4.5	17	7	Very Loose / Very Soft	0.3
HP06	0.25	6.399	3.5	3.0	11	5	Very Loose / Very Soft	0.2
HP06	0.50	7.130	3.2	2.7	10	4	Very Loose / Very Soft	0.1
HP07	0.20	1.555	14.5	12.6	48	21	Loose / Vert Soft	1.9
HP07	0.50	1.180	19.1	16.8	64	28	Loose / Soft	3.1

K₃₀₀ / K₇₆₂ = Spring Stiffness / Modulus of Sub-grade Reaction (see equations 1 & 2), CBR = Californian Bearing Ratio (see equation 3)

6.0 In-situ Testing (Cont'd): -

6.2 Lightweight Deflectometer Testing (Cont'd): -

Due to CBR values consistently below 1%, additional sub-grade improvement is required by adding an increased thickness of stone sub-base and geogrid reinforcements followed by rolling until the desired CBR value is met. It would be beneficial to confirm CBR values following compaction using Plate Load Testing. Any 'soft / loose' zones identified during development should be treated in the same manner.

6.3 In-situ Gas & Water Monitoring: -

When considering the findings of the Phase 1: Desk Top Study Report, potential sources of ground gas were recorded on site and within a plausible distance of the site. Therefore, ground gas & water monitoring standpipes were installed within the boreholes (WS01, WS03 & WS07), primarily to check for the possible presence of hazardous ground gases, and to monitor any shallow water levels.

A standard 50mm diameter HDPE standpipe, with gravel and geo-wrap surround, bentonite seal, gas valve cap and security cover, was installed within each borehole to a depth of c.4.00m bgl, and ground gas and water levels were allowed to reach equilibrium, prior to the first monitoring visit.

Monitoring was undertaken using a Gas Data GFM series soil gas analyser, with integral flow meter, and a Geotechnical Instruments electronic dip meter. The response zones were designed to target any ground gas from both on and off-site sources. Based on the findings of the intrusive investigation works, in accordance with CIRIA Report C665, November 2007, Report Edition No. 04, March 2007 and BS8485:2015+A1 2019 – Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings, it is felt that an adequate risk assessment can be undertaken based on the following limiting factors below:

- The development has been considered as medium and high sensitivity i.e., residential (Tables 5.5a & 5.5b – Typical / Idealised frequency and period of monitoring, after Wilson et al, 2005).
- The risk associated with the generation potential of a source is considered as very low (assessment based on the findings of intrusive investigation works).
- Monitoring over a minimum of three month with six recorded readings (Tables 5.5a & 5.5b – Typical / idealised frequency and period of monitoring after Wilson et al, 2005).
- Negligible flow rates are recorded during the monitoring period (Table 8.5 – Modified Wilson & Card classification).
- A targeted and phased programme of gas monitoring should be completed, which obtains gas monitoring readings during varying atmospheric conditions, which covers the 'worst case' scenario for ground gas emissions to occur, particularly during rapid falls in atmospheric pressure (i.e. from c.1020mb and c.1010mb), and during low atmospheric pressure events (i.e. c.1000mb and below).

Monitoring of the weather conditions and predicated atmospheric pressures (Met Office Surface Pressure Charts) are carried out up to 72 hours in advance of proposed monitoring visits, in order that a reasonable period of data is obtained to determine atmospheric trends, and to target the 'worst case' scenario. The monitoring visits completed correlate with falling and steady atmospheric pressure trends and represent worst case conditions including falling atmospheric pressure trends, and atmospheric pressures below 1000mb.

A summary of the results for the visits undertaken, compared with the 'inert' background gas levels is presented in Table 6.3 on the next page, with the monitoring certificate attached in Appendix II.

6.0 In-situ Testing (Cont'd): -

6.3 In-situ Gas & Water Monitoring (Cont'd): -

Table 6.3

*Taken from (Sheffield)

Table 10								
Position	Date	Atmospheric Pressure (mbar)	Water (m bgl)	CH ₄ (%v/v)	LEL (%v/v)	CO ₂ (%v/v)	O ₂ (%v/v)	Flow Rate (l/hr)
Background		~	~	0	0	0	21.0	<0.1
WS01	05/11/2025	987 (Rising)*	1.02	0	0	0.1	20.2	<0.1
WS03			0.95	0	0	9.5	13.88	<0.1
WS07			1.77	0	0	4.2	11.1	<0.1
WS01	11/11/2025	1011 (Rising)*	0.93	0	0	0.1	19.9	<0.1
WS03			0.80	0	0	6.8	16.5	<0.1
WS07			1.76	0	0	3.1	15.2	<0.1
WS01	18/11/2025	1031-1032 (Rising)*	0.87	0	0	0.1	19.6	<0.1
WS03			0.60	0	0	5.6	18.7	<0.1
WS07			1.73	0	0	1.4	18.1	<0.1
Minimum 3 no. outstanding visits to be completed – results to follow as Addendum Letter Report.								

As can be seen from the results undertaken to date, detectable levels of Carbon Dioxide (CO₂) (up to 9.5%) have been recorded, with minorly depleted Oxygen (O₂) concentrations (minimum 11.1% v/v). Detectable levels of CH₄ have not been recorded. Negligible flow rates of <0.1l/hr have been recorded.

Based on the results of the monitoring undertaken, in accordance with CIRIA Report C665, a risk assessment has been completed for this site, by converting the results in Table 6.3 above to a Gas Screening Value (GSV), calculated by multiplying the typical maximum gas concentrations with the recorded maximum positive flow rates (after Wilson & Card). The GSV for CO₂ have been calculated, using the maximum recorded values, with a maximum flow rate of <0.1l/hr. The GSV can be calculated as follows:

$$\text{Carbon Dioxide GSV} = 0.095 (9.5\%) \times 0.1 = 0.0095 \text{ l/hr}$$

When considering these results, in accordance with CIRIA C665, the GSV for CO₂ would fall below the lower target concentration of 0.07l/hr and would equate to a Characteristic Situation 1 (CS1) site classification.

However, when considering the concentrations of CO₂ exceeding the action trigger level of 5%, the CIRIA 665 guidance recommends an increase in the characteristic situation by an order of 1 to consider the gas concentrations recorded (i.e., Characteristic Situation 2 Classification) resulting in gas protection measures being required.

A further 3 no. visits are outstanding and following the completion of these visits, a final assessment will be carried out and the results issued as an addendum report.

The site is not considered to be at potential risk from Radon gas.

When considering the results of the groundwater monitoring, groundwater levels of between c.0.60m and c.1.77m bgl were recorded. It would be prudent to allow for the introduction of groundwater control measures (i.e., pumping equipment), to take care of any localised ingresses of groundwater which may occur during the construction period, especially during the wetter periods of the year. Any measures need to take into account potential wash out of fines and potential damage to adjacent structures / infrastructure.

6.0 In-situ Testing (Cont'd): -

6.4 In-situ Variable Head (Falling) Permeability Tests: -

Variable head (falling) permeability tests were carried out within WS01 and WS04 to determine the coefficient of permeability (k) for the natural deposits present below the site and to assess the potential for utilising soakaways.

At the test locations the calculations were carried out in accordance with BS EN ISO 22282:2012, after Hvorslev (general approach), with the summarised results displayed in Table 6.4 below with copies of the calculation sheets attached in Appendix II.

Table 6.4

Position	Depth of Test (m)	Coefficient of Permeability (m/s)	Drainage Characteristics	Permeability Classification
WS01	1.00	3.596×10^{-8}	Poor / Practically Impervious	Very low
WS03	0.95	7.111×10^{-6}	Poor	Very low
WS07	1.68	6.053×10^{-6}	Poor	Very low

7.0 Laboratory Testing

7.1 Determination of pH & SO₄: -

Representative samples of the made ground and natural strata were tested to determine their acidic (pH) and soluble sulphate (SO₄) levels. The results are shown in Table 7.1 below and are also contained within the Chemtech Analytical Report (Ref. 25-09964-01) a copy of which can be seen in Appendix III.

Table 7.1

Position	Depth (m)	Strata	pH	SO ₄ (mg/l)	Design SO ₄ Class	ACEC Class
WS03	0.25	MG - Granular	7.1	30.1	DS-1	AC-1
WS07	0.50	MG - Granular	8.3	93.9	DS-1	AC-1
HP01	0.60	MG - Granular	8.7	<10.0	DS-1	AC-1
HP02	0.30	NG - Granular	8.2	15.7	DS-1	AC-1
WS01	1.20	NS - Clay	8.8	<10.0	DS-1	AC-1
WS01	1.70	NS - Sand	8.0	<10.0	DS-1	AC-1
WS02	1.50	NS - Sand	7.9	<10.0	DS-1	AC-1
WS03	1.25	NS - Clay	6.5	<10.0	DS-1	AC-1
WS04	0.50	MG - Granular	8.2	328	DS-1	AC-1
WS05	1.50	NS - Sand	7.9	26.2	DS-1	AC-1
WS06	2.50	NS - Sand	7.5	<10.0	DS-1	AC-1
WS07	1.50	NS - Sand	7.1	22.6	DS-1	AC-1

ACEC = Aggressive Chemical Environment for Concrete site classification, MG = Made Ground, NS = Natural Strata

From these results the pH values for the samples tested range from 6.5 to 8.8, the amount of soluble sulphate present ranges from <10.0mg/l to 328mg/l.

Therefore, in accordance with the BRE Special Digest 1:2005, the site should be given a classification of DS-1. When considering the nature of the made ground materials and natural strata tested and assuming mobile groundwater the assessment of the Chemical Environment for concrete is AC-1.

7.0 Laboratory Testing (Cont'd): -

7.2 Determination of Particle Size Distribution: -

Representative samples of the natural strata were scheduled for particle size distribution (PSD) testing. The results are summarised in Table 7.2 below, as well as both numerically and graphically in the PSL analytical report (Ref. PSL7270), which is provided in Appendix III.

Table 7.2

<u>Position</u>	<u>Depth (m)</u>	<u>Clay and Silt Fraction %</u>	<u>Sand Fraction %</u>	<u>Gravel Fraction %</u>	<u>Cobble Fraction %</u>	<u>Grading Characteristics</u>	<u>Brief Soil Description</u>
WS01	2.50	14	83	3	0	Poorly Graded	Slightly gravelly silty SAND
WS02	2.00	14	85	1	0	Poorly Graded	Slightly gravelly silty SAND
WS05	2.50	43	57	0	0	N/A	Sandy Silty CLAY
WS06	1.25	25	60	15	0	Poorly Graded	Slightly gravelly silty SAND

From the results of the grading analysis the samples tested are poorly graded with the laboratory results / descriptions corresponding with the field descriptions of these materials.

7.3 Contamination Screening / Screening Strategy: -

Representative samples of the made ground materials were passed onto Chemtech Environmental of Stanley so that soil contamination screening could be carried out to assess any potential risk to human health, controlled waters, and assist with off-site disposal.

The samples were screened using a standard generic contamination suite as detailed below (based on the CLEA SGV listed analytes with additions), which is used to assess typical made ground (disturbed natural strata mixed with anthropogenic debris) of an unknown source.

The representative samples were also tested for Speciated PAH (Polycyclic Aromatic Hydrocarbons), Speciated TPH (Total Petroleum Hydrocarbons, PBCs (Polychlorinated Biphenyls) & Asbestos. The catalogue of testing results can be found in the Chemtech Analytical Report (Ref. 25-09964-01), attached in Appendix II, and the total analysis carried out is summarised below.

- 4 no. soil samples screened for a generic (metals and non-organics) soil suite including Arsenic, Cadmium, Chromium (III & VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc, Cyanide and Total Organic Carbon (TOC)
- 4 no. soil samples screened for Speciated Polycyclic Aromatic Hydrocarbons (PAH's)
- 4 no. soil samples screened for Speciated Total Petroleum Hydrocarbons (based on a full Aliphatic / Aromatic Split & BTEX)
- 4 no. soil samples screened for Presence of asbestos
- 2 no. soil samples screened for Polychlorinated Biphenyl's (PCBs)

8.0 Ground Contamination Risk Assessment

8.1 Methodology: -

Following completion of the contamination screening undertaken on various samples from this site, Level 1 quantitative ground contamination risk assessments have been undertaken, generally in accordance with BS10175: British Standard Code of Practice for the Investigation of Potentially Contaminated Sites (2011+A2:2017) & Land Contamination Risk Management (LCRM: October 2020).

This quantitative ground contamination risk assessment uses the current UK practice for assessing the risks from land contamination, which is based on the established *source-pathway-receptor* pollutant linkage methodology and 'suitable for use' approach (Part IIA, EPA 1990 - inserted through Section 57 EA 1995).

Based on the results of the contamination screening completed for this site, the risks from potential contaminants have been assessed for Human Health and Controlled Waters. The results of the risk assessments can be found in Sections 8.2 (Human Health) and 8.3 (Controlled Waters), with a summary of the potential contamination sources, migration pathways and sensitive receptors for this site described within the revised CSM in Section 8.4.

8.2 Level 1 Risk Assessment (Human Health): -

The soil screening results from across the site have been assessed by comparing the Maximum Concentration values (C_M) recorded for each analyte to the Critical Concentration (C_C) values chosen for this site (taken as *Residential with Home Grown Produce*). The results of the testing are contained in Appendix III and are summarised in Table 8.1 below and on the following page.

The average TOC percentage across the 8 no. samples tested is 4.37%, which when converted to SOM using a conversion factor of 1.72 is 7.51%. As such it is deemed suitable to adopt Critical Concentrations for the site based on an SOM of 6.0%.

Table 8.1

Bold = Elevated concentrations

Analyte	Critical Conc. (C_C)	No. of Samples Screened	Max. Conc. (C_M) Recorded	No. of Samples $>C_C$
Metals and Non-metals				
Arsenic	37 ⁽¹⁾	4	13.4	0
Cadmium	11 ⁽¹⁾	4	<1.6	0
Chromium III	910 ⁽¹⁾	4	14.9	0
Chromium VI	6 ⁽¹⁾	4	<0.040	0
Copper	2400 ⁽¹⁾	4	29.5	0
Lead	200 ⁽²⁾	4	71.4	0
Mercury	40 ⁽¹⁾	4	0.70	0
Nickel	130 ⁽¹⁾	4	14.4	0
Selenium	250 ⁽¹⁾	4	<3.00	0
Zinc	3700 ⁽¹⁾	4	66.6	0
Cyanide	1.49 ⁽³⁾	4	<1.00	0
Asbestos	Presence	8	NAD	0

⁽¹⁾ = LQM CIEH Suitable 4 Use Levels (S4UL Nov 2014 (Revised August 2015) – Residential with Homegrown Produce – 6.0% SOM), ⁽²⁾ = C4SL Values (Residential with Homegrown Produce), ⁽³⁾ = ATRISK^{SOIL} SSV, NAD = No asbestos detected

8.0 Ground Contamination Risk Assessment (Cont'd): -

8.2 Level 1 Risk Assessment (Human Health) (Cont'd): -

Table 8.1 (Cont'd)

Bold = Elevated concentrations

<u>Analyte</u>	<u>Critical Conc. (C_c)</u>	<u>No. of Samples Screened</u>	<u>Max. Conc. (C_M) Recorded</u>	<u>No. of Samples >C_c</u>
PAH				
Acenaphthene	1100 ⁽¹⁾	4	0.109	0
Acenaphthylene	920 ⁽¹⁾	4	0.015	0
Anthracene	11000 ⁽¹⁾	4	0.159	0
Benzo(a)anthracene	13 ⁽¹⁾	4	0.732	0
Benzo(a)pyrene	3 ⁽¹⁾	4	0.645	0
Benzo(b)fluoranthene	3.7 ⁽¹⁾	4	1.03	0
Benzo(ghi)perylene	350 ⁽¹⁾	4	0.396	0
Benzo(k)fluoranthene	100 ⁽¹⁾	4	0.337	0
Chrysene	27 ⁽¹⁾	4	0.635	0
Dibenz(ah)anthracene	0.3 ⁽¹⁾	4	0.14	0
Fluoranthene	890 ⁽¹⁾	4	1.26	0
Fluorene	860 ⁽¹⁾	4	0.071	0
Indeno(123cd)pyrene	41 ⁽¹⁾	4	0.747	0
Naphthalene	13 ⁽¹⁾	4	0.091	0
Phenanthrene	440 ⁽¹⁾	4	0.846	0
Pyrene	2000 ⁽¹⁾	4	1.32	0
TPH				
VPH Aliphatic (>C5-C6)	160 ⁽¹⁾	4	<0.1	0
VPH Aliphatic (>C6-C8)	530 ⁽¹⁾	4	<0.1	0
VPH Aliphatic (>C8-C10)	150 ⁽¹⁾	4	<0.1	0
EPH Aliphatic (>C10-C12)	760 ⁽¹⁾	4	3.5	0
EPH Aliphatic (>C12-C16)	4300 ⁽¹⁾	4	1.1	0
EPH Aliphatic (>C16-35)	110000 ⁽¹⁾	4	9.4	0
EPH Aliphatic (>C35-C44)	110000 ⁽¹⁾	4	<0.5	0
VPH Aromatic (>EC5-EC7)	300 ⁽¹⁾	4	<0.01	0
VPH Aromatic (>EC7-EC8)	660 ⁽¹⁾	4	<0.01	0
VPH Aromatic (>EC8-EC10)	190 ⁽¹⁾	4	3.7	0
EPH Aromatic (>EC10-EC12)	380 ⁽¹⁾	4	9	0
EPH Aromatic (>EC12-EC16)	660 ⁽¹⁾	4	6.3	0
EPH Aromatic (>EC16-EC21)	930 ⁽¹⁾	4	23.7	0
EPH Aromatic (>EC21-EC35)	1700 ⁽¹⁾	4	4.5	0
EPH Aromatic (>EC35-EC44)	1700 ⁽¹⁾	4	61.4	0
BTEX				
Benzene	0.37 ⁽¹⁾	4	<0.001	0
Toluene	660 ⁽¹⁾	4	0.002	0
Ethylbenzene	260 ⁽¹⁾	4	<0.001	0
m & p-Xylene	310 ⁽¹⁾	4	<0.002	0
o-Xylene	330 ⁽¹⁾	4	<0.002	0
PCBs				
PCB 101	0.015 ⁽⁴⁾	4	<0.015	0
PCB 118	0.015 ⁽⁴⁾	4	<0.015	0
PCB 138	0.015 ⁽⁴⁾	4	<0.015	0
PCB 153	0.01 ⁽⁴⁾	4	<0.01	0
PCB 180	0.01 ⁽⁴⁾	4	<0.01	0
PCB 28	0.015 ⁽⁴⁾	4	<0.015	0
PCB 52	0.01 ⁽⁴⁾	4	<0.01	0

⁽¹⁾ = LQM CIEH Suitable 4 Use Levels (S4UL Nov 2014 (Revised August 2015) – Residential with Homegrown Produce – 6.0% SOM), ⁽²⁾ = C4SL Values (Residential with Homegrown Produce), ⁽³⁾ = ATRISK^{SOIL} SSV, ⁽⁴⁾ = Analytical Detection Limit

8.0 Ground Contamination Risk Assessment (Cont'd): -

8.2 Level 1 Risk Assessment (Human Health) (Cont'd): -

The results have identified the following:

- No Maximum Concentration (C_M) values for the analytes screened for exceed the Critical Concentration (C_C) values for this site.
- No asbestos fibres have been recorded during the investigation period.
- From these results, the shallow soils in the proximity of the current electric sub-station do not represent a risk with respect to the presence of PCBs.

The results of the contamination screening and analysis have confirmed that made ground below the site does not pose a possible risk to Human Health where exposure pathways are available, and therefore no remedial measures and / or further assessments are required to protect future end users.

8.3 Level 1 Risk Assessment (Controlled Waters): -

The following hydrogeological and hydrological issues have been taken into consideration when assessing the risks towards Controlled Waters:

- No raised analytes above the chosen Critical Concentrations were recorded.
- There was no 'free product' recorded during the investigation.
- The site is not situated in or within c.1km of a Source Protection Zone.
- There are 2 no. current Water Abstractions recorded within c.250m of the site boundary, both noted as 'License Status - Revoked'.
- The drift deposits (Glacial Till) are classified as Secondary Aquifer - A.
- The solid geology (PLCM) is classified as a Secondary Aquifer - A.
- There are 6 no. surface water features recorded within c.250m of the site boundary.
- The proposed development comprises the addition of several areas of hardcover therefore reducing surface infiltration.
- Published EA data shows the site is at medium risk of pluvial flooding.

From the results of these intrusive investigation works, the made ground identified does not contain any free product or mobile contamination such as waste oils, fuels, solvents, etc., that could migrate vertically or laterally from the site and impact Controlled Waters.

Consequently, the risk to Controlled Waters from on-site contamination is considered to be low. Although there are clear potential pathways and sensitive receptors, there is a low risk of on-site contamination.

8.4 Revised Conceptual Site Model (CSM): -

From the results of the intrusive investigation works and Phase 1: Desk Top Study Report, a Revised Conceptual Site Model (CSM) has been developed for this site and Table 8.2 on the next page summarises the various contamination sources, plausible migration pathways and potentially sensitive receptors identified for this site, assuming no remediation, additional protection measures and / or removal of the sources of contamination takes place.

8.0 Ground Contamination Risk Assessment (Cont'd): -

8.4 Revised Conceptual Site Model (CSM) (Cont'd): -

Table 8.2

* = Not included in the Human Health & Controlled Waters Risk Assessment.

	<i>Sources (S)</i>		<i>Pathways (P)</i>		<i>Receptors (R)</i>
S1	Made ground associated historical use including any construction / demolition debris (from historical buildings on site) and allotment waste No raised levels of analytes (including PAHs and TPHs) above Cc limits. No asbestos detected.	P1	Ingestion & Dermal Contact	R1	Human Health End users: Residential with Homegrown Produce & Residential without Homegrown Produce
		P2	Air – Inhalation of vapours (indoor & outdoors) and contact with dust generated through the construction works		
S2	Electrical Sub-Station Insulating Oils (PCBs) No raised levels of PCBs above detection limits adjacent to Electrical Sub-station.	P3	Plant Uptake and attached soil	R2	Controlled Waters: Groundwater – anticipated within the underlying bedrock (PLCM) and Glacial Till (Secondary Aquifer – A). Several surface water features within a plausible migration distance related to local tributaries and field drains.
S3	Potential hazardous ground gas associated with off-site sources (i.e. infilled land). Monitoring indicates CS-2 (Characteristic Situation) with gas protection measures required.	P4	Migration through existing service corridors	R3	Adjacent sites
		P5	Direct contact with building materials	R4*	Building materials & protection of water supply pipes
		P6	Surface runoff & Infiltration	R5*	Flora and fauna

8.4.1 Sources: -

The site is generally covered by varying thickness of made ground with anthropogenic constituents, mainly brick fragments, coal and concrete. These materials have been assessed using a standard generic soil suite, where no raised levels of analytes were encountered above Critical Concentration levels.

Due to the presence of an electrical Sub-station on-site, PCB levels were assessed to quantify contamination risks on-site. No raised levels above analytical detection limits were identified. The risk to receptors on-site from these possible sources of contamination are low.

Due to on-site and adjacent made ground, there is the potential for hazardous ground gases to migrate upwards and pose a risk to the proposed development.

8.0 Ground Contamination Risk Assessment (Cont'd): -

8.4 Revised Conceptual Site Model (CSM) (Cont'd): -

8.4.2 Pathways (Cont'd): -

When considering the proposed end use, and without considering treatment, removal or protection measures, there are some potential plausible pathways available for direct contact, dermal contact, ingestion, inhalation, wind (dust / particulate), volatilization, and vertical and lateral transportation below the site, where there is no hardcover present.

Within the CLEA Risk Assessment Model for Human Health, there are 3 exposure mediums considered for on-site receptors, comprising ingestion of soil containing contaminants, inhalation of contaminated dust / vapours and dermal contact, with up to 10 no. exposure pathways considered, as shown below.

1. Ingestion of soil and indoor dust
2. Consumption of homegrown produce and attached soil
3. Dermal contact (indoor)
4. Dermal contact (outdoor)
5. Inhalation of dust (indoor)
6. Inhalation of dust (outdoor)
7. Inhalation of vapour (indoor)
8. Inhalation of vapour (outdoor)
9. Oral background intake
10. Inhalation background intake.

Where the future site has hard cover and below new structures, a number of these pathways may not be available. In addition, when considering the potential pathways for leachate migration, where either hard cover and / or future surface water drainage systems are present, the potential effects of surface infiltration or contaminated surface water runoff will be greatly reduced. Similarly, when considering the construction work force, exposure pathways through direct contact, ingestion and dust inhalation will be available during part of the construction process, and therefore adequate PPE should be provided to protect the workforce during this period.

8.4.3 Receptors: -

Within the CLEA Risk Assessment Model for Human Health, the potential receptors are assessed initially on-site end use, followed by a delineation of age category (i.e., child or adult), with default settings for *Residential*, *Allotment* and *Public Open Space (Park)* end uses based on a child aged 0 to 6 years, *Public Open Space (Residential)* based on a child aged 3 to 9 and *Commercial* end uses based upon a working exposure period of up to 49 years (i.e., 16 to 65). Key generic assumptions for *Residential* and *Public Open Space (Residential)* are based upon a typical residential property, consisting of a two-storey small, terraced house, with private garden, and a *Commercial* end use based upon a typical commercial or light industrial property, consisting of a three-storey office building (pre-1970). No buildings are anticipated for *Allotment* or *Public Open Space (Park)* end uses. Within the CLEA Risk Assessment Model for Human Health there are 6 no. generic end use categories presently in use, as follows on the next page:

- 1) *Residential - with home grown produce*, 2) *Residential - without home grown produce*, 3) *Allotments*, 4) *Commercial*
- 5) *Public Open Space – Residential*, 6) *Public Open Space - Park*

For this Level 1 Risk Assessment when considering the sensitivity of the site the most appropriate end use category for this site has been taken as:

- 1) *Residential - with home grown produce*

With regards to Controlled Waters, the primary receptors considered for this site is the solid geology beneath the site (PLCM) which is a Secondary Aquifer - A and nearby surface water features.

9.0 Conclusions & Recommendations

9.1 Ground Conditions: -

Surface deposits across site generally comprised of either asphalt underlain by made ground of sandy clayey gravel to depths between c.0.80m to c.1.00m bgl or vegetation overlying made ground of slightly gravelly silty, sometimes clayey, sand proven to depths between c.0.60 to c.1.30m bgl. Deeper made ground was identified in TP04 comprising gravelly sand with moderate cobble content.

The underlying natural drift deposits generally comprised a combination of very sandy slightly gravelly clay and slightly gravelly silty sand proven from between c.0.60m bgl (WS05) to c.6.45m bgl (WS07).

No suspected bedrock was encountered during the investigation.

9.2 Groundwater & Stability: -

Groundwater ingress was encountered within WS01, WS02, WS03, WS05, TP01, TP02 & TP04 at depths of between 0.80m to c.5.50m. Standing levels were recorded at depths of between c.1.80m to c.3.00m following a brief monitoring period (i.e. c.20mins). These ingresses are likely to represent pockets / lenses of trapped surface infiltration rather than that of a continuous groundwater surface (i.e. water table) below the site.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

Consequently, shallow water ingress may be experienced during future construction related excavations. It is therefore recommended that allowance is made for some groundwater control measures, in order to take care of any localised ingresses of groundwater which may occur during the construction period, especially during the wetter periods of the year.

When considering the results of the groundwater monitoring to date, groundwater levels of between c.0.60m and c.1.77m bgl were recorded. It would be prudent to allow for the introduction of groundwater control measures (i.e., sump pumping equipment), to take care of any localised ingresses of groundwater which may occur during the construction period, especially during the wetter periods of the year.

When considering any groundwater control measures, these would have to ensure that any local 'draw down' of groundwater does not induce settlement to adjacent soils and potentially affect any nearby structures or infrastructure.

9.3 Waste Classification: -

The made ground material near the surface of the site which may have to be discarded as a waste to landfill, have been assessed using Technical Guidance WM3 'Guidance on the classification and assessment of Waste', in conjunction with the on-line waste classification software tool HazWasteOnline™.

Each sample has been assessed separately to determine whether all the soils can be considered as a single waste stream or whether the different sources represent separate waste streams.

9.0 Conclusions & Recommendations (Cont'd): -

9.3 Waste Classification (Cont'd): -

Based on the physical (visual and olfactory) inspection of the samples recovered from the boreholes and trial pits, representative samples have been assessed as either 17 05 03 (waste soil and stones containing hazardous substances) or 17 05 04 (waste soil and stones other than those mentioned in 17 05 03) from the WM3 List of Waste (LoW).

To determine which waste code applies to each sample, the results of the laboratory testing have been assessed using the HazWasteOnline™ software. The results are summarised in Table 9.1 below and the full Waste Classification Report can be found attached in Appendix III.

Table 9.1

<u>Position</u>	<u>Depth (m)</u>	<u>Classification</u>	<u>Waste Code</u>
WS03	0.25	Non-Hazardous	17 05 04
WS07	0.50	Non-Hazardous	17 05 04
HP01	0.60	Non-Hazardous	17 05 04
HP02	0.20	Non-Hazardous	17 05 04

The results of the assessment have identified the following:

- The materials which may need to be discarded as a waste to landfill, can be classified as Non-hazardous Waste (17 05 04).

The Non-Hazardous soils will not meet the criteria for disposal at an Inert Landfill due to TOC values above 3%. The waste classification report and results of the contamination screening should be forwarded on to the chosen landfill for their comment and assessment.

It should be noted that this Waste Classification Report is only applicable to those made ground materials which have been sampled and screened as part of the assessment (excluding any relic foundations, sub-surface structures, etc.). If materials, other than those covered by this report, are to be discarded from site as a waste to landfill or there is a significant increase in the volume of materials to be discarded, then these additional materials will also need to be assessed using Technical Guidance WM3: Guidance on the classification and assessment of Waste.

9.4 Foundation Options: -

When considering the foundation options for the proposed apartment building in the west of the site, SPT N values in the area at foundation depths varied from 4 to 30, these indicate very loose / loose and medium dense deposits. Due to the rising water strike from c.5.50m bgl to c.2.20m bgl and the nature of the granular natural strata, it would be advisable to avoid excavations below c.2.00m bgl. As such, a safe bearing capacity of 125kN/m² has been determined on 1.00m wide reinforced strips at a founding depth of 1.50m bgl within natural strata to ensure settlements remain within serviceable limits.

When considering the foundation options for the proposed houses in the east of the site, SPT N values in the area at foundation depths varied from 14 to 22, these indicate comparative medium strength and medium dense deposits. Due to multiple water strikes from c.2.20m bgl onwards rising up to c.1.80m bgl, and the nature of the granular natural strata, it would be advisable to avoid excavations below c.1.50m bgl. As such, a safe bearing capacity of 80kN/m² has been determined on wide suitably reinforced strips at a founding depth of between 1.00m and 1.20m bgl within natural strata to ensure settlements remain within serviceable limits.

9.0 Conclusions & Recommendations (Cont'd): -

9.4 Foundation Options (Cont'd): -

Wide reinforced strips are required due to the thin variable clay layer and foundations potentially being influenced by both clay and sandy founding soils. Taking foundations deeper beyond the clay layer will lead to potential groundwater control issues.

When considering the results of the pH and soluble sulphate testing, future foundations and buried concrete on the site can be constructed utilising a concrete design class of DS-1 and ACEC class of AC-1.

Due to CBR values consistently below 1%, additional sub-grade improvement is required by adding an increased thickness of stone sub-base and geogrid reinforcements followed by rolling until the desired CBR value is met. It would be beneficial to confirm CBR values after following compaction Plate Load Testing. Any 'soft / loose' zones identified during development should be treated in the same manner.

9.5 Ground Contamination Assessment: -

The results of the contamination screening and analysis have confirmed that no elevated levels of analytes have been identified above Critical Concentrations in the samples tested. As such, made below the site does not pose a possible risk to Human Health where exposure pathways are available, and therefore no remedial measures and / or further assessments are required to protect future end users.

In addition, the risk to Controlled Waters from on-site contamination is considered to be low. Although there are clear potential pathways and sensitive receptors, there is a low risk of on-site contamination.

The contamination screening should also be provided to the Main Contractor / Project Coordinator, for use in devising an adequate Site Health & Safety Plan, in accordance with current CDM Regulations. For further guidance reference should be made to the Health and Safety Executive (HSE) document EH40 / 2005 Workplace exposure limits.

9.6 Gas Protection Measures: -

Considering the concentrations of CO₂ exceeding the action trigger level of 5%, the CIRIA 665 guidance recommends an increase in the characteristic situation by an order of 1 to consider the gas concentrations recorded (i.e., Characteristic Situation 2 Classification) resulting in gas protection measures being required.

A further 3 no. visits are outstanding and following the completion of these visits, a final assessment will be carried out and the results issued as an addendum report.

The site is not considered to be at potential risk from Radon gas.

9.7 General Comments: -

Where we have sampled and tested for asbestos this is discussed in the report. Whilst we would target any asbestos sampling and testing in accordance with a Conceptual Site Model and site findings, there is always the possibility, along with other contamination, that undiscovered asbestos exists between sample locations and the possibility of unknown asbestos exists on all sites.

9.0 Conclusions & Recommendations (Cont'd): -

9.7 General Comments (Cont'd): -

For future site works, adequate lateral trench support will be required for excavations, to prevent trench wall collapse or over excavations, as well as to create a safe working environment, and any excavations on this site should remain open for as short a period as possible, since some of these materials may be susceptible to deterioration, especially during times of wet weather and frost, it would be prudent to protect all exposed soils in foundation excavations with a concrete binding layer. Excavations should be within the capacity of normal earthworks plant.

Prior to emplacing any foundation concrete, obvious soft or loose zones should be removed and replaced with a suitably recompacted hardcore or lean mix concrete. In addition, all excavations should be inspected to ensure that they fully penetrate any areas of disturbed ground.

It is also recommended for any new developments, adequate surface drainage should be designed and installed by a competent contractor, in order to prevent surface water 'ponding' or collection, during and post construction, particularly where the existing surface drainage system is disrupted or damaged.

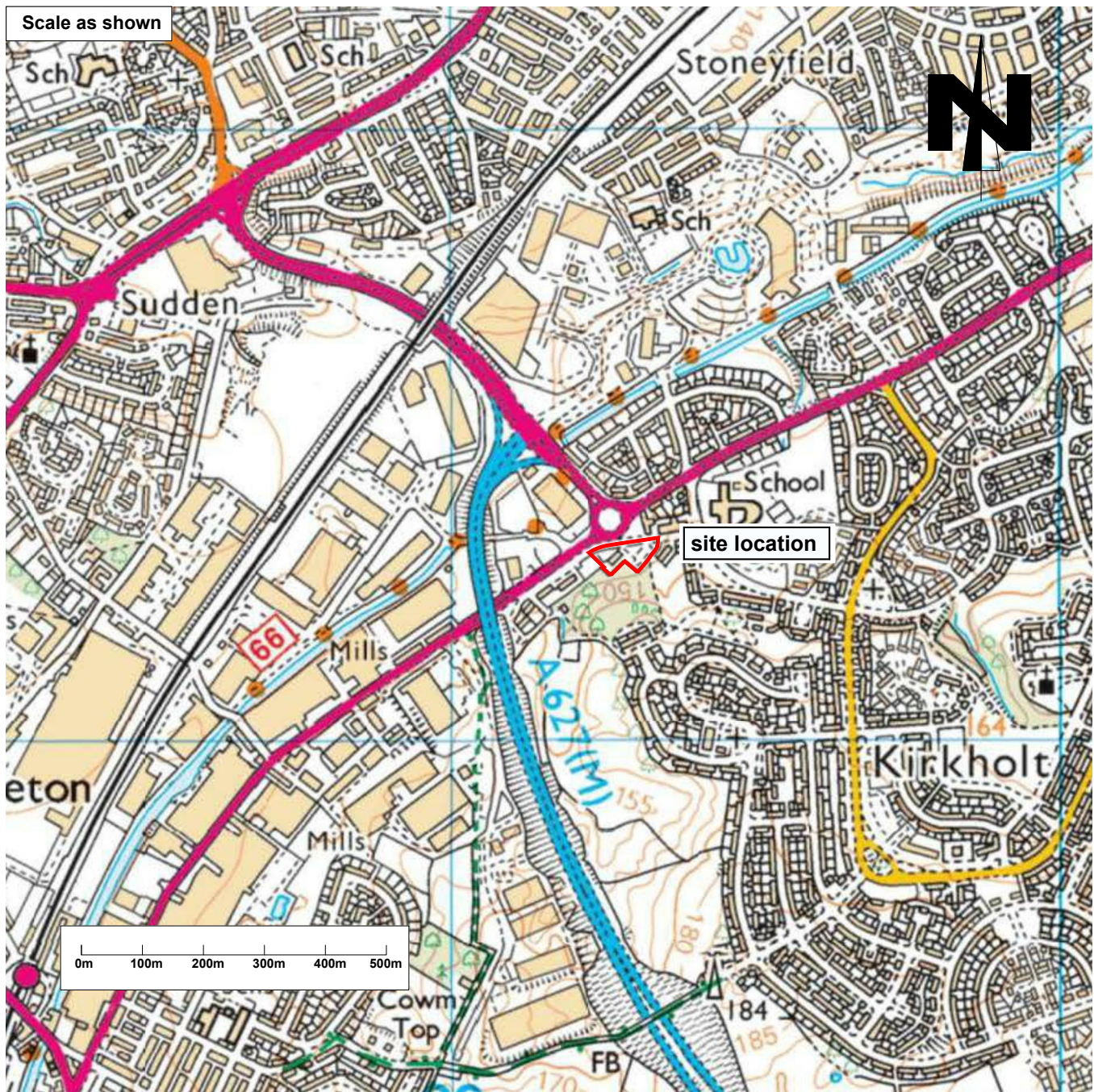
In addition, for deeper excavations, drainage, service runs or the like that may pass close to or beneath any proposed new foundations, these should be undertaken with care and completed prior to the preparation of any new foundations, so as not to allow any loose or granular material to move or 'flow', thus causing settlement to occur to any new foundations based at a higher level.

Consideration should also be given to the protection of any new service pipes for the proposed development, and a suite of contamination testing (UKWIR suite) may be required to meet the requirements of the local utilities service provider for their 'pipe selection risk assessment' (PSRA) once the location and depth of future services have been determined.

An "observational technique" can be applied to the design and construction of this site, and where ground conditions seem to vary from that indicated from the conceptual ground model derived from works to date, then advice from a suitably qualified Engineer should be sought.

END OF REPORT

APPENDIX I



Client:

ADEPT CONSULTING ENGINEERS

Project Title:

Proposed Residential Development

Queens Drive

Kirkholt, Rochdale, OL11 2NP

Drawing Title:

Location Plan

Job Reference:

28.07.25

Drawing Number:

—

Revision:

—

Drawn by:

P.D

Date:

28.07.25

Scale at A4:

As shown

Checked by:

G.W

Approved by:

G.W

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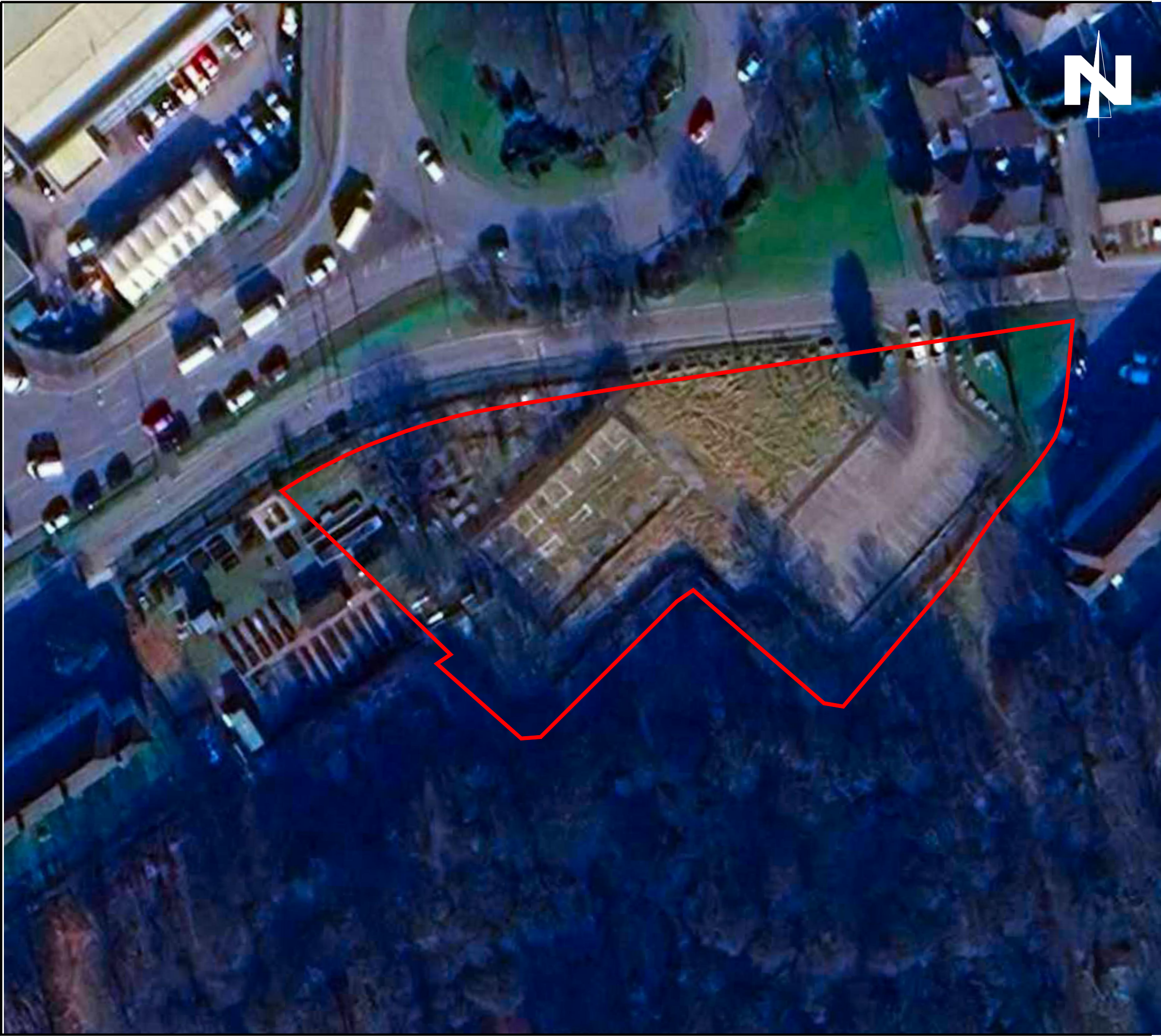
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LEGEND	
	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:
ADEPT CONSULTING ENGINEERS

Project Title:
Proposed Residential Development

Queens Drive
Kirkhale, Rochdale, OL11 2NP

Drawing Title:

Aerial Photograph

Scale at A3: NTS @ A3	Date: 28.07.25	Drawn by: P.D	Approved by: G.W
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Job Ref: 25-446	Drg no: —	Rev: —
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LEGEND	
	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

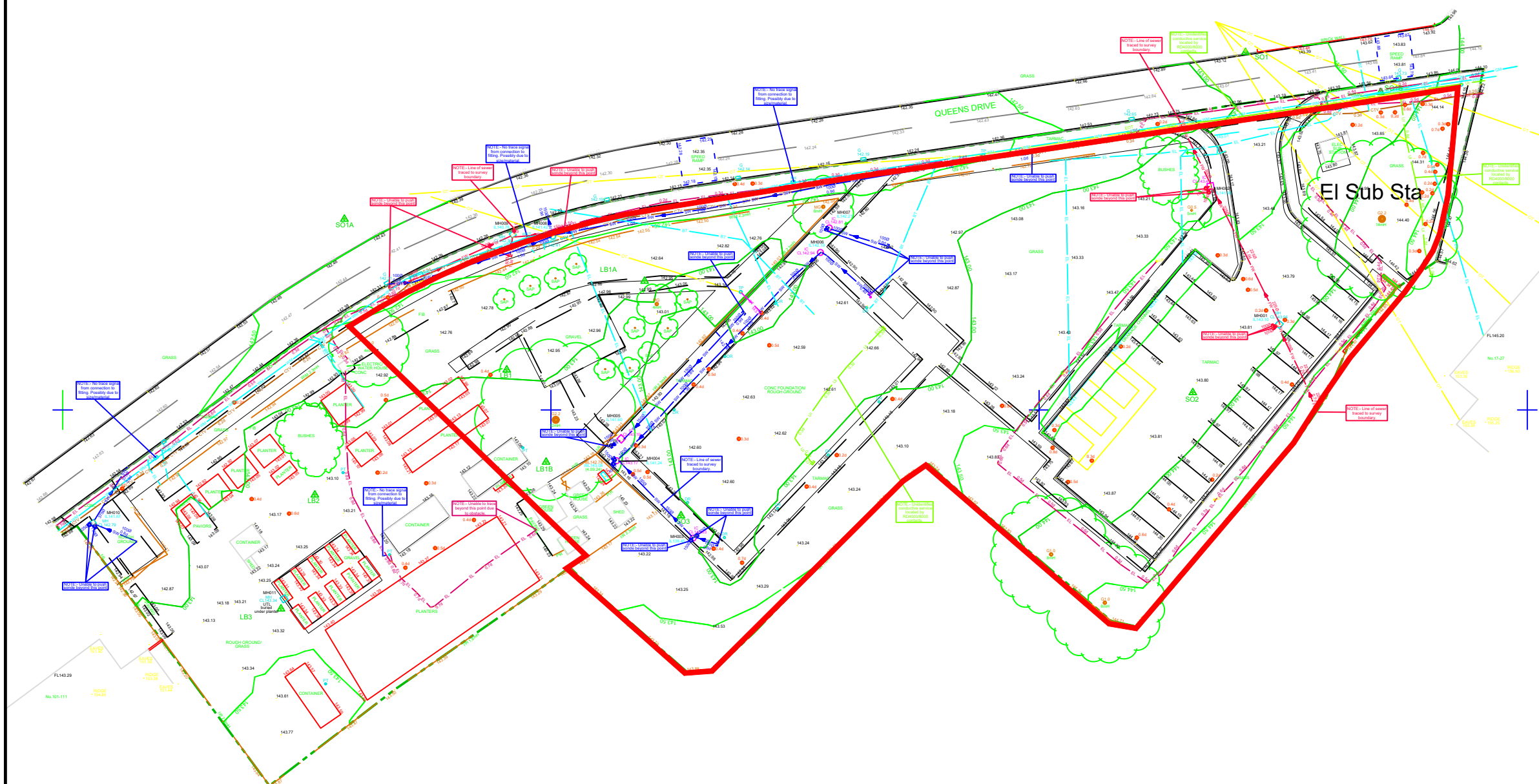
Client:
ADEPT CONSULTING ENGINEERS

Project Title:
Proposed Residential Development
Queens Drive
Kirkhale, Rochdale, OL11 2NP

Drawing Title:
Existing Site Layout Plan

Scale at A3: NTS @ A3	Date: 28.07.25	Drawn by: P.D	Approved by: G.W
--------------------------	-------------------	------------------	---------------------

Job Ref: 25-446	Drg no: —	Rev: —
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The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.
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LEGEND	
	APPROXIMATE SITE BOUNDARY

rev.	date	amendments		drawn	chckd

Client:
ADEPT CONSULTING ENGINEERS

Project Title:
Proposed Residential Development

Queens Drive
Kirkhale, Rochdale, OL11 2NP

Drawing Title:

Proposed Development Layout Plan

Scale at A3: NTS @ A3	Date: 28.07.25	Drawn by: P.D	Approved by: G.W
--------------------------	-------------------	------------------	---------------------

Job Ref: 25-446	Drg no: -	Rev: -
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The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.

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LEGEND

	APPROXIMATE SITE BOUNDARY
	WINDOWLESS SAMPLING BOREHOLE POSITION
	MANUALLY EXCAVATED TRIAL PIT POSITION
	MECHANICALLY EXCAVATED TRIAL PIT TO TARGET RELIC FOUNDATIONS

rev.	date	amendments	drawn	checked

Client:

ADEPT CONSULTING ENGINEERS

Project Title:

Proposed Residential Development

Queens Drive

Kirkhalt, Rochdale, OL11 2NP

Drawing Title:

Exploratory Hole Location Plan

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	10.10.25	P.D	S.D

Job Ref:	Drg no:	Rev:
25-446	—	—



Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample	AMAL - Amalgamated sample	B - Bulk disturbed sample
BLK - Block sample	C - Core sample	CBR - CBR test sample
D - Disturbed sample	ES - Environmental sample	EW - Environmental water sample
G - Gas sample	J - Jar sample	L - Liner sample
TW - Pushed thin wall sample	U - Undisturbed sample	UT - Undisturbed thin wall sample
W - Water sample		

IN-SITU TESTS

HV - Hand shear vane	HV(r) - Hand shear vane residual	PID - Photo ionisation detector
PP - Hand penetrometer	SPT - Standard penetration test	SPT(C) - SPT using cone

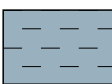
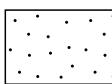
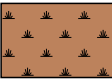
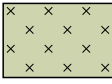
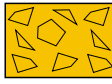
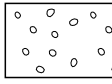
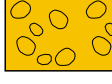
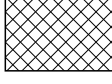
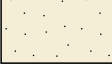
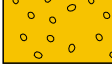
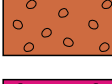
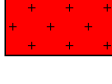
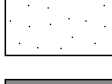
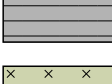
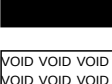
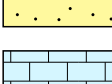
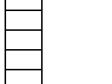
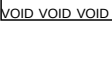
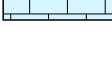
GROUNDWATER

 Groundwater strike	 Groundwater rest level
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ROTARY CORE DETAILS

TCR - Total core recovery (%)	SCR - Solid core recovery (%)	RQD - Rock quality designation (%)
FI - Fracture index	NI - Non-intact core	AZCL - Assumed zone of core loss

LEGEND

 Topsoil	 Clay	 Chalk	 Sand backfill
 Peat	 Silt	 Breccia	 Gravel backfill
 Made ground [cohesive]	 Sand	 Conglomerate	 Arisings
 Concrete	 Gravel	 Metamorphic	 Bentonite
 Wood	 Cobbles	 Igneous	 Concrete
 Brick	 Boulders		 Grout
 Bituminous material	 Mudstone		 Plain pipe
 Gypsum	 Siltstone		
 Coal	 Sandstone		 Slotted pipe
 Void	 Limestone		



Trial Pit

TP01
SUPPLEMENTARY INFO

Hole Type TP	Easting 389325.00	Northing 411318.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
----------------------	------------------	--------------------------------

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.30				Groundwater encountered within SAND resulting in pit wall collapse.

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.00 - 0.05 - B	B		
0.10 - 0.20 - B	B		
1.10 - 1.20 - B	B		
2.10 - 2.20 - B	B		

Remarks TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered. TP terminated due to instability.	Method, Plant, Stability, Dimensions 0.00 - 2.50m TP JCB 3CX Unstable L = 2.50m W = 0.60m	Logger SD
--	--	--------------

Checked By: S.D Approved By: J.D Status: FINAL



Trial Pit

TP01
PHOTO PAGE

Hole Type TP	Easting 389325.00	Northing 411318.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446		Start Date 2025-10-03	End Date 2025-10-03

Client
ADEPT CSCE

Consultant
SD

Contractor
Taylors Drilling



Remarks

TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.
TP terminated due to instability.

Method, Plant, Stability, Dimensions

0.00 - 2.50m TP JCB 3CX
Unstable

L = 2.50m



W = 0.60m

Logger

SD

Checked By: S.D Approved By: J.D Status: FINAL



Trial Pit

TP02

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP	389319.00	411307.00	150.00	1:25
Project Name	Project No.	Start Date	End Date	
Queens Road, Rochdale	25-446	2025-10-03	2025-10-03	

Client	Consultant	Contractor
ADEPT CSCE	SD	Taylors Drilling

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.20				Groundwater encountered within SAND resulting in pit wall collapse.

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.10 - 0.20 - B	B		
1.10 - 1.20 - B	B		
2.10 - 2.20 - B	B		

Remarks	Method, Plant, Stability, Dimensions	Logger
TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered. TP terminated due to instability.	0.00 - 2.50m TP JCB 3CX Unstable L = 2.20m W = 0.60m	SD

Checked By: S.D Approved By: J.D Status: FINAL



Trial Pit

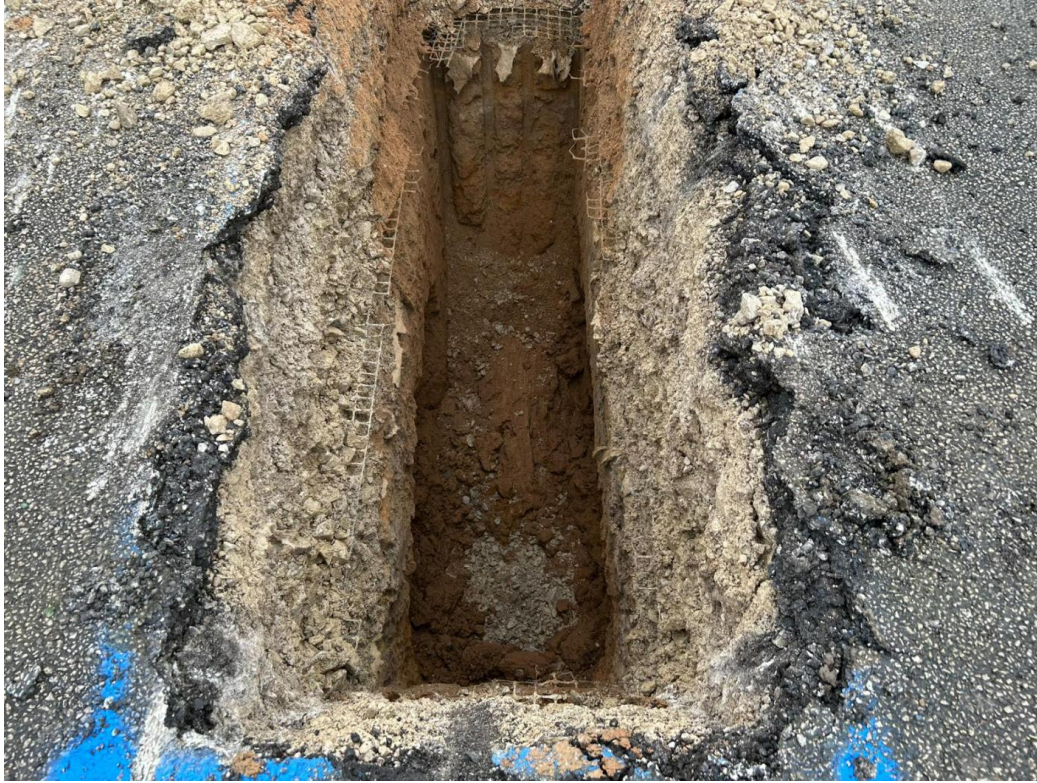
TP02
PHOTO PAGE

Hole Type TP	Easting 389319.00	Northing 411307.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446		Start Date 2025-10-03	End Date 2025-10-03

Client
ADEPT CSCE

Consultant
SD

Contractor
Taylors Drilling



Remarks

TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.
TP terminated due to instability.

Method, Plant, Stability, Dimensions

0.00 - 2.50m TP JCB 3CX
Unstable

L = 2.20m



W = 0.60m

Logger

SD

Checked By: S.D Approved By: J.D Status: FINAL

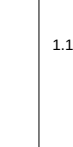


TP03

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP	389309.00	411295.00	150.00	1:25
Project Name		Project No.	Start Date	End Date
Queens Road, Rochdale		25-446	2025-10-03	2025-10-03

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
-----------------------------	-------------------------	---------------------------------------

Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth (thickness)	Strata	
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description
		0.10-0.20	B		149.95	(0.05) 0.05		MADE GROUND - Bitumous Macadam [MACADAM, MADE GROUND]
						(0.95)		MADE GROUND - Light brown to orange sandy clayey Gravel FILL. Sand is fine to cocarse grained. Gravel is fine to coarse grained, angled to sub-angled of limestone and concrete. [ENGINEERED FILL, MADE GROUND]
	1.10-1.20	B		149.00	1.00			Geotextile Mebrane noted at base of FILL. (0.99 - 1.00m)
					(0.50)			Soft light brown very sandy slightly gravelly CLAY. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-rounded of sandstone, limestone, mudstone and quartz. [CLAY, HUMMOCKY GLACIAL DEPOSITS]
		2.10-2.20	B		148.50	1.50		Orange to red slightly gravelly clayey silty SAND. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-rounded to rounded of sandstone, limestone and quartz. [SAND, HUMMOCKY GLACIAL DEPOSITS]
		3.10-3.20	B			(1.80)		
					146.70	3.30		End of Trial Pit at 3.30m

Remarks

TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.

Method, Plant, Stability, Dimensions

0.00 - 3.30m TP JCB 3CX
Stable

 $L = 2.50m$

$$W = 0.60 \text{ m}$$

Logger

SD

Checked By: S.D Approved By: J.D Status: FINAL



Trial Pit

TP03

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP	389309.00	411295.00	150.00	1:25
Project Name	Project No.	Start Date	End Date	
Queens Road, Rochdale	25-446	2025-10-03	2025-10-03	

Client	Consultant	Contractor
ADEPT CSCE	SD	Taylors Drilling

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.10 - 0.20 - B	B		
1.10 - 1.20 - B	B		
2.10 - 2.20 - B	B		
3.10 - 3.20 - B	B		

Remarks	Method, Plant, Stability, Dimensions	Logger
TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.	0.00 - 3.30m TP JCB 3CX Stable L = 2.50m W = 0.60m	SD
Checked By: S.D Approved By: J.D Status: FINAL		



Trial Pit

TP03
PHOTO PAGE

Hole Type TP	Easting 389309.00	Northing 411295.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446		Start Date 2025-10-03	End Date 2025-10-03

Client
ADEPT CSCE

Consultant
SD

Contractor
Taylors Drilling



Remarks

TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.

Method, Plant, Stability, Dimensions

0.00 - 3.30m TP JCB 3CX
Stable

L = 2.50m



W = 0.60m

Logger

SD

Checked By: S.D Approved By: J.D Status: FINAL



Trial Pit

TP04

Sheet 1 of 1

Hole Type TP	Easting 389272.00	Northing 411300.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
----------------------	------------------	--------------------------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
						(1.50)		MADE GROUND - Dark brown to black gravelly Sand with moderate cobble content. Sand is fine to coarse grained with ash. Gravel is fine to coarse grained, angled to sub-angled of sandstone, limestone, mudstone, brick fragments, coal, concrete, glass, metal, and tile. Cobbles are angled to sub-angled of brick and concrete, [MADE GROUND, MADE GROUND]
					148.50	1.50		Soft light brown very sandy slightly gravelly CLAY. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-rounded of sandstone, limestone, mudstone and quartz. [CLAY, HUMMOCKY GLACIAL DEPOSITS]
					147.50	2.50		Orange to red slightly gravelly clayey silty SAND. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-rounded to rounded of sandstone, limestone and quartz. [SAND, HUMMOCKY GLACIAL DEPOSITS]
					147.20	2.80		End of Trial Pit at 2.80m

Remarks TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.	Method, Plant, Stability, Dimensions 0.00 - 2.80m Stable L = 3.50m W = 1.00m	Logger SD
Checked By: S.D Approved By: J.D Status: FINAL		



Trial Pit

TP04

SUPPLEMENTARY INFO

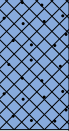
Hole Type TP	Easting 389272.00	Northing 411300.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
----------------------	------------------	--------------------------------

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
0.80				Groundwater noted from more granular zone of made ground within pit wall.
1.30				Groundwater noted from all faced of the pit.

Remarks TP Located to investigate possible presence of histoirc foundations. No suspected foundations encountered.	Method, Plant, Stability, Dimensions 0.00 - 2.80m TP JCB 3CX Stable L = 3.50m W = 1.00m	Logger SD
Checked By: S.D Approved By: J.D Status: FINAL		

		Hand Pit				HP01			
				Sheet 1 of 1					
		Hole Type HP	Easting 389322.00	Northing 411302.00	Ground Level (m) 150.00	Scale 1:25			
Project Name Queens Road, Rochdale		Project No. 25-446		Start Date 2025-10-02		End Date 2025-10-02			
Client ADEPT CSCE				Consultant SD		Contractor Taylors Drilling			
Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	B 1		149.90	(0.10) 0.10		MADE GROUND - Bitumous Macadam [MACADAM, MADE GROUND]	0.5
		0.60	B 2		149.40	(0.50) 0.60		MADE GROUND - Light brown to orange sandy clayey Gravel FILL. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-angled of limestone and concrete. [ENGINEERED FILL, MADE GROUND]	
								End of Trial Pit at 0.60m	
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
Remarks WATER OBSERVATIONS: Hand pit remained dry.							Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated		Logger SH
Checked By: S.D Approved By: J.D Status: FINAL									



Hand Pit

HP01

SUPPLEMENTARY INFO

Hole Type HP	Easting 389322.00	Northing 411302.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
----------------------	------------------	--------------------------------

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.3	B		
0.6	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Hand Pit

HP02
Sheet 1 of 1

Hole Type HP	Easting 389307.00	Northing 411321.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
----------------------	------------------	--------------------------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	B 1			(0.60)		Grass overlying dark brown slightly gravelly silty Sand with low cobble content. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-angled of sandstone, limestone, brick fragments and coal. Cobbles are angled of brick. [MADE GROUND, MADE GROUND]	0.5
		0.60	B 2		149.40	0.60		End of Trial Pit at 0.60m	
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Hand Pit

HP02

SUPPLEMENTARY INFO

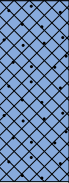
Hole Type HP	Easting 389307.00	Northing 411321.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.30	B		
0.60	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
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		Hand Pit				HP03			
				Sheet 1 of 1					
		Hole Type HP	Easting 389291.00	Northing 411320.00	Ground Level (m) 150.00	Scale 1:25			
Project Name Queens Road, Rochdale		Project No. 25-446		Start Date 2025-10-02		End Date 2025-10-02			
Client ADEPT CSCE				Consultant SD		Contractor Taylors Drilling			
Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	B 1			(0.60)		Grass overlying dark brown slightly gravelly silty Sand with low cobble content. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-angled of sandstone, limestone, brick fragments and coal. Cobbles are angled of brick. [MADE GROUND, MADE GROUND]	0.5
	0.60	B 2		149.40	0.60				End of Trial Pit at 0.60m
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
Remarks WATER OBSERVATIONS: Hand pit remained dry.							Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated		Logger SH
Checked By: S.D Approved By: J.D Status: FINAL									



Hand Pit

HP03
SUPPLEMENTARY INFO

Hole Type HP	Easting 389291.00	Northing 411320.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.30	B		
0.60	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
---	--	--------------



Hand Pit

HP04

SUPPLEMENTARY INFO

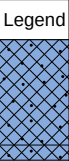
Hole Type HP	Easting 389300.00	Northing 411312.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.40	B		
0.70	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.70m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		

		Hand Pit				HP05 Sheet 1 of 1			
		Hole Type HP	Easting 389331.00	Northing 411328.00	Ground Level (m) 150.00	Scale 1:25			
		Project Name Queens Road, Rochdale	Project No. 25-446		Start Date 2025-10-02	End Date 2025-10-02			
Client ADEPT CSCE		Consultant SD		Contractor Taylors Drilling					
Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth (thickness)	Strata		
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description	
		0.30	B 1		149.65 149.60	(0.35) 0.35 (0.05) 0.40		Grass overlying dark brown slightly gravelly silty Sand with low cobble content. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-angled of sandstone, limestone, brick fragments and coal. Cobbles are angled of brick. [MADE GROUND, MADE GROUND]	
								MADE GROUND - Orange to brown slightly gravelly Sand. Sand is fine to medium grained. Gravel is fine to medium grained, angled to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	0.5
								End of Trial Pit at 0.40m	
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
Remarks WATER OBSERVATIONS: Hand pit remained dry. Foundation Exposure completed on Electrical Sub-station.							Method, Plant, Stability, Dimensions 0.00 - 0.40m HP Manually Excavated		Logger SH
Checked By: S.D Approved By: J.D Status: FINAL									



Hand Pit

HP05

SUPPLEMENTARY INFO

Hole Type HP	Easting 389331.00	Northing 411328.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.30	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry. Foundation Exposure completed on Electrical Sub-station.	Method, Plant, Stability, Dimensions 0.00 - 0.40m HP Manually Excavated	Logger SH
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Checked By: S.D Approved By: J.D Status: FINAL



Hand Pit

HP05

PHOTO PAGE

Hole Type HP	Easting 389331.00	Northing 411328.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446		Start Date 2025-10-02	End Date 2025-10-02

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Remarks WATER OBSERVATIONS: Hand pit remained dry. Foundation Exposure completed on Electrical Sub-station.	Method, Plant, Stability, Dimensions 0.00 - 0.40m HP Manually Excavated	Logger SH
	Checked By: S.D Approved By: J.D Status: FINAL	



Hand Pit

HP06

SUPPLEMENTARY INFO

Hole Type HP	Easting 389334.00	Northing 411331.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.30	B		
0.60	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Hand Pit

HP07
Sheet 1 of 1

Hole Type HP	Easting 389245.00	Northing 411309.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	B 1		149.55	(0.45)		Grass overlying dark brown slightly gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	
		0.60	B 2			0.45		End of Trial Pit at 0.45m	0.5
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Hand Pit

HP07

SUPPLEMENTARY INFO

Hole Type HP	Easting 389245.00	Northing 411309.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.30	B		
0.60	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.60m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Hand Pit

HP08
Sheet 1 of 1

Hole Type HP	Easting 389251.00	Northing 411300.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	B 1		149.60	(0.40)		Grass overlying dark brown slightly gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	
						0.40		----- End of Trial Pit at 0.40m	0.5
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.40m HP Manually Excavated	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Hand Pit

HP08

SUPPLEMENTARY INFO

Hole Type HP	Easting 389251.00	Northing 411300.00	Ground Level (m) 150.00	Scale 1:25
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.30	B		

Remarks WATER OBSERVATIONS: Hand pit remained dry.	Method, Plant, Stability, Dimensions 0.00 - 0.40m HP Manually Excavated	Logger SH
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Borehole Log

WS01

SUPPLEMENTARY INFO

Hole Type BH	Easting 389316.00	Northing 411314.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.20				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.20	1.80	20	

SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=17 (2,2/3,4,5,5)
2.00 (C)					N=15 (2,3/3,4,4,4)
3.00 (C)					N=15 (3,3/4,3,4,4)
4.00 (C)					N=6 (1,1/3,1,1,1)
5.00 (C)					N=11 (2,3/3,2,3,3)
6.00 (C)					N=32 (6,5/8,8,8,8)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0	B		
0.2	B		
0.6	B		
0.8	B		
1.2	B		
1.7	B		
2.5	B		
3.5	B		
4.5	B		
5.5	B		

Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.2.20m bgl, water standing at c.1.80m bgl on completion.	Method, Plant, Stability, Dimensions 0.00 - 6.45m BH Tracked Windowless Sampling Rig	Logger SD
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Checked By: S.D Approved By: J.D Status: FINAL



Borehole Log

WS02
Sheet 1 of 1

Hole Type BH	Easting 389309.00	Northing 411305.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		0.20	B 1		149.95	(0.05) 0.05		MADE GROUND - Bitumous Macadam [MACADAM, MADE GROUND]
		0.60	B 1			(0.85)		MADE GROUND - Light brown to orange sandy clayey Gravel FILL. Sand is fine to cocarse grained. Gravel is fine to coarse grained, angled to sub-angled of limestone and concrete. [ENGINEERED FILL, MADE GROUND]
		1.00	SPT(C) B 1	N=22 (4,4/5,6,5,6)	149.10	0.90		Geotextile Mebrane noted at base of FILL. (0.89 - 0.90m)
		1.50	B 1		148.50	1.50		Firm light brown sandy slightly gravelly CLAY. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-rounded of sandstone, limestone, mudstone and quartz. [CLAY, HUMMOCKY GLACIAL DEPOSITS]
		2.00	SPT(C) B 1	N=15 (3,3/4,3,4,4)				Dense orange to red slightly gravelly clayey silty SAND. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-rounded to rounded of sandstone, limestone and quartz. [SAND, HUMMOCKY GLACIAL DEPOSITS]
		3.00	SPT(C) B 1	N=14 (3,3/4,3,3,4)		(3.95)		
		4.00	SPT(C) B 1	N=16 (2,3/4,3,4,5)				
		5.00	SPT(C)	N=12 (2,3/3,3,3,3)				
					144.55	5.45		End of Borehole at 5.45m
		6.00	SPT(C)	N=14 (3,4/3,4,4,3)				

Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.2.50m bgl, water standing at c.2.10m bgl on completion.	Method, Plant, Stability, Dimensions 0.00 - 5.45m BH Tracked Windowless Sampling Rig	Logger SD
Checked By: S.D Approved By: J.D Status: FINAL		



Borehole Log

WS02

SUPPLEMENTARY INFO

Hole Type BH	Easting 389309.00	Northing 411305.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.50				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.50	2.10	20	

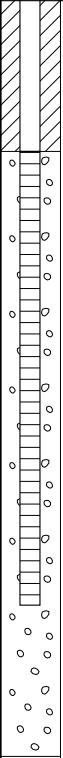
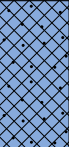
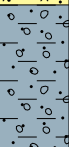
SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=22 (4,4/5,6,5,6)
2.00 (C)					N=15 (3,3/4,3,4,4)
3.00 (C)					N=14 (3,3/4,3,3,4)
4.00 (C)					N=16 (2,3/4,3,4,5)
5.00 (C)					N=12 (2,3/3,3,3,3)
6.00 (C)					N=14 (3,4/3,4,4,3)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.2	B		
0.6	B		
1	B		
1.5	B		
2	B		
3	B		
4	B		

Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.2.50m bgl, water standing at c.2.10m bgl on completion.	Method, Plant, Stability, Dimensions 0.00 - 5.45m BH Tracked Windowless Sampling Rig	Logger SD
Checked By: S.D Approved By: J.D Status: FINAL		

		Borehole Log				WS03			
						Sheet 1 of 1			
		Hole Type BH	Easting 389292.00	Northing 411301.00	Ground Level (m) 150.00	Scale 1:50			
Project Name Queens Road, Rochdale		Project No. 25-446		Start Date 2025-10-02		End Date 2025-10-02			
Client ADEPT CSCE		Consultant SD		Contractor Taylors Drilling					
Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth	Strata		
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description	
		0.25	B 1			(1.00)		Grass overlying dark brown slightly gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	0.5
		1.00	SPT(C)	N=4 (1,1/1,1,1,1)	149.00	1.00		Firm light brown sandy slightly gravelly CLAY. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-rounded of sandstone, limestone, mudstone and quartz. [CLAY, HUMMOCKY GLACIAL DEPOSITS]	1.0
		1.25	B 2			(0.50)			
		1.75	B 3			(0.40)		Orange to red slightly gravelly clayey silty SAND. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-rounded to rounded of sandstone, limestone and quartz. [SAND, HUMMOCKY GLACIAL DEPOSITS]	2.0
		2.00	SPT(C)	N=14 (3,3/3,3,4,4)	148.10	1.90			
		2.50	B 4			(1.10)		Medium Dense orange to brown silty SAND. Sand is fine to coarse grained. [SAND, HUMMOCKY GLACIAL DEPOSITS]	3.0
		3.00	SPT(C)	N=8 (2,2/2,2,2,2)	147.00	3.00		Firm brown sandy slightly gravelly CLAY. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angled to sub-rounded of sandstone, limestone, and mudstone. [CLAY, HUMMOCKY GLACIAL DEPOSITS]	3.5
		3.50	B 5						
		4.00	SPT(C)	N=14 (2,2/3,4,3,4)		(2.45)			4.5
		4.50	B 6						5.0
	5.00	SPT(C)	N=19 (3,3/4,5,5,5)					5.5	
	5.50	B 7		144.55	5.45	End of Borehole at 5.45m			6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0
Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.3.00m bgl.							Method, Plant, Stability, Dimensions 0.00 - 5.45m BH Tracked Windowless Sampling Rig		Logger SH
Checked By: S.D Approved By: J.D Status: FINAL									



Borehole Log

WS03

SUPPLEMENTARY INFO

Hole Type BH	Easting 389292.00	Northing 411301.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-02	End Date 2025-10-02	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00		20	

SPT - Details

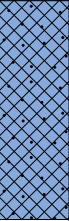
Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=4 (1,1/1,1,1,1)
2.00 (C)					N=14 (3,3/3,3,4,4)
3.00 (C)					N=8 (2,2/2,2,2,2)
4.00 (C)					N=14 (2,2/3,4,3,4)
5.00 (C)					N=19 (3,3/4,5,5,5)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.25	B		
1.25	B		
1.75	B		
2.5	B		
3.5	B		
4.5	B		
5.5	B		

Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.3.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 5.45m BH Tracked Windowless Sampling Rig	Logger SH
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Checked By: S.D Approved By: J.D Status: FINAL

		Borehole Log				WS04			
				Sheet 1 of 1					
		Hole Type BH	Easting 389276.00	Northing 411308.00	Ground Level (m) 150.00	Scale 1:50			
Project Name Queens Road, Rochdale		Project No. 25-446		Start Date 2025-10-03		End Date 2025-10-03			
Client ADEPT CSCE				Consultant SD		Contractor Taylors Drilling			
Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.50	B 1					MADE GROUND - Dark brown to black gravelly Sand with moderate cobble content. Sand is fine to coarse grained with ash. Gravel is fine to coarse grained, angled to sub-angled of sandstone, limestone, mudstone, brick fragments, coal, concrete, glass, metal, and tile. Cobbles are angled to sub-angled of brick and concrete, [MADE GROUND, MADE GROUND]	0.5
	1.00	SPT(C)	N=34 (6,2/9,8,8,9)		(1.45)	1.0			
					148.55	1.45		End of Borehole at 1.45m	1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0
Remarks WATER OBSERVATIONS: Borehole remained dry. Borehole terminated due to steep angle of sampler and rods after SPT @ 1.00m bgl.							Method, Plant, Stability, Dimensions 0.00 - 1.00m BH Tracked Windowless Sampling Rig		Logger SH
Checked By: S.D Approved By: J.D Status: FINAL									



Borehole Log

WS04

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH	389276.00	411308.00	150.00	1:50
Project Name	Project No.	Start Date	End Date	
Queens Road, Rochdale	25-446	2025-10-03	2025-10-03	

Client	Consultant	Contractor
ADEPT CSCE	SD	Taylors Drilling

SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=34 (6,2/9,8,8,9)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.50	B		

Remarks	Method, Plant, Stability, Dimensions	Logger
WATER OBSERVATIONS: Borehole remained dry. Borehole terminated due to steep angle of sampler and rods after SPT @ 1.00m bgl.	0.00 - 1.00m BH Tracked Windowless Sampling Rig	SH

Checked By: S.D Approved By: J.D Status: FINAL

		Borehole Log			WS05 Sheet 1 of 1											
		Hole Type BH	Easting 389255.00	Northing 411302.00	Ground Level (m) 150.00	Scale 1:50										
		Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03											
Client ADEPT CSCE		Consultant SD		Contractor Taylors Drilling												
Inst/ Backfill	Water Levels	Samples and Tests		Level	Depth (thickness)	Strata										
		Depth (m)	Type/Ref	Results	(m)	(m)	Legend		Description							
		0.50	B 1		149.80	(0.20)		Grass overlying dark brown slightly gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	0.5							
					149.40	0.60										
		1.00	SPT(C)	N=4 (1,1/1,1,1,1)				MADE GROUND - Brown gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, angled to sub-angled of sandstone, limestone, brick fragments, concrete and plastic. [MADE GROUND, MADE GROUND]	1.0							
		1.50	B 2		147.50	(1.90)		Loose orange to brown, occasionally black, slightly silty SAND. Sand is fine to medium grained. [SAND, HUMMOCKY GLACIAL DEPOSITS]	1.5							
		2.00	SPT(C)						N=10 (2,3/2,3,2,3)	2.0						
		2.50	B 3		147.50	2.50		Light brown sandy silty CLAY. Sand is fine to medium grained. [CLAY, HUMMOCKY GLACIAL DEPOSITS]	2.5							
		3.00	SPT(C)	N=4 (1,2/1,1,1,1)	147.00	3.00		Medium dense orange to brown slightly silty SAND. Sand is fine to coarse grained. [SAND, HUMMOCKY GLACIAL DEPOSITS]	3.0							
		3.50	B 4			(3.45)			3.5							
		4.00	SPT(C)						N=21 (3,4/4,5,6,6)	4.0						
		4.50	B 5						4.5							
		5.00	SPT(C)	N=17 (3,2/3,4,5,5)					5.0							
		5.50	B 6						5.5							
6.00	SPT(C)	N=20 (2,3/4,6,5,5)	6.0													
				143.55	6.45	End of Borehole at 6.45m			6.5							
							7.0									
							7.5									
							8.0									
							8.5									
							9.0									
							9.5									
							10.0									
							Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.5.50m bgl, water standing at c.2.20m bgl on completion.							Method, Plant, Stability, Dimensions 0.00 - 6.45m BH Tracked Windowless Sampling Rig		Logger SH
							Checked By: S.D Approved By: J.D Status: FINAL									



Borehole Log

WS05

SUPPLEMENTARY INFO

Hole Type BH	Easting 389255.00	Northing 411302.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
5.50				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
5.50	2.20	20	

SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=4 (1,1/1,1,1,1)
2.00 (C)					N=10 (2,3/2,3,2,3)
3.00 (C)					N=4 (1,2/1,1,1,1)
4.00 (C)					N=21 (3,4/4,5,6,6)
5.00 (C)					N=17 (3,2/3,4,5,5)
6.00 (C)					N=20 (2,3/4,6,5,5)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.5	B		
1.5	B		
2.5	B		
3.5	B		
4.5	B		
5.5	B		

Remarks WATER OBSERVATIONS: Groundwater strike encountered at c.5.50m bgl, water standing at c.2.20m bgl on completion.	Method, Plant, Stability, Dimensions 0.00 - 6.45m BH Tracked Windowless Sampling Rig	Logger SH
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Checked By: S.D Approved By: J.D Status: FINAL



Borehole Log

WS06
Sheet 1 of 1

Hole Type BH	Easting 389264.00	Northing 411316.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.50	B 1			(1.00)		Grass overlying dark brown slightly gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	0.5
		1.00	SPT(C)	N=4 (1,1/1,1,1,1)	149.00	1.00		Loose to medium dense orange to brown slightly silty SAND. Sand is fine to coarse grained. [SAND, HUMMOCKY GLACIAL DEPOSITS]	1.0
		1.25	B 2						1.5
		2.00	SPT(C)	N=30 (2,3/6,8,8,8)					2.0
		2.50	B 3			(3.45)			2.5
		3.00	SPT(C)	N=17 (3,3/4,4,5,4)					3.0
		3.50	B 4						3.5
		4.00	SPT(C)	N=24 (3,6/6,6,5,7)					4.0
					145.55	4.45		End of Borehole at 4.45m	4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks WATER OBSERVATIONS: Borehole remained dry.	Method, Plant, Stability, Dimensions 0.00 - 4.45m BH Tracked Windowless Sampling Rig	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		



Borehole Log

WS06

SUPPLEMENTARY INFO

Hole Type BH	Easting 389264.00	Northing 411316.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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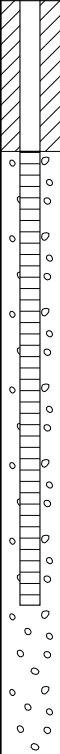
SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=4 (1,1/1,1,1,1)
2.00 (C)					N=30 (2,3/6,8,8,8)
3.00 (C)					N=17 (3,3/4,4,5,4)
4.00 (C)					N=24 (3,6/6,6,5,7)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.5	B		
1.25	B		
2.5	B		
3.5	B		

Remarks WATER OBSERVATIONS: Borehole remained dry.	Method, Plant, Stability, Dimensions 0.00 - 4.45m BH Tracked Windowless Sampling Rig	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		

		Borehole Log				WS07			
				Sheet 1 of 1					
		Hole Type BH	Easting 389249.00	Northing 411314.00	Ground Level (m) 150.00	Scale 1:50			
Project Name Queens Road, Rochdale		Project No. 25-446		Start Date 2025-10-03		End Date 2025-10-03			
Client ADEPT CSCE				Consultant SD		Contractor Taylors Drilling			
Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth	Strata		
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description	
		0.50	B 1			(1.30)		Grass overlying dark brown slightly gravelly silty Sand. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [MADE GROUND, MADE GROUND]	0.5
		1.00	SPT(C)	N=4 (1,1/1,1,1,1)					1.0
		1.50	B 2		148.70	1.30		Medium dense orange to brown slightly silty SAND. Sand is fine to coarse grained. Gravel is fine to coarse grained, sub-angular to sub-rounded of sandstone, limestone, brick fragments and coal. [SAND, HUMMOCKY GLACIAL DEPOSITS]	1.5
		2.00	SPT(C)	N=14 (2,3/3,3,4,4)					2.0
		2.50	B 3						2.5
		3.00	SPT(C)	N=15 (4,3/4,3,4,4)					3.0
		3.50	B 4						3.5
		4.00	SPT(C)	N=19 (4,4/4,5,5,5)		(5.15)			4.0
		4.50	B 5						4.5
		5.00	SPT(C)	N=19 (3,4/4,5,6,4)					5.0
					143.55	6.45		End of Borehole at 6.45m	6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0
Remarks WATER OBSERVATIONS: Borehole remained dry.						Method, Plant, Stability, Dimensions		Logger	
						0.00 - 6.45m BH Tracked Windowless Sampling Rig		SH	
Checked By: S.D Approved By: J.D Status: FINAL									



Borehole Log

WS07

SUPPLEMENTARY INFO

Hole Type BH	Easting 389249.00	Northing 411314.00	Ground Level (m) 150.00	Scale 1:50
Project Name Queens Road, Rochdale	Project No. 25-446	Start Date 2025-10-03	End Date 2025-10-03	

Client ADEPT CSCE	Consultant SD	Contractor Taylors Drilling
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SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.00 (C)					N=4 (1,1/1,1,1,1)
2.00 (C)					N=14 (2,3/3,3,4,4)
3.00 (C)					N=15 (4,3/4,3,4,4)
4.00 (C)					N=19 (4,4/4,5,5,5)
5.00 (C)					N=19 (3,4/4,5,6,4)

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.5	B		
1.5	B		
2.5	B		
3.5	B		
4.5	B		

Remarks WATER OBSERVATIONS: Borehole remained dry.	Method, Plant, Stability, Dimensions 0.00 - 6.45m BH Tracked Windowless Sampling Rig	Logger SH
Checked By: S.D Approved By: J.D Status: FINAL		

APPENDIX II

Arc Environmental Ground Gas & Groundwater Monitoring Certificate



Site:	QUEENS DRIVE
Ref:	25-446

Visit	Date	Time	Equipment	Weather	Initials	Comments	Borehole	Gas Flow (l/hr)	Atmospheric Pressure (mb)	Trend	Methane (% v/v)		Methane (% LEL)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Hydrocarbons (GFM 435 only)		Other Gases (PPM)			Depth to Water (m bgl)
										R/F/S	Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	Hex %	PID Cf	PID (Isobutylene)	H ₂ S	CO	
1	05/11/2025	9.15am	GFM435	RAIN	PR		WS01	<0.1	987			0.0		0.0		0.1		20.2				0.0	0.0	1.02
							WS03	<0.1	987			0.0		0.0		9.5		13.8				0.0	1.0	0.95
							WS07	<0.1	987			0.0		0.0		4.2		11.1				0.0	0.0	1.77
2	11/11/2025	11:00am	GFM435	CLOUDY	SD		WS01	<0.1	1011			0.0		0.0		0.1		19.9				0.0	0.0	0.93
							WS03	<0.1	1011			0.0		0.0		6.8		16.5				0.0	0.0	0.8
							WS07	<0.1	1011			0.0		0.0		3.1		15.2				0.0	0.0	1.76
3	18/11/25	12.30pm	GFM435	CLEAR	PR		WS01	<0.1	996			0.0		0.0		0.1		19.6				0.0	0.0	0.87
							WS03	<0.1	996			0.0		0.0		5.6		18.7				0.0	0.0	0.6
							WS07	<0.1	996			0.0		0.0		1.4		18.1				0.0	0.0	1.73
4																								
5																								
6																								

Notes:
Detection limits - Methane = 0.0%, Carbon Dioxide = 0.0%, LEL = 0.0%, Oxygen = 0.0%, Flow = 0.1l/hr
Monitoring order is from **Left to Right** across table
Monitoring should be for **Not Less** than 3 minutes However, if high concentrations of gasses initially recorded, monitoring should be for up to 10 minutes
N/A = Not applicable = Off the scale

Cf = PID compensation Factor (1-10) - Must be used to multiply the PID reading to give an accurate measure of the total hydrocarbons in the borehole when methane is present
Hex = Hexane (Valid and in range up to 2.000%) - Recorded when abnormally high methane is present.
PID = Photo Ionisation Detector (Calibrated to Isobutylene)

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP01 @ 0.20m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
61.42	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	233.31	233,314.34

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	102.66	102,658.31

Criteria	Result
CBR (%)	29.5

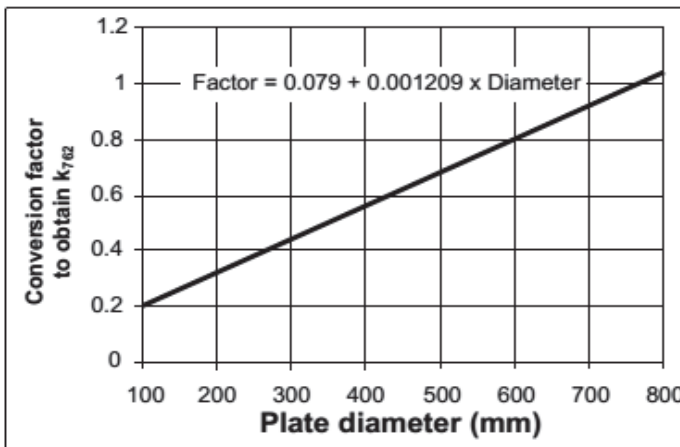
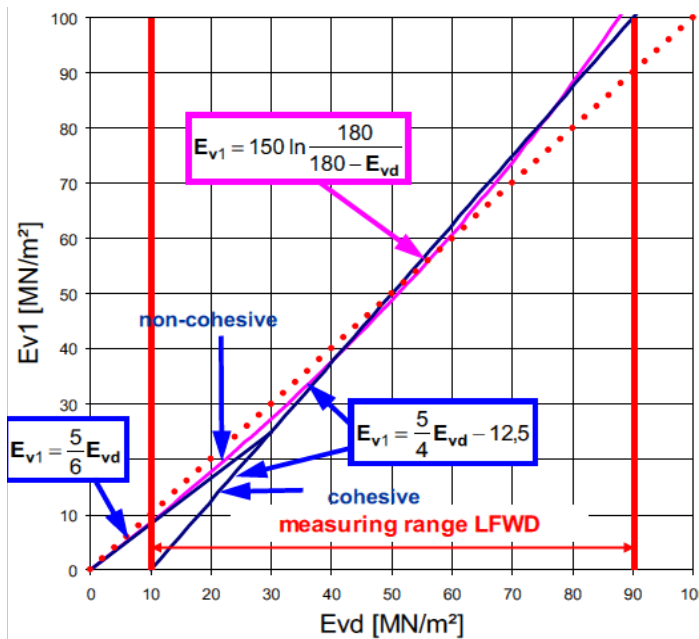


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

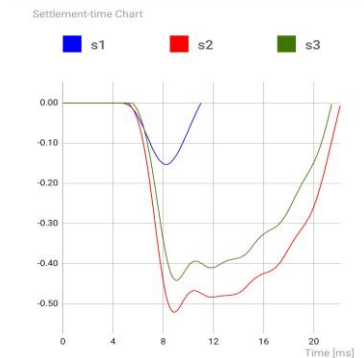
Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

Evd [MN/m ²] 60,48	Date: 10/02/2025
s/v [ms] 2,2	Time: 10:54
Device no. LFG-11750	Record no. 028



Comment

HP01 @ 0.20

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP01 @ 0.50m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
39.75	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	151.00	150,997.15

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	66.44	66,438.75

Criteria	Result
CBR (%)	13.9

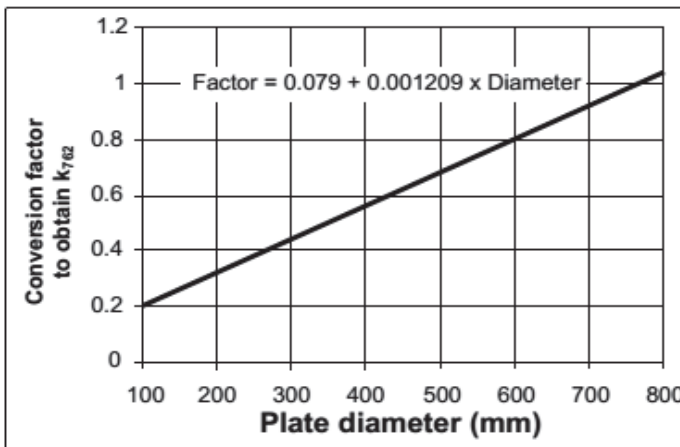
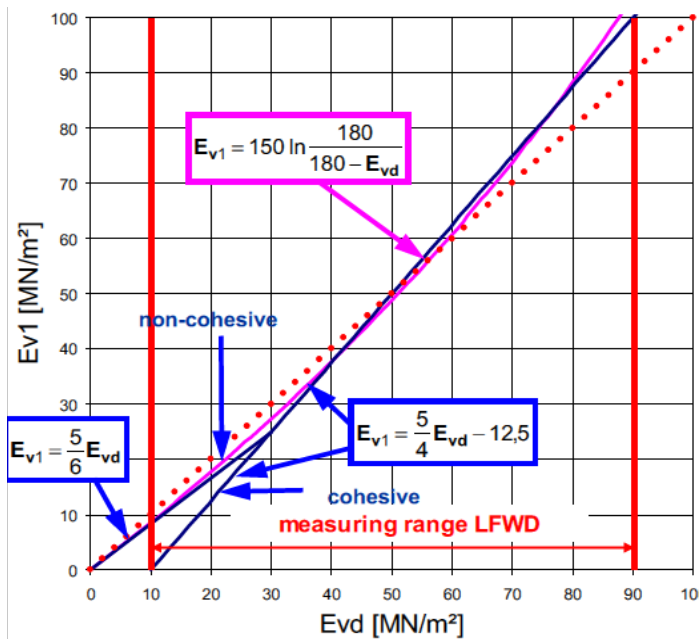


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

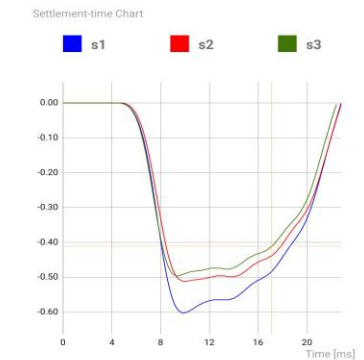
Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

Evd [MN/m ²] 41,90	Date 10/02/2025
s/v [ms] 2,5	Time 11:08
Device no. LFG-11750	Record no. 029



Comment

HP01 @ 0.50

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP02 @ 0.25m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
5.6	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	21.27	21,272.55

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	9.36	9,359.92

Criteria	Result
CBR (%)	0.5

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

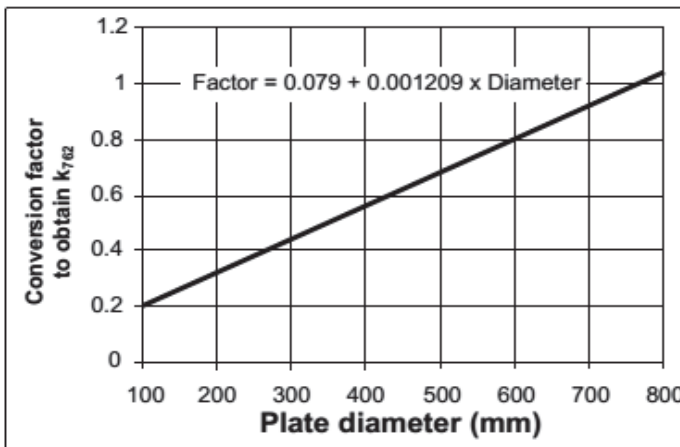
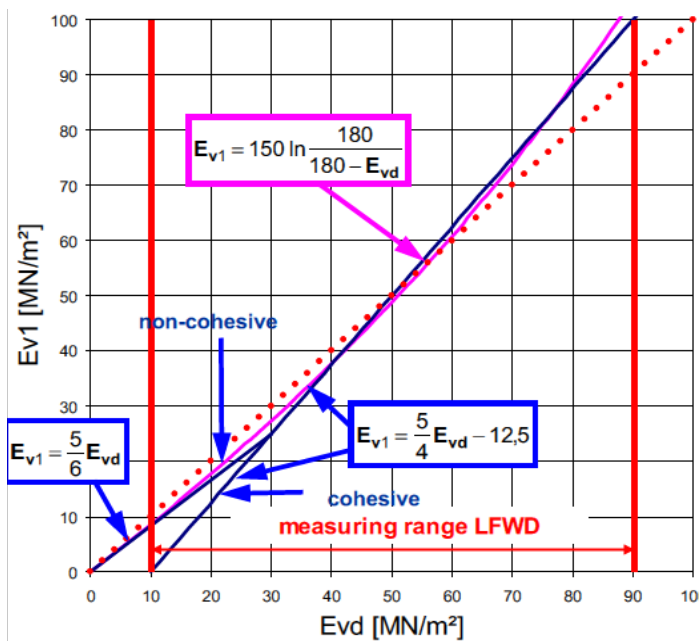


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

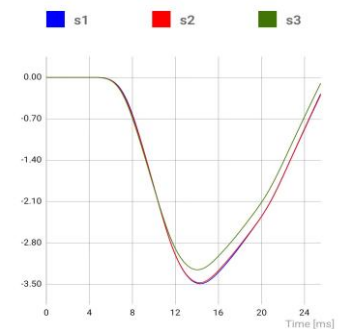
Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Ev1 [MN/m²]	Date
6,60	10/02/2025
s/v [ms]	Time
5,4	11:26
Device no.	Record no.
LFG-11750	030

Impact	s [mm]	v [mm/s]
1	3,491	650,20
2	3,474	649,07
3	3,255	607,01
Ø	3,407	635,43

Settlement-time Chart



Comment

HP02 @ 0.25

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 (MN/m²)

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP02 @ 0.50m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
16.6	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	63.06	63,057.93

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	27.75	27,745.49

Criteria	Result
CBR (%)	3.1

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

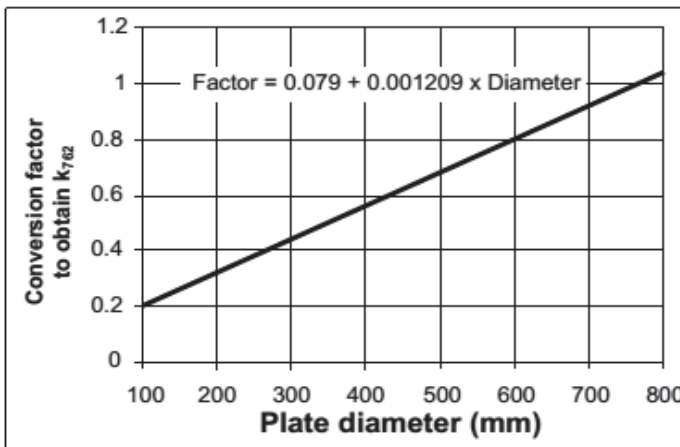
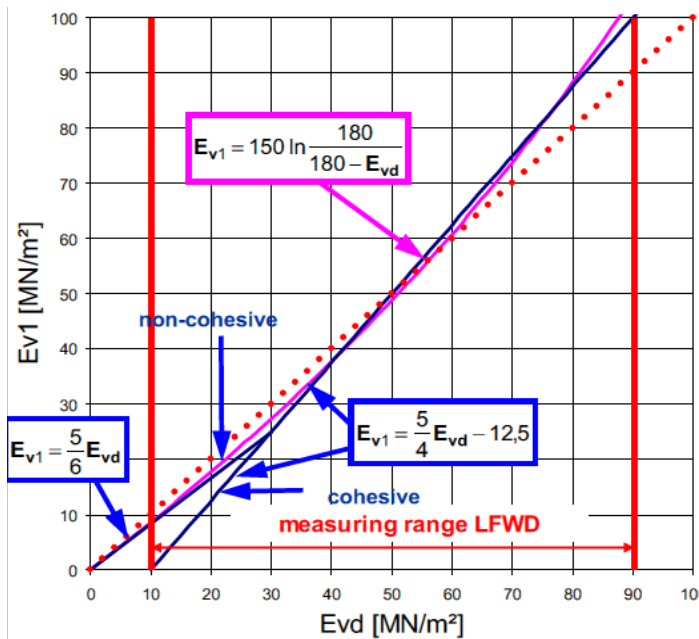


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

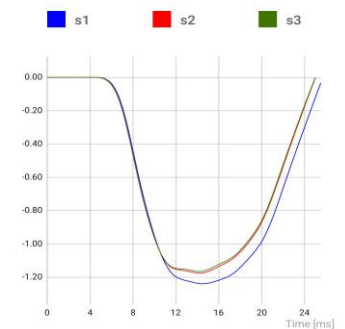
Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Ev1 (MN/m ²)	Date
18,86	10/02/2025
s/v [ms]	Time
4,1	11:46
Device no.	Record no.
LFG-11750	031

Impact	s [mm]	v [mm/s]
1	1,239	294,30
2	1,175	291,99
3	1,165	294,13
Ø	1,193	293,47

Settlement-time Chart



Comment

HP02 @ 0.50

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 (MN/m²)

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP03 @ 0.25m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
4.17	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	15.84	15,840.46

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	6.97	6,969.80

Criteria	Result
CBR (%)	0.3

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

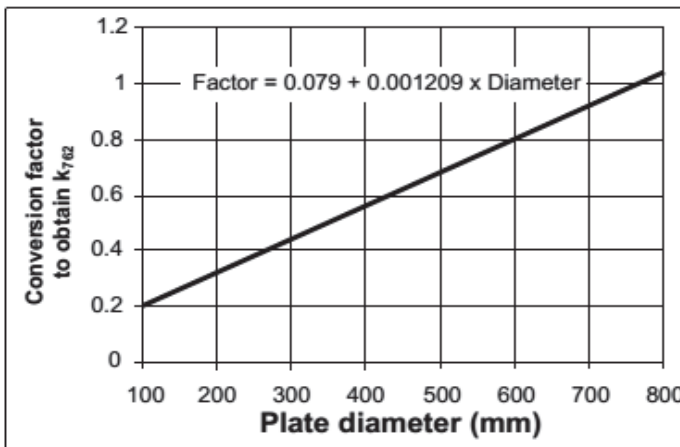
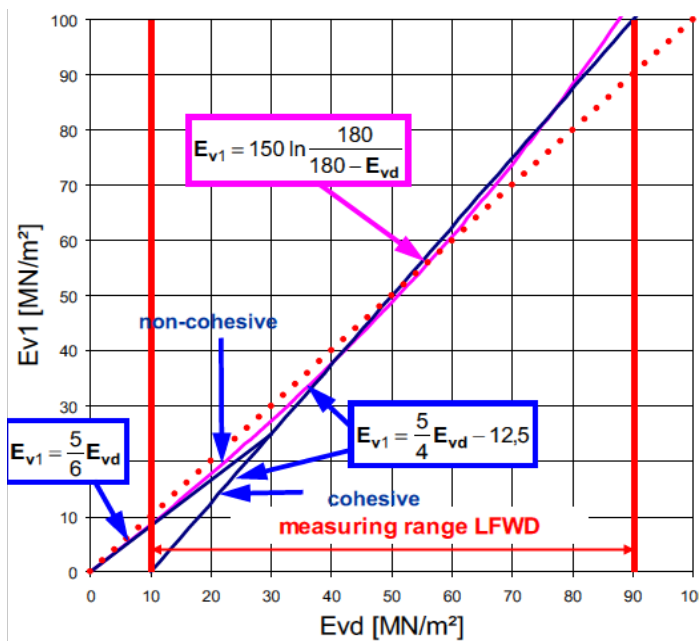


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

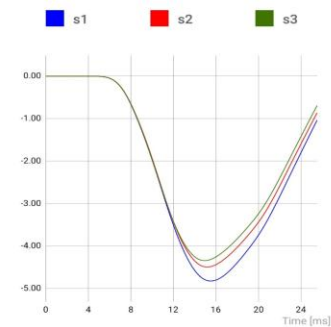
Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Ev1 (MN/m ²)	Date
4,94	10/02/2025
s/v [ms]	Time
37,4	12:03
Device no.	Record no.
LFG-11750	032

Impact	s [mm]	v [mm/s]
1	4,826	135,23
2	4,497	122,06
3	4,345	108,49
Ø	4,556	121,93

Settlement-time Chart



Comment:

HP03 @ 0.25

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 (MN/m²)

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP03 @ 0.50m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
4.8	0.35	0.3
Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	18.23	18,233.62
Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	8.02	8,022.79
Criteria	Result	
CBR (%)	0.4	

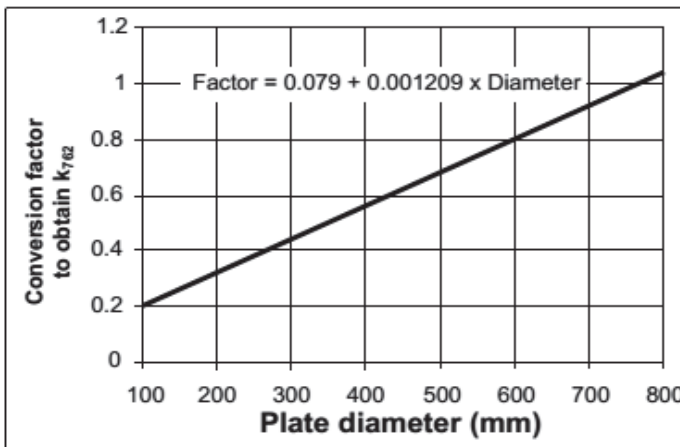
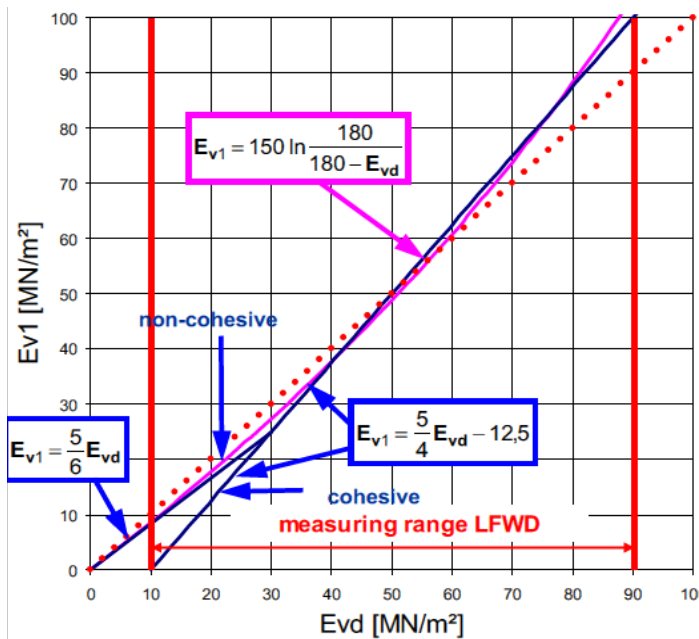


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

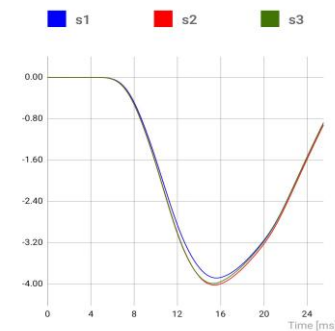
$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

Evd [MN/m²]	Date
5,67	10/02/2025
s/v [ms]	Time
133,5	12:13
Device no. LFG-11750	Record no. 033

Impact	s [mm]	v [mm/s]
1	3,886	2,71
2	4,022	42,31
3	3,991	44,12
Ø	3,966	29,71

Settlement-time Chart



Comment

HP03 @ 0.50

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP04 @ 0.30m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
8.24	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	31.30	31,301.04

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	13.77	13,772.46

Criteria	Result
CBR (%)	0.9

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

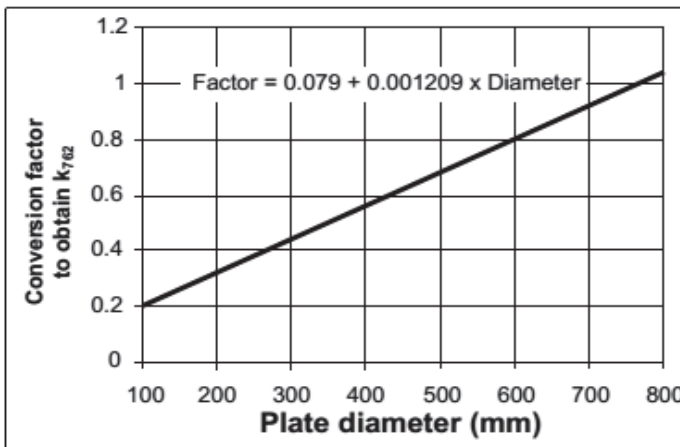
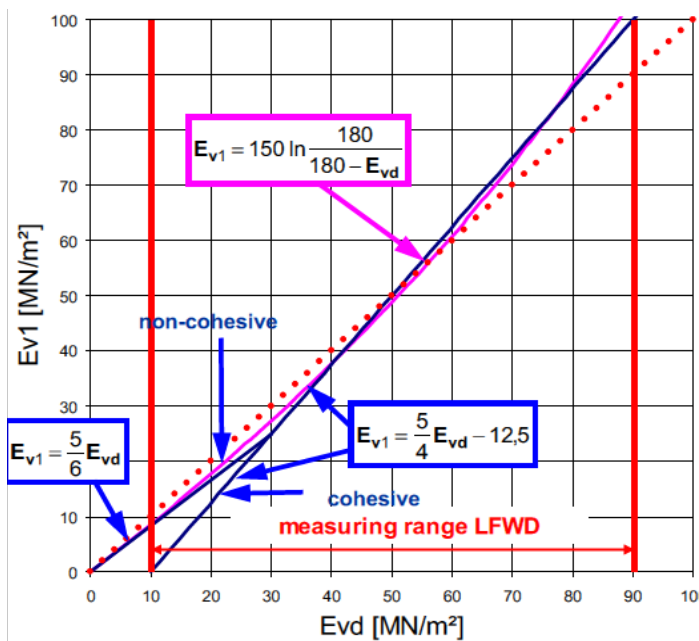


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

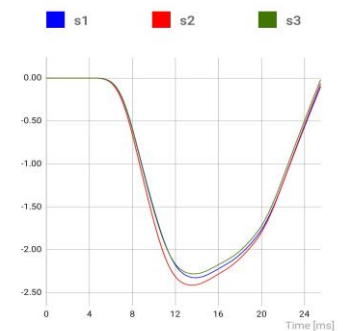
Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Evd (MN/m ²)	Date
9,62	10/02/2025
s/v (ms)	Time
4,7	12:43
Device no.	Record no.
LFG-11750	034

Impact	s (mm)	v (mm/s)
1	2,326	484,08
2	2,412	521,06
3	2,281	490,05
Ø	2,340	498,40

Settlement-time Chart



Comment

HP04 @ 0.30

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 (MN/m²)

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP04 @ 0.60m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
4.47	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	16.98	16,980.06

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	7.47	7,471.23

Criteria	Result
CBR (%)	0.3

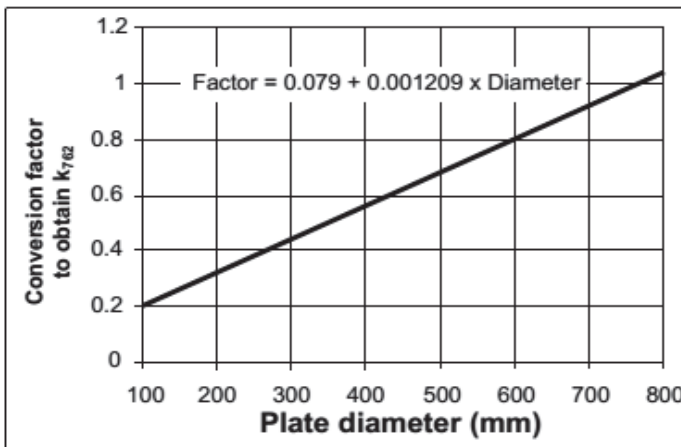
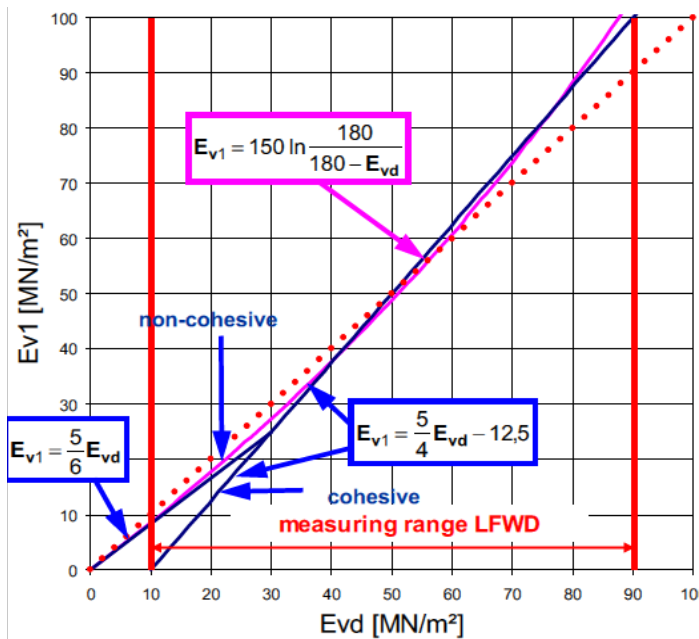


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

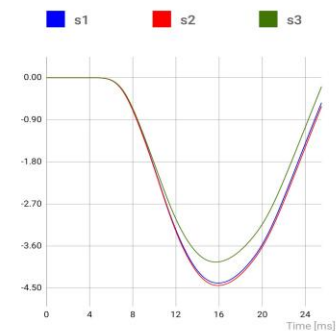
$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

Evd [MN/m²] 5,28	Date 10/02/2025
s/v [ms] 17,8	Time 12:52
Device no. LFG-11750	Record no. 035

Impact	s [mm]	v [mm/s]
1	4,392	41,96
2	4,444	46,84
3	3,943	630,80
Ø	4,260	239,87

Settlement-time Chart



Comment

HP04 @ 0.60

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP06 @ 0.25m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
2.96	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	11.24	11,244.06

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	4.95	4,947.39

Criteria	Result
CBR (%)	0.2

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

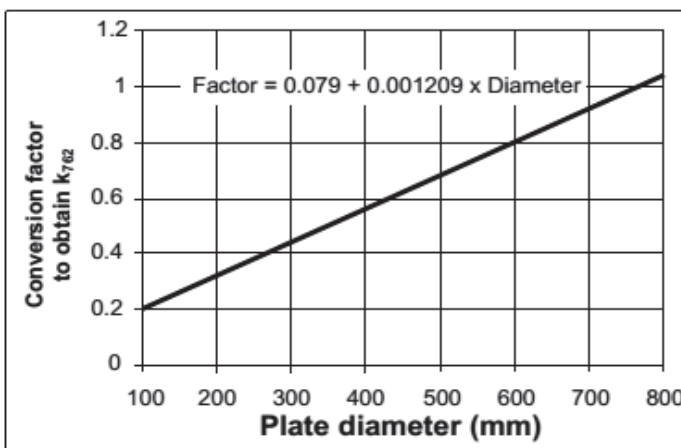
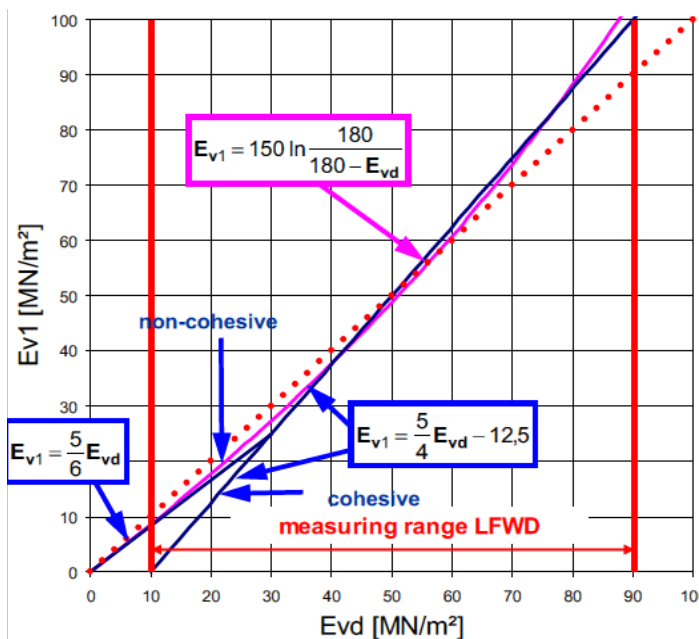


Table 1: Soil characterisation scheme for cohesionless soils

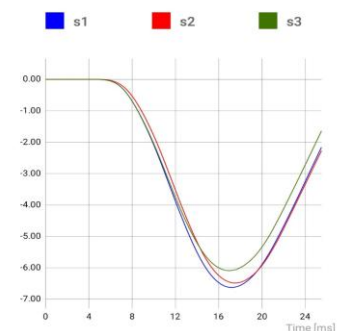
Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Evd [MN/m²]	Date	
3,52	10/02/2025	
s/v [ms]	Time	
26,6	15:09	
Device no.	Record no.	
LFG-11750	036	
Impact	s [mm]	v [mm/s]
1	6,625	262,32
2	6,484	247,11
3	6,089	212,80
Ø	6,399	240,74

Settlement-time Chart



Comment

HP06 @ 0.25

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP06 @ 0.50m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
2.66	0.35	0.3
Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	10.10	10,104.46
Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	4.45	4,445.96
Criteria	Result	
CBR (%)	0.1	

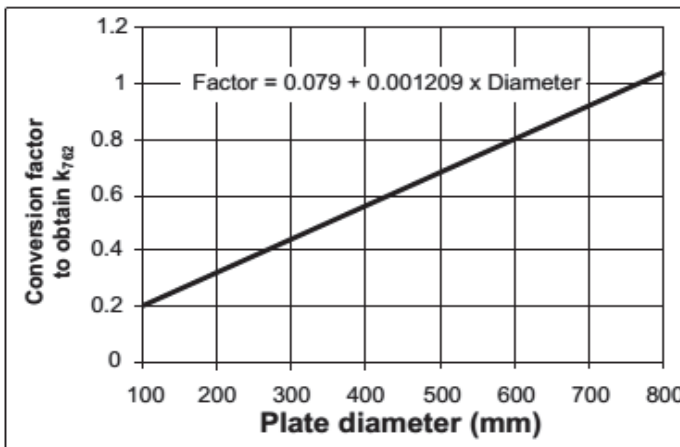
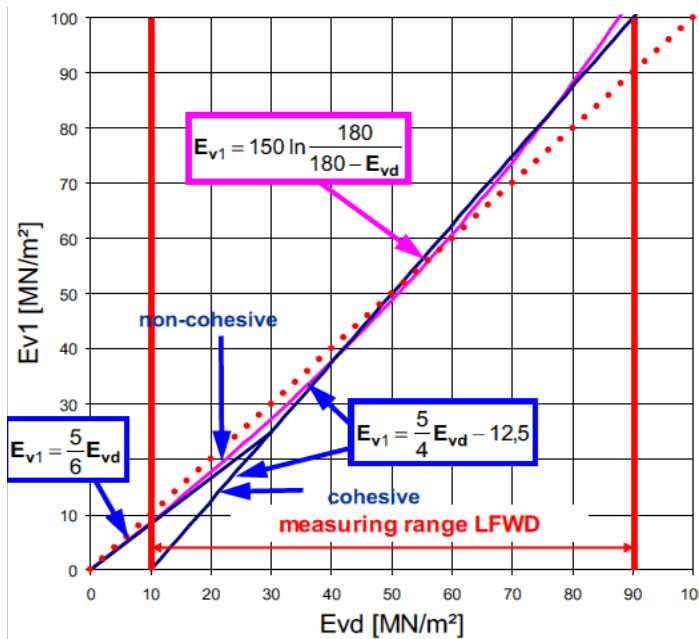


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

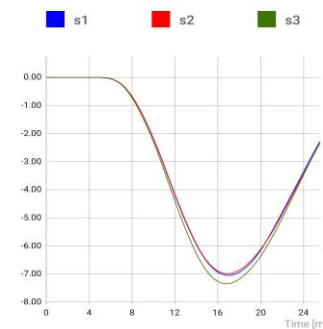
$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

Evd [MN/m²] 3,16	Date 10/02/2025
s/v [ms] 18,4	Time 15:15
Device no. LFG-11750	Record no. 037

Impact	s [mm]	v [mm/s]
1	7,051	368,82
2	6,991	367,67
3	7,347	426,09
Ø	7,130	387,53

Settlement-time Chart



Comment

HP06 @ 0.50

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP07 @ 0.20m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
12.57	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	47.75	47,749.29

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	21.01	21,009.69

Criteria	Result
CBR (%)	1.9

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

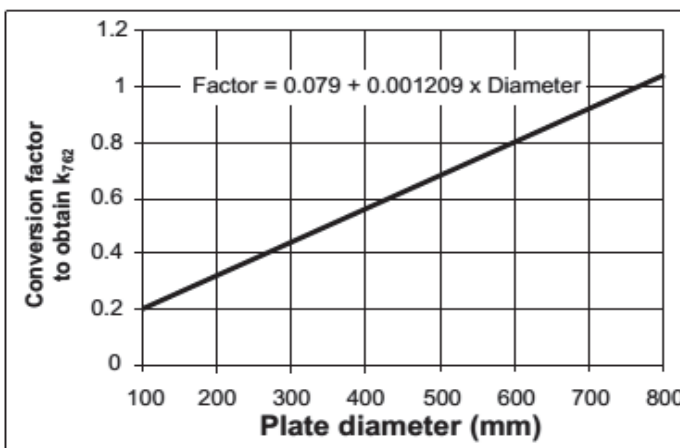
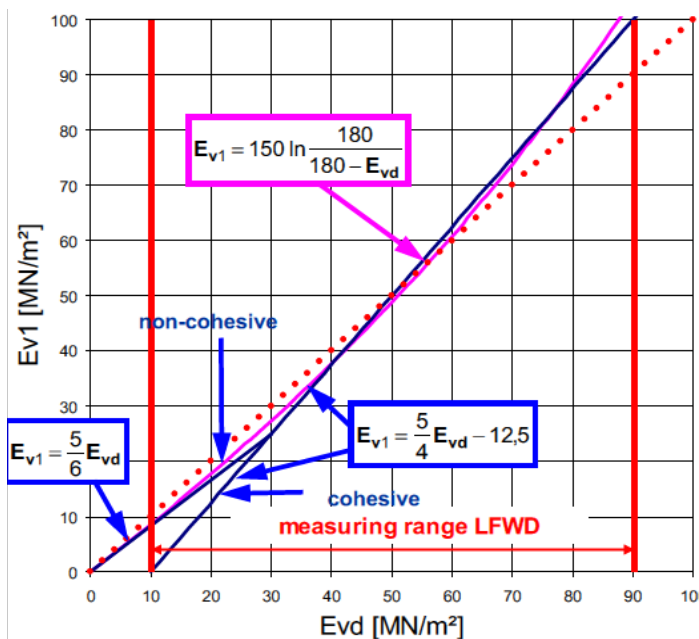


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

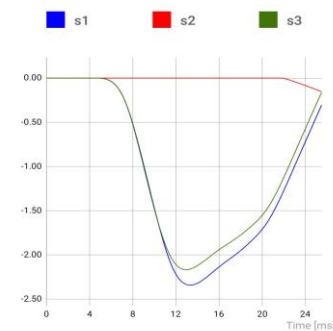
Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Ev1 [MN/m²]	Date
14,47	10/02/2025
s/v [ms]	Time
4,5	16:02
Device no.	Record no.
LFG-11750	038

Impact	s [mm]	v [mm/s]
1	2,343	492,33
2	0,154	51,12
3	2,169	494,80
Ø	1,555	346,08

Settlement-time Chart



Comment

HP07 @ 0.20

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 (MN/m²)

Conversion of Dynamic Modulus (Evd) obtained using Light Weight Deflectometer (LWD) to California Bearing Ratio (CBR) - HP07 @ 0.50m bgl

Enter values for Ev1, V, and B to determine CBR(%)

Dynamic Modulus	Poisson's Ratio	Plate Width
Ev1 (MN/m ²)	V	B (m)
16.8	0.35	0.3

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₃₀₀	63.82	63,817.66

Criteria	Result (MN/m ² /m)	Result (kN/m ² /m)
K ₇₆₂	28.08	28,079.77

Criteria	Result
CBR (%)	3.1

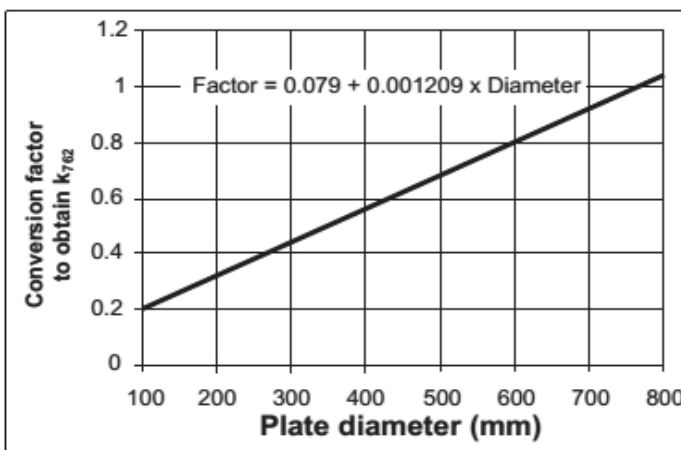
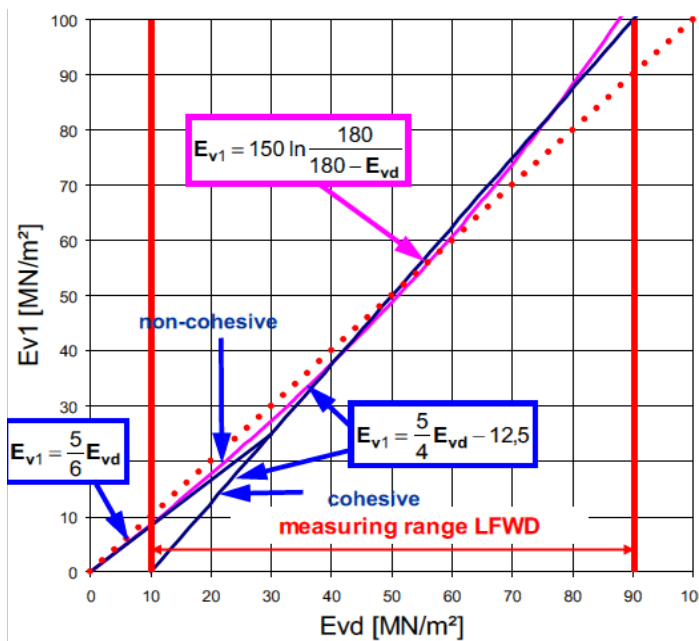


Table 1: Soil characterisation scheme for cohesionless soils

Cohesionless soils	Very loose	Loose	Medium dense	Dense	Very dense
Evd (MPa)	0-12	12-24	24-34	34-50	50-90
Ev1 (MPa)	0-10	10-20	20-30	30-50	50-100

Table 2: Soil characterisation scheme for cohesive soils

Cohesive soils	Very soft	Soft	Firm	Stiff	Very stiff	Hard
Evd (MPa)	0-22	22-30	30-36	36-43	43-50	50-90
Ev1 (MPa)	0-15	15-25	25-33	33-41	41-50	50-100

Theoretical Formula

$$K_{300} = \frac{Ev1}{B \cdot (1 - v^2)}$$

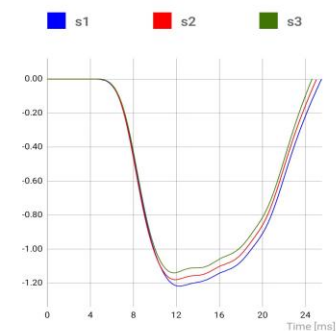
$$K_{762} = K_{300} \cdot 0.44$$

$$CBR(\%) = 6.1 \times 10^{-8} \cdot (K_{762})^{1.733}$$

Evd [MN/m ²] 19,07	Date 10/02/2025
s/v [ms] 3,5	Time 16:10
Device no. LFG-11750	Record no. 039

Impact	s [mm]	v [mm/s]
1	1,218	334,70
2	1,181	340,57
3	1,140	334,58
Ø	1,180	336,62

Settlement-time Chart



Comment

HP07 @ 0.50

Project no.

25-446

Tester

Temperature / Weather

Measuring point

Test surface / layer

Soil type / class

Plate base

Ev2 [MN/m²]

ARC ENVIRONMENTAL LIMITED

VARIABLE HEAD PERMEABILITY TEST

Variable Head (Falling) Permeability Test in Borehole WS01

4.00 mBGL

SITE Queens Drive, Rochdale

CONTRACT 25-446

WS01

DEPTH 4.00 mBGL

INITIAL CONDITIONS

Bottom of Borehole	4.00	mBGL
Base of casing	0.00	mBGL
Diameter of casing	100.00	mm
Height of casing	0.00	mAGL
Elevation of Borehole		mAOD
Groundwater Level	1.02	mBGL

Operator	SD
Date	05/11/2025
Time	10.00am
Weather	Overcast
Input volume of water	25 litres
Test Zone	1.54 m

TEST CALCULATION

Elapsed (minutes)	Elapsed (seconds)	Total seconds	Water Depth (m)	Head (metres)	H/Ho
0	0	0	0.990	0.030	1.000
1	0	60	1.020	0.000	0.000
2	0	120	1.020	0.000	0.000
3	0	180	1.020	0.000	0.000
4	0	240	1.020	0.000	0.000
5	0	300	1.020	0.000	0.000
10	0	600	1.020	0.000	0.000
15	0	900	1.020	0.000	0.000
20	0	1200	1.020	0.000	0.000
25	0	1500	1.020	0.000	0.000
30	0	1800	1.020	0.000	0.000
35	0	2100	1.020	0.000	0.000
40	0	2400	1.020	0.000	0.000
45	0	2700	1.020	0.000	0.000
50	0	3000	1.020	0.000	0.000
55	0	3300	1.020	0.000	0.000
60	0	3600	1.020	0.000	0.000

Intake Factor (F)

$$F = \frac{2 \pi L}{\log_e [(L/D) + \sqrt{1 + (L/D)^2}]} \quad (i)$$

(From BS 5930:1999 for standpipes)

L=length of test zone

D=diameter of borehole

Permeability (k)

$$k = \frac{A}{F(t_2 - t_1)} \times \log_e (H_1/H_2) \quad (ii)$$

or

$$k = \frac{A}{FT} \quad (iii)$$

Where T is the Basic Time Lag Factor corresponding to an H/Ho value of 0.37

L= 1.54 m
D= 0.100 m
L/D= 15.40

t₁= 0 s
t₂= 3600 s
H₁= 1.54 m
H₂= 1.47 m

A= 0.00785 m²
F= 2.8222 From (i)
T= s
k= 3.59616E-08 ms⁻¹ From (ii)
k= ms⁻¹ From (iii)

Remarks

Drainage Characteristics: Poor Permeability
Classification: Very low

ARC ENVIRONMENTAL LIMITED

VARIABLE HEAD PERMEABILITY TEST

Variable Head (Falling) Permeability Test in Borehole WS03

4.00 mBGL

SITE Queens Drive, Rochdale

CONTRACT 25-446

WS03

DEPTH 4.00 mBGL

INITIAL CONDITIONS

Bottom of Borehole	4.00	mBGL
Base of casing	0.00	mBGL
Diameter of casing	100.00	mm
Height of casing	0.00	mAGL
Elevation of Borehole		mAOD
Groundwater Level	0.95	mBGL

Operator	SD
Date	05/11/2025
Time	10.00am
Weather	Overcast
Input volume of water	10 litres
Test Zone	1.00 m

TEST CALCULATION

Elapsed (minutes)	Elapsed (seconds)	Total seconds	Water Depth (m)	Head (metres)	H/Ho
0	0	0	0.000	0.950	1.000
1	0	60	0.660	0.290	0.305
2	0	120	0.730	0.220	0.232
3	0	180	0.760	0.190	0.200
4	0	240	0.780	0.170	0.179
5	0	300	0.790	0.160	0.168
10	0	600	0.850	0.100	0.105
15	0	900	0.880	0.070	0.074
20	0	1200	0.900	0.050	0.053
25	0	1500	0.910	0.040	0.042
30	0	1800	0.920	0.030	0.032
35	0	2100	0.930	0.020	0.021
40	0	2400	0.950	0.000	0.000
45	0	2700	0.950	0.000	0.000
50	0	3000	0.950	0.000	0.000
55	0	3300	0.950	0.000	0.000
60	0	3600	0.950	0.000	0.000

Intake Factor (F)

$$F = \frac{2 \pi L}{\log_e [(L/D) + \sqrt{1 + (L/D)^2}]} \quad (i)$$

(From BS 5930:1999 for standpipes)

L=length of test zone

D=diameter of borehole

Permeability (k)

$$k = \frac{A}{F(t_2 - t_1)} \times \log_e (H_1/H_2) \quad (ii)$$

or

$$k = \frac{A}{FT} \quad (iii)$$

Where T is the Basic Time Lag Factor corresponding to an H/Ho value of 0.37

L= 1.00 m
D= 0.100 m
L/D= 10.00

t₁= 0 s
t₂= 2400 s
H₁= 0.95 m
H₂= 0.01 m

A= 0.00785 m²
F= 2.0956 From (i)
T= s
k= 7.11122E-06 ms⁻¹ From (ii)
k= ms⁻¹ From (iii)

Remarks

Drainage Characteristics: Poor Permeability
Classification: Very low

ARC ENVIRONMENTAL LIMITED

VARIABLE HEAD PERMEABILITY TEST

Variable Head (Falling) Permeability Test in Borehole WS07

4.00 mBGL

SITE Queens Drive, Rochdale

CONTRACT 25-446

WS07

DEPTH 4.00 mBGL

INITIAL CONDITIONS

Bottom of Borehole	4.00	mBGL
Base of casing	0.00	mBGL
Diameter of casing	100.00	mm
Height of casing	0.00	mAGL
Elevation of Borehole		mAOD
Groundwater Level	1.77	mBGL

Operator	SD
Date	05/11/2025
Time	10.00am
Weather	Overcast
Input volume of water	20 litres
Test Zone	1.50 m

TEST CALCULATION

Elapsed (minutes)	Elapsed (seconds)	Total seconds	Water Depth (m)	Head (metres)	H/Ho
0	0	0	0.000	1.770	1.000
1	0	60	0.960	0.810	0.458
2	0	120	1.140	0.630	0.356
3	0	180	1.270	0.500	0.282
4	0	240	1.330	0.440	0.249
5	0	300	1.420	0.350	0.198
10	0	600	1.580	0.190	0.107
15	0	900	1.610	0.160	0.090
20	0	1200	1.630	0.140	0.079
25	0	1500	1.650	0.120	0.068
30	0	1800	1.660	0.110	0.062
35	0	2100	1.670	0.100	0.056
40	0	2400	1.680	0.090	0.051
45	0	2700	1.680	0.090	0.051
50	0	3000	1.680	0.090	0.051
55	0	3300	1.680	0.090	0.051
60	0	3600	1.680	0.090	0.051

Intake Factor (F)

$$F = \frac{2 \pi L}{\log_e [(L/D) + \sqrt{1 + (L/D)^2}]} \quad (i)$$

(From BS 5930:1999 for standpipes)

L=length of test zone

D=diameter of borehole

Permeability (k)

$$k = \frac{A}{F(t_2 - t_1)} \times \log_e (H_1/H_2) \quad (ii)$$

or

$$k = \frac{A}{FT} \quad (iii)$$

Where T is the Basic Time Lag Factor corresponding to an H/Ho value of 0.37

L= 1.50 m
D= 0.100 m
L/D= 15.00

t₁= 0 s
t₂= 2400 s
H₁= 1.68 m
H₂= 0.01 m

A= 0.00785 m²
F= 2.7701 From (i)
T= s
k= 6.05323E-06 ms⁻¹ From (ii)
k= ms⁻¹ From (iii)

Remarks

Drainage Characteristics: Poor Permeability
Classification: Very low

APPENDIX III



LABORATORY REPORT



Contract Number: PSL25/7720

Report Date: 10 November 2025
Client's Reference: 25-446
Client Name: ARC Environmental
Solum House
Unit 1 Elliott Court
St Johns Road, Meadowfield
Durham
DH7 8PN

For the attention of: Shona Heatherington

Contract Title: Queens Drive, Rochdale

Date Received: 9/10/2025
Date Commenced: 9/10/2025
Date Completed: 10/11/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

Queens Drive, Rochdale

Contract No:**PSL25/7720****Client Ref:**

25-446

PARTICLE SIZE DISTRIBUTION TEST

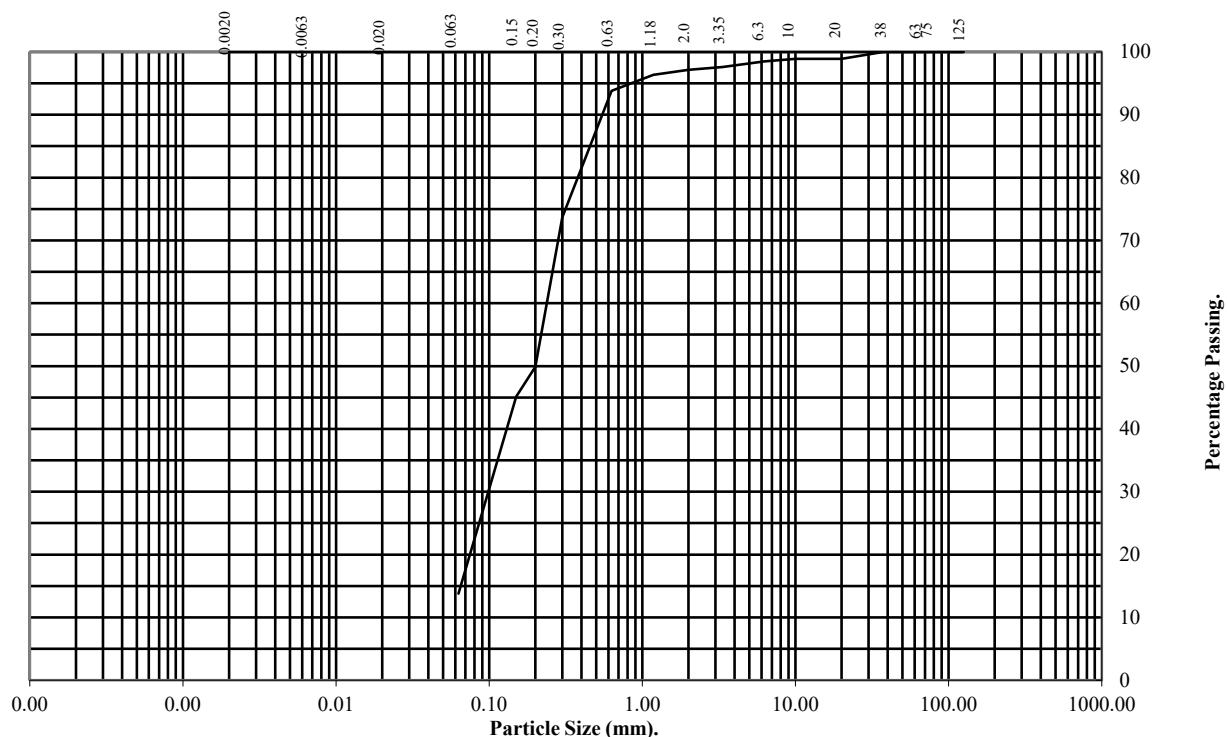
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **WS01** Top Depth (m): **2.50**

Sample Number: **-** Base Depth (m): **-**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	99
6.3	99
3.35	98
2	97
1.18	96
0.63	94
0.3	74
0.2	50
0.15	45
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	83
Silt/Clay	14

Remarks:

See Summary of Soil Descriptions



Queens Drive, Rochdale

Contract No:

PSL25/7720

Client Ref:

25-446

PARTICLE SIZE DISTRIBUTION TEST

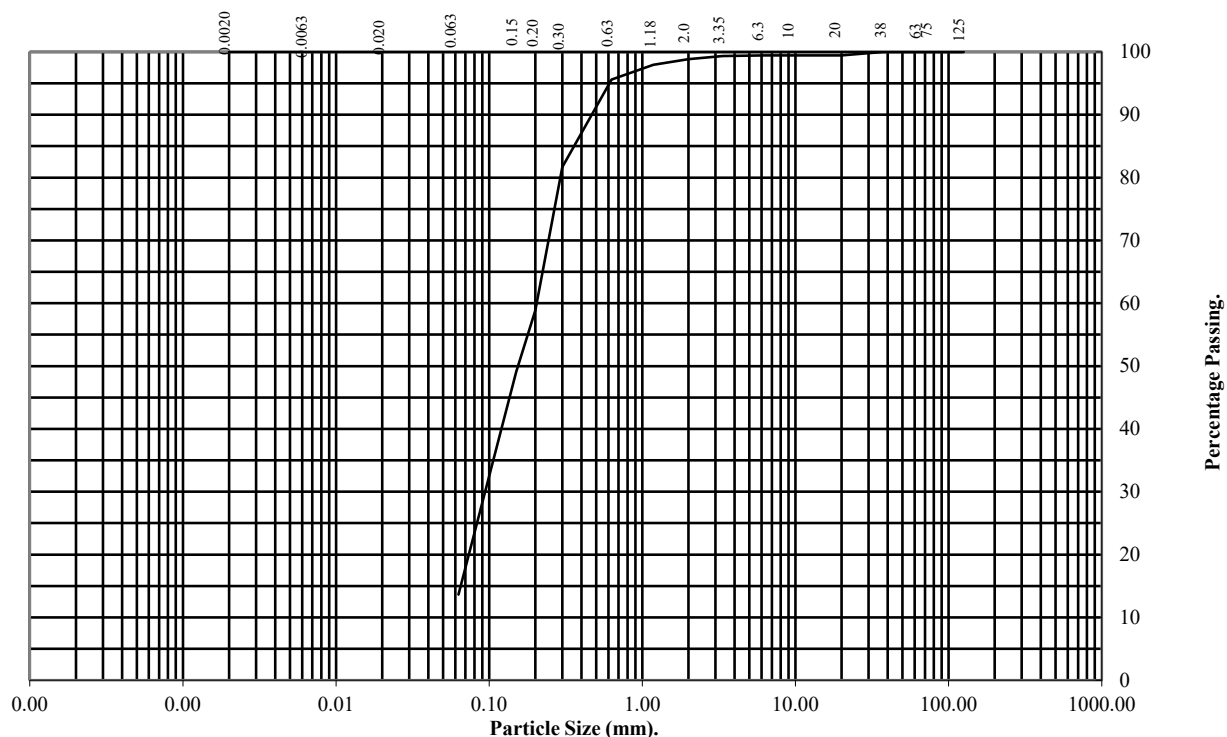
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **WS02** Top Depth (m): **2.00**

Sample Number: **-** Base Depth (m): **-**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	99
6.3	99
3.35	99
2	99
1.18	98
0.63	96
0.3	82
0.2	59
0.15	49
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	85
Silt/Clay	14

Remarks:

See Summary of Soil Descriptions



Queens Drive, Rochdale

Contract No:

PSL25/7720

Client Ref:

25-446

PARTICLE SIZE DISTRIBUTION TEST

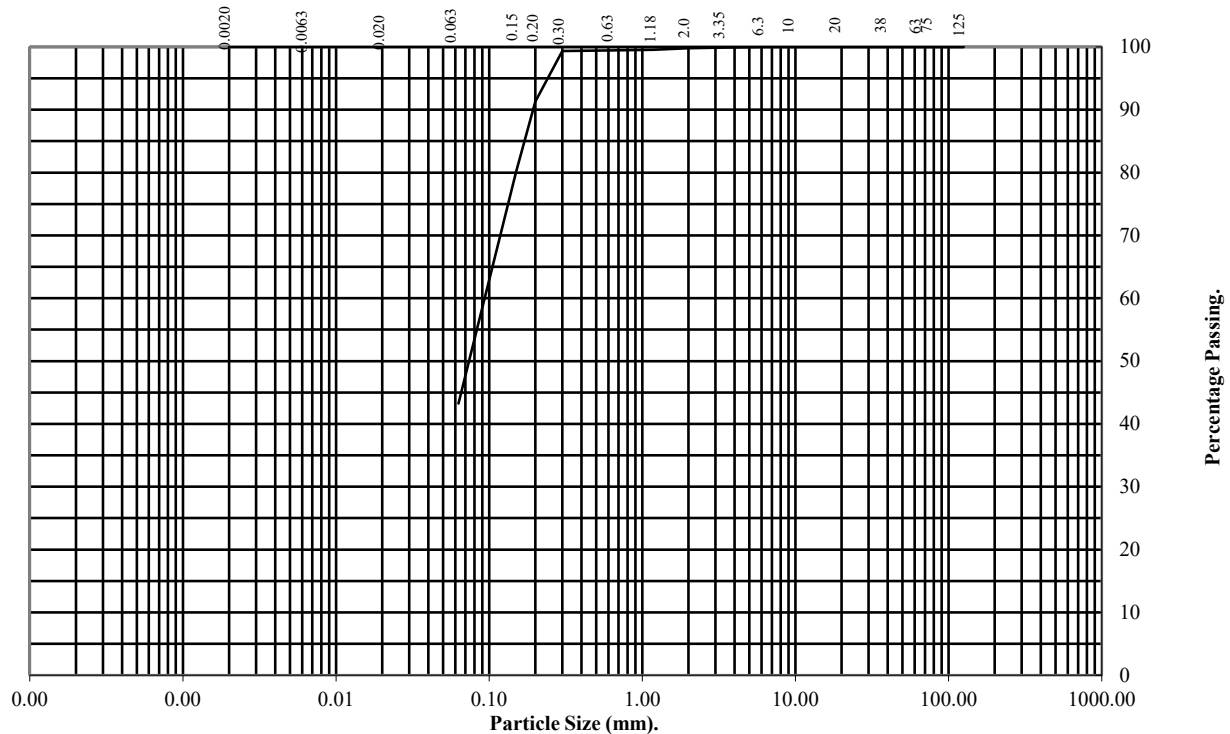
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: WS05 Top Depth (m): 2.50

Sample Number: - Base Depth (m): -

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.63	99
0.3	99
0.2	91
0.15	80
0.063	43

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	57
Silt/Clay	43

Remarks:

See Summary of Soil Descriptions



Queens Drive, Rochdale

Contract No:
PSL25/7720
Client Ref:
25-446

PARTICLE SIZE DISTRIBUTION TEST

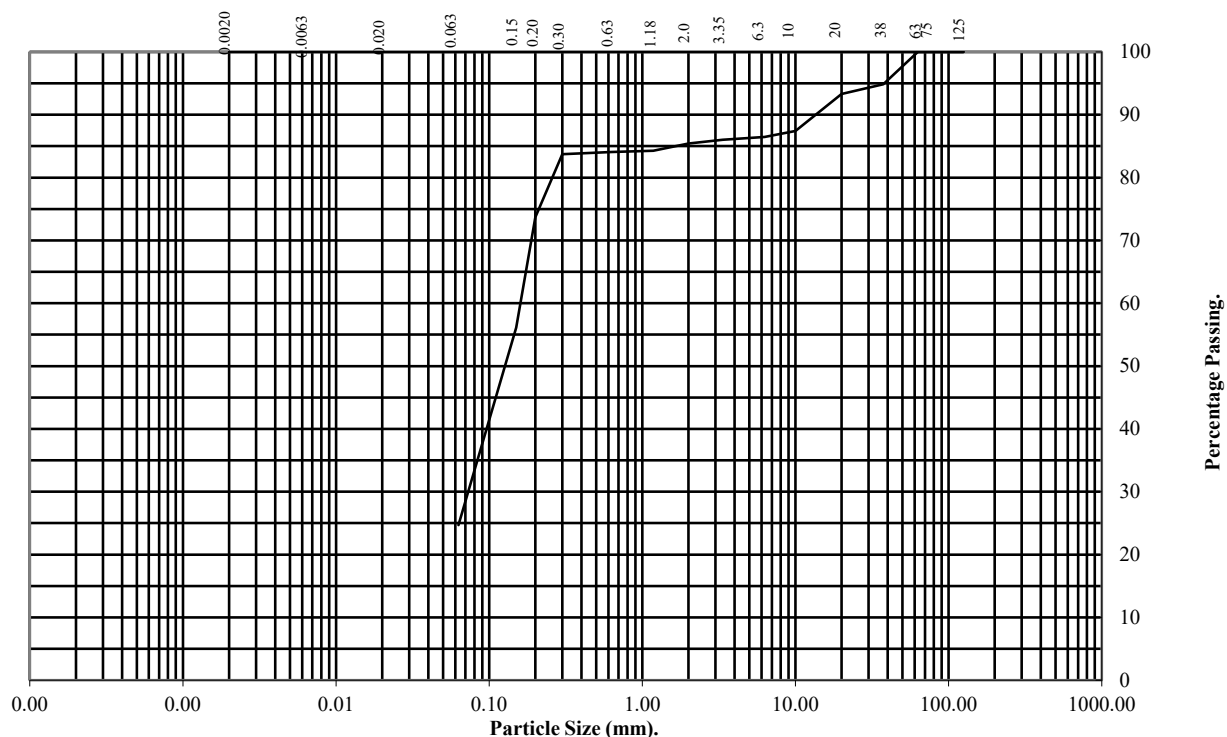
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: **WS06** Top Depth (m): **1.25**

Sample Number: **-** Base Depth (m): **-**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	93
10	87
6.3	86
3.35	86
2	85
1.18	84
0.63	84
0.3	84
0.2	74
0.15	56
0.063	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	60
Silt/Clay	25

Remarks:

See Summary of Soil Descriptions



Queens Drive, Rochdale

Contract No:

PSL25/7720

Client Ref:

25-446



ANALYTICAL TEST REPORT

Report Number 25-09964, issue number 1

Contract name: Queens Drive Rochdale

Client reference: 25-446

Clients name: ARC Environmental Ltd

Clients address: ARC Environmental Ltd
Solum House, Unit 1 Elliott Court
St Johns Road
DH7 8PN

Samples received: 10/10/2025

Analysis started: 10/10/2025

Analysis completed: 16/10/2025

Report issued: 16/10/2025

Key

U UKAS accredited test
M MCERTS & UKAS accredited test
(B) Analysis performed at Southampton Site
I/S Insufficient sample to carry out test
U/S Sample not suitable for testing
NAD No Asbestos Detected
Full key available on Information page

Approved by: Rachael Burton
Technical Support Manager

SAMPLE INFORMATION

MCERTS (Soils):

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

% Moisture reported as MCERTS drying at 30°C

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
71663	WS03	0.25	Brown Sandy Loam with Gravel and Vegetation.	-	-	31.5
71664	WS07	0.50	Brown Clay with Gravel and Vegetation.	-	-	18.5
71665	HP01	0.60	Brown Clayey Sand with Gravel and Vegetation.	-	-	3.7
71666	HP02	0.30	Brown Sandy Loam with Gravel and Vegetation.	-	-	17.3
71667	HP05	0.30	Brown Sandy Loam with Gravel and Vegetation.	-	-	15.3
71668	HP06	0.60	Brown Sandy Loam with Gravel and Vegetation.	-	-	23.1
71669	WS01	1.20	Brown Clayey Sand with Gravel and Vegetation.	-	-	10.4
71670	WS01	1.70	Brown Sand with Gravel and Vegetation.	-	-	13.4
71671	WS02	1.50	Brown Sand with Gravel and Vegetation.	-	-	11.9
71672	WS03	1.25	Brown Loamy Clay with Gravel and Vegetation.	-	-	21.3
71673	WS04	0.50	Brown Sandy Clay with Gravel and Vegetation.	-	-	16.5
71674	WS05	1.50	Brown Sand with Gravel and Vegetation.	-	-	13.6
71675	WS06	2.50	Brown Clayey Sand with Gravel and Vegetation.	-	-	12.6
71676	WS07	1.50	Brown Clayey Sand with Gravel and Vegetation.	-	-	18.9

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

- a Sampling date not provided
- b Sampling time not provided (waters only)
- c Sample not received in appropriate containers
- d Storage Temperature
- e Headspace present in sample container
- f Sample exceeded sampling to receipt
- g Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
71663	WS03	0.25	N	
71664	WS07	0.50	N	
71665	HP01	0.60	N	
71666	HP02	0.30	N	
71667	HP05	0.30	N	
71668	HP06	0.60	N	
71669	WS01	1.20	N	
71670	WS01	1.70	N	
71671	WS02	1.50	N	
71672	WS03	1.25	N	
71673	WS04	0.50	N	
71674	WS05	1.50	N	
71675	WS06	2.50	N	
71676	WS07	1.50	N	

SOILS

Lab Number					71663	71664	71665	71666	71667
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					WS03	WS07	HP01	HP02	HP05
Depth (m)					0.25	0.50	0.60	0.30	0.30
Sampling Date					02/10/2025	03/10/2025	02/10/2025	02/10/2025	02/10/2025
Test	Method	Accred	LoD	Units					
Moisture Content	CE001	N	0.1	%	31.5	18.5	3.7	17.3	15.3
Arsenic	CE264	U	1.8	mg/kg	< 1.8	10.1	7.9	13.4	n/t
Cadmium	CE264	M	1.6	mg/kg	* < 1.6	* < 1.6	* < 1.6	* < 1.6	n/t
Chromium	CE264	U	2	mg/kg	5.0	14.9	7.9	14.4	n/t
Chromium III	CE208	N	2	mg/kg	4.99	14.9	7.88	14.4	n/t
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	< 0.040	< 0.040	< 0.040	< 0.040	n/t
Copper	CE264	U	1.6	mg/kg	29.5	8.9	< 1.6	25.2	n/t
Lead	CE264	U	2.3	mg/kg	2.8	47.6	26.7	71.4	n/t
Mercury	CE264	U	0.7	mg/kg	< 0.7	< 0.7	0.7	< 0.7	n/t
Nickel	CE264	M	2.1	mg/kg	* 5.3	* 11.1	* 6.0	* 14.4	n/t
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	n/t
Zinc	CE264	M	4	mg/kg	* 52.4	* 55.8	* 27.0	* 66.6	n/t
pH	CE004	M	0.1	pH units	* 7.1	* 8.3	* 8.7	* 8.2	n/t
Water Soluble Sulphate	CE061	M	10	mg/l	30.1	93.3	< 10.0	15.7	n/t
Free Cyanide	CE077	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	n/t
Total Organic Carbon	CE197	M	0.1	%	10.8	* 2.06	* 0.35	* 4.27	n/t
Polyaromatic hydrocarbons									
Acenaphthene	CE087	M	0.013	mg/kg	* 0.017	* 0.014	* < 0.013	* 0.109	n/t
Acenaphthylene	CE087	M	0.015	mg/kg	* < 0.015	* < 0.015	* < 0.015	* 0.015	n/t
Anthracene	CE087	U	0.017	mg/kg	0.025	0.027	< 0.017	0.159	n/t
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.107	0.103	< 0.012	0.732	n/t
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.094	0.091	< 0.019	0.645	n/t
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	* 0.148	* 0.125	* < 0.020	* 1.03	n/t
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	* 0.062	* 0.052	* < 0.019	* 0.396	n/t
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	* 0.069	* 0.050	* < 0.025	* 0.337	n/t
Chrysene	CE087	M	0.028	mg/kg	* 0.096	* 0.079	* < 0.028	* 0.635	n/t
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	* < 0.017	* < 0.017	* < 0.017	* 0.140	n/t
Fluoranthene	CE087	M	0.017	mg/kg	* 0.161	* 0.157	* < 0.017	* 1.26	n/t
Fluorene	CE087	U	0.013	mg/kg	< 0.013	< 0.013	< 0.013	0.071	n/t
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	* 0.104	* 0.099	* < 0.019	* 0.747	n/t
Naphthalene	CE087	M	0.016	mg/kg	* 0.022	* < 0.016	* < 0.016	* 0.091	n/t

SOILS

Lab Number					71663	71664	71665	71666	71667
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					WS03	WS07	HP01	HP02	HP05
Depth (m)					0.25	0.50	0.60	0.30	0.30
Sampling Date					02/10/2025	03/10/2025	02/10/2025	02/10/2025	02/10/2025
Test	Method	Accred	LoD	Units					
Phenanthrene	CE087	M	0.014	mg/kg	* 0.134	* 0.112	* < 0.014	* 0.846	n/t
Pyrene	CE087	M	0.016	mg/kg	* 0.173	* 0.162	* < 0.016	* 1.32	n/t
Total PAH(16)	CE087	N	0.28	mg/kg	1.21	1.07	< 0.280	8.53	n/t
BTEX & Total Petroleum Hydrocarbons									
Benzene	CE267	U	0.001	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	n/t
Toluene	CE267	U	0.001	mg/kg	0.002	< 0.001	< 0.001	< 0.001	n/t
Ethylbenzene	CE267	U	0.001	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	n/t
MTBE	CE267	N	0.002	mg/kg	< 0.002	< 0.002	< 0.002	< 0.002	n/t
m,p-Xylene	CE267	U	0.002	mg/kg	< 0.002	< 0.002	< 0.002	< 0.002	n/t
oXylenes	CE267	U	0.002	mg/kg	< 0.002	< 0.002	< 0.002	< 0.002	n/t
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	n/t
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	n/t
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	n/t
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	< 1.0	1.1	< 1.0	3.5	n/t
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.1	n/t
>C16-C35 Aliphatic (EH_2D_AL)	CE250	N	3	mg/kg	6.1	5.7	4.4	9.4	n/t
>C35-C44 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	n/t
>C5-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	n/t
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	n/t
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	n/t
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	1.6	1.9	1.2	3.7	n/t
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	3.7	4.7	2.9	9.0	n/t
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	< 2.0	2.5	< 2.0	6.3	n/t
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	8.2	8.9	4.7	23.7	n/t
>C35-C44 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	2.2	< 2.0	< 2.0	4.5	n/t
>C5-C44 Total (HS_1D_MS+EH_2D_Total)	CE250	N	14	mg/kg	24.4	27.0	16.4	61.4	n/t
PCB (ICES 7 congeners)									
Total PCBs (7 congeners)	CE137	M	0.035	mg/kg	n/t	n/t	n/t	n/t	< 0.035
PCB 101	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t	< 0.015
PCB 118	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t	< 0.015
PCB 138	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t	< 0.015

SOILS

Lab Number					71663	71664	71665	71666	71667
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					WS03	WS07	HP01	HP02	HP05
Depth (m)					0.25	0.50	0.60	0.30	0.30
Sampling Date					02/10/2025	03/10/2025	02/10/2025	02/10/2025	02/10/2025
Test	Method	Accred	LoD	Units					
PCB 153	CE137	M	0.01	mg/kg	n/t	n/t	n/t	n/t	< 0.010
PCB 180	CE137	M	0.01	mg/kg	n/t	n/t	n/t	n/t	< 0.010
PCB 28	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t	< 0.015
PCB 52	CE137	M	0.01	mg/kg	n/t	n/t	n/t	n/t	< 0.010
Asbestos									
Asbestos Identification	SUBCO N	SU	0	-	NAD	NAD	NAD	NAD	n/t

SOILS

Lab Number					71668	71669	71670	71671	71672
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					HP06	WS01	WS01	WS02	WS03
Depth (m)					0.60	1.20	1.70	1.50	1.25
Sampling Date					02/10/2025	02/10/2025	02/10/2025	02/10/2025	02/10/2025
Test	Method	Accred	LoD	Units					
Moisture Content	CE001	N	0.1	%	23.1	10.4	13.4	11.9	21.3
Arsenic	CE264	U	1.8	mg/kg	n/t	n/t	n/t	n/t	n/t
Cadmium	CE264	M	1.6	mg/kg	n/t	n/t	n/t	n/t	n/t
Chromium	CE264	U	2	mg/kg	n/t	n/t	n/t	n/t	n/t
Chromium III	CE208	N	2	mg/kg	n/t	n/t	n/t	n/t	n/t
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	n/t	n/t	n/t	n/t	n/t
Copper	CE264	U	1.6	mg/kg	n/t	n/t	n/t	n/t	n/t
Lead	CE264	U	2.3	mg/kg	n/t	n/t	n/t	n/t	n/t
Mercury	CE264	U	0.7	mg/kg	n/t	n/t	n/t	n/t	n/t
Nickel	CE264	M	2.1	mg/kg	n/t	n/t	n/t	n/t	n/t
Selenium	CE264	U	3	mg/kg	n/t	n/t	n/t	n/t	n/t
Zinc	CE264	M	4	mg/kg	n/t	n/t	n/t	n/t	n/t
pH	CE004	M	0.1	pH units	n/t	* 8.8	* 8.0	* 7.9	* 6.5
Water Soluble Sulphate	CE061	M	10	mg/l	n/t	< 10.0	< 10.0	< 10.0	< 10.0
Free Cyanide	CE077	N	1	mg/kg	n/t	n/t	n/t	n/t	n/t
Total Organic Carbon	CE197	M	0.1	%	n/t	n/t	n/t	n/t	n/t
Polyaromatic hydrocarbons									
Acenaphthene	CE087	M	0.013	mg/kg	n/t	n/t	n/t	n/t	n/t
Acenaphthylene	CE087	M	0.015	mg/kg	n/t	n/t	n/t	n/t	n/t
Anthracene	CE087	U	0.017	mg/kg	n/t	n/t	n/t	n/t	n/t
Benzo(a)anthracene	CE087	U	0.012	mg/kg	n/t	n/t	n/t	n/t	n/t
Benzo(a)pyrene	CE087	U	0.019	mg/kg	n/t	n/t	n/t	n/t	n/t
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	n/t	n/t	n/t	n/t	n/t
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	n/t	n/t	n/t	n/t	n/t
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	n/t	n/t	n/t	n/t	n/t
Chrysene	CE087	M	0.028	mg/kg	n/t	n/t	n/t	n/t	n/t
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	n/t	n/t	n/t	n/t	n/t
Fluoranthene	CE087	M	0.017	mg/kg	n/t	n/t	n/t	n/t	n/t
Fluorene	CE087	U	0.013	mg/kg	n/t	n/t	n/t	n/t	n/t
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	n/t	n/t	n/t	n/t	n/t
Naphthalene	CE087	M	0.016	mg/kg	n/t	n/t	n/t	n/t	n/t



SOILS

Lab Number					71668	71669	71670	71671	71672
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					HP06	WS01	WS01	WS02	WS03
Depth (m)					0.60	1.20	1.70	1.50	1.25
Sampling Date					02/10/2025	02/10/2025	02/10/2025	02/10/2025	02/10/2025
Test	Method	Accred	LoD	Units					
Phenanthrene	CE087	M	0.014	mg/kg	n/t	n/t	n/t	n/t	n/t
Pyrene	CE087	M	0.016	mg/kg	n/t	n/t	n/t	n/t	n/t
Total PAH(16)	CE087	N	0.28	mg/kg	n/t	n/t	n/t	n/t	n/t
BTEX & Total Petroleum Hydrocarbons									
Benzene	CE267	U	0.001	mg/kg	n/t	n/t	n/t	n/t	n/t
Toluene	CE267	U	0.001	mg/kg	n/t	n/t	n/t	n/t	n/t
Ethylbenzene	CE267	U	0.001	mg/kg	n/t	n/t	n/t	n/t	n/t
MTBE	CE267	N	0.002	mg/kg	n/t	n/t	n/t	n/t	n/t
m,p-Xylene	CE267	U	0.002	mg/kg	n/t	n/t	n/t	n/t	n/t
oXylenes	CE267	U	0.002	mg/kg	n/t	n/t	n/t	n/t	n/t
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	n/t	n/t	n/t	n/t	n/t
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	n/t	n/t	n/t	n/t	n/t
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	n/t	n/t	n/t	n/t	n/t
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	n/t	n/t	n/t	n/t	n/t
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	n/t	n/t	n/t	n/t	n/t
>C16-C35 Aliphatic (EH_2D_AL)	CE250	N	3	mg/kg	n/t	n/t	n/t	n/t	n/t
>C35-C44 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	n/t	n/t	n/t	n/t	n/t
>C5-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	n/t	n/t	n/t	n/t	n/t
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	n/t	n/t	n/t	n/t	n/t
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	n/t	n/t	n/t	n/t	n/t
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	n/t	n/t	n/t	n/t	n/t
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	n/t	n/t	n/t	n/t	n/t
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	n/t	n/t	n/t	n/t	n/t
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	n/t	n/t	n/t	n/t	n/t
>C35-C44 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	n/t	n/t	n/t	n/t	n/t
>C5-C44 Total (HS_1D_MS+EH_2D_Total)	CE250	N	14	mg/kg	n/t	n/t	n/t	n/t	n/t
PCB (ICES 7 congeners)									
Total PCBs (7 congeners)	CE137	M	0.035	mg/kg	< 0.035	n/t	n/t	n/t	n/t
PCB 101	CE137	M	0.015	mg/kg	< 0.015	n/t	n/t	n/t	n/t
PCB 118	CE137	M	0.015	mg/kg	< 0.015	n/t	n/t	n/t	n/t
PCB 138	CE137	M	0.015	mg/kg	< 0.015	n/t	n/t	n/t	n/t

SOILS

Lab Number					71668	71669	71670	71671	71672
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					HP06	WS01	WS01	WS02	WS03
Depth (m)					0.60	1.20	1.70	1.50	1.25
Sampling Date					02/10/2025	02/10/2025	02/10/2025	02/10/2025	02/10/2025
Test	Method	Accred	LoD	Units					
PCB 153	CE137	M	0.01	mg/kg	< 0.010	n/t	n/t	n/t	n/t
PCB 180	CE137	M	0.01	mg/kg	< 0.010	n/t	n/t	n/t	n/t
PCB 28	CE137	M	0.015	mg/kg	< 0.015	n/t	n/t	n/t	n/t
PCB 52	CE137	M	0.01	mg/kg	< 0.010	n/t	n/t	n/t	n/t
Asbestos									
Asbestos Identification	SUBCO N	SU	0	-	n/t	n/t	n/t	n/t	n/t

SOILS

Lab Number					71673	71674	71675	71676
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					WS04	WS05	WS06	WS07
Depth (m)					0.50	1.50	2.50	1.50
Sampling Date					03/10/2025	03/10/2025	03/10/2025	03/10/2025
Test	Method	Accred	LoD	Units				
Moisture Content	CE001	N	0.1	%	16.5	13.6	12.6	18.9
Arsenic	CE264	U	1.8	mg/kg	n/t	n/t	n/t	n/t
Cadmium	CE264	M	1.6	mg/kg	n/t	n/t	n/t	n/t
Chromium	CE264	U	2	mg/kg	n/t	n/t	n/t	n/t
Chromium III	CE208	N	2	mg/kg	n/t	n/t	n/t	n/t
Water Soluble Chromium VI	CE263	N	0.04	mg/kg	n/t	n/t	n/t	n/t
Copper	CE264	U	1.6	mg/kg	n/t	n/t	n/t	n/t
Lead	CE264	U	2.3	mg/kg	n/t	n/t	n/t	n/t
Mercury	CE264	U	0.7	mg/kg	n/t	n/t	n/t	n/t
Nickel	CE264	M	2.1	mg/kg	n/t	n/t	n/t	n/t
Selenium	CE264	U	3	mg/kg	n/t	n/t	n/t	n/t
Zinc	CE264	M	4	mg/kg	n/t	n/t	n/t	n/t
pH	CE004	M	0.1	pH units	* 8.2	* 7.9	* 7.5	* 7.1
Water Soluble Sulphate	CE061	M	10	mg/l	328	26.2	< 10.0	22.6
Free Cyanide	CE077	N	1	mg/kg	n/t	n/t	n/t	n/t
Total Organic Carbon	CE197	M	0.1	%	n/t	n/t	n/t	n/t
Polyaromatic hydrocarbons								
Acenaphthene	CE087	M	0.013	mg/kg	n/t	n/t	n/t	n/t
Acenaphthylene	CE087	M	0.015	mg/kg	n/t	n/t	n/t	n/t
Anthracene	CE087	U	0.017	mg/kg	n/t	n/t	n/t	n/t
Benzo(a)anthracene	CE087	U	0.012	mg/kg	n/t	n/t	n/t	n/t
Benzo(a)pyrene	CE087	U	0.019	mg/kg	n/t	n/t	n/t	n/t
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	n/t	n/t	n/t	n/t
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	n/t	n/t	n/t	n/t
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	n/t	n/t	n/t	n/t
Chrysene	CE087	M	0.028	mg/kg	n/t	n/t	n/t	n/t
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	n/t	n/t	n/t	n/t
Fluoranthene	CE087	M	0.017	mg/kg	n/t	n/t	n/t	n/t
Fluorene	CE087	U	0.013	mg/kg	n/t	n/t	n/t	n/t
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	n/t	n/t	n/t	n/t
Naphthalene	CE087	M	0.016	mg/kg	n/t	n/t	n/t	n/t

SOILS

Lab Number					71673	71674	71675	71676
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					WS04	WS05	WS06	WS07
Depth (m)					0.50	1.50	2.50	1.50
Sampling Date					03/10/2025	03/10/2025	03/10/2025	03/10/2025
Test	Method	Accred	LoD	Units				
Phenanthrene	CE087	M	0.014	mg/kg	n/t	n/t	n/t	n/t
Pyrene	CE087	M	0.016	mg/kg	n/t	n/t	n/t	n/t
Total PAH(16)	CE087	N	0.28	mg/kg	n/t	n/t	n/t	n/t
BTEX & Total Petroleum Hydrocarbons								
Benzene	CE267	U	0.001	mg/kg	n/t	n/t	n/t	n/t
Toluene	CE267	U	0.001	mg/kg	n/t	n/t	n/t	n/t
Ethylbenzene	CE267	U	0.001	mg/kg	n/t	n/t	n/t	n/t
MTBE	CE267	N	0.002	mg/kg	n/t	n/t	n/t	n/t
m,p-Xylene	CE267	U	0.002	mg/kg	n/t	n/t	n/t	n/t
oXylenes	CE267	U	0.002	mg/kg	n/t	n/t	n/t	n/t
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	n/t	n/t	n/t	n/t
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	n/t	n/t	n/t	n/t
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	n/t	n/t	n/t	n/t
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	n/t	n/t	n/t	n/t
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	n/t	n/t	n/t	n/t
>C16-C35 Aliphatic (EH_2D_AL)	CE250	N	3	mg/kg	n/t	n/t	n/t	n/t
>C35-C44 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	n/t	n/t	n/t	n/t
>C5-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	n/t	n/t	n/t	n/t
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	n/t	n/t	n/t	n/t
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	n/t	n/t	n/t	n/t
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	n/t	n/t	n/t	n/t
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	n/t	n/t	n/t	n/t
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	n/t	n/t	n/t	n/t
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	n/t	n/t	n/t	n/t
>C35-C44 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	n/t	n/t	n/t	n/t
>C5-C44 Total (HS_1D_MS+EH_2D_Total)	CE250	N	14	mg/kg	n/t	n/t	n/t	n/t
PCB (ICES 7 congeners)								
Total PCBs (7 congeners)	CE137	M	0.035	mg/kg	n/t	n/t	n/t	n/t
PCB 101	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t
PCB 118	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t
PCB 138	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t

SOILS

Lab Number					71673	71674	71675	71676
Client Reference					SOIL	SOIL	SOIL	SOIL
Sample ID					WS04	WS05	WS06	WS07
Depth (m)					0.50	1.50	2.50	1.50
Sampling Date					03/10/2025	03/10/2025	03/10/2025	03/10/2025
Test	Method	Accred	LoD	Units				
PCB 153	CE137	M	0.01	mg/kg	n/t	n/t	n/t	n/t
PCB 180	CE137	M	0.01	mg/kg	n/t	n/t	n/t	n/t
PCB 28	CE137	M	0.015	mg/kg	n/t	n/t	n/t	n/t
PCB 52	CE137	M	0.01	mg/kg	n/t	n/t	n/t	n/t
Asbestos								
Asbestos Identification	SUBCO N	SU	0	-	n/t	n/t	n/t	n/t

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
CE250	GCXGC in Soil	DCM Extraction and GCxGC-FID	As submitted sample
SUBCON	Asbestos Soil	HSG248	Air Dried Sample
CE061	W. Sol Metals	ICPOES	Air dried sample
CE137	PCB's in Soil	DCM Extraction and GCMS	As submitted sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE267	BTEX in Soils	Analysis by HSGCFID	As submitted sample
CE263	ChromiumVI by Discrete Analyser in Soil	Gallery	Air dried sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE077	Cyanides in Soils	Continuous Flow Analyser	As submitted sample
CE208	Chromium Hexavalent in Soil	Colorimetry	Air dried sample
CE197	Primacs in Soil	Primacs	Air dried sample

REPORT INFORMATION

Report No.:25-09964, issue number 1

Key	
U	ISO17025 Accredited Result
M	ISO17025 and MCERTS Accredited Result
N	Do not currently hold accreditation
^	MCERTS accreditation not applicable for sample matrix
*	ISO17025 accreditation not applicable for sample matrix
S	Subcontracted
I/S	Insufficient Sample
U/S	Unsuitable sample
N/T	Not tested
<	Means "less than"
>	Means "greater than"

LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

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

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

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

The results relate only to the sample received.

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Moisture Content Calculated on a Wet Weight basis (at 30°C)

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

Where sampling was undertaken by Chemtech Environmental Limited it is outside the UKAS accreditation scope.

Methods, procedures and performance data are available on request.

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

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

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

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

'Client Reference', 'Sample ID', 'Sample Location', 'Sample Type', 'Depth', 'Sample Date' and 'Sample Time' information is provided by the customer

Sample Retention and Disposal

All soil samples will be retained for a period of 4 weeks from the point of receipt

All water samples will be retained for a period of 2 weeks from the point of Reporting

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unless specifically identified (noted as "(B)" in analyte name) all internal analysis performed at Durham site

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APPENDIX IV



Waste Classification Report

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

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



JAYB5-UMU66-BTLWA

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

Report is invalid if pages are removed.

Job name

25-446

Description/Comments

Project

25-446

Site

Land Adjacent to Queens Dr, Rochdale

Classified by

Name: Sai Turlapati
Date: 03 Nov 2025 15:41 GMT
Telephone:
Company: Arc Environmental Ltd
Solum House, Unit 1
Elliott Court, St. Johns Road
Meadowfield
DH7 8PN

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

HazWasteOnline™ Certification:

CERTIFIED

Course
Hazardous Waste Classification

Date
03 Apr 2025

Next 3 year Refresher due by Apr 2028

Purpose of classification

2 - Material Characterisation

Address of the waste

Land Adjacent to Queens Dr, Rochdale

Post Code OL11 2NW

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

Construction of proposed development.

Description of the specific process, sub-process and/or activity that created the waste

Excavation of made ground materials.

Description of the waste

Disturbed natural strata mixed with anthropogenic debris.



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS03-0.25--02/10/2025-SOIL-71663		Non Hazardous		3
2	WS07-0.50--03/10/2025-SOIL-71664		Non Hazardous		6
3	HP01-0.60--02/10/2025-SOIL-71665		Non Hazardous		9
4	HP02-0.30--02/10/2025-SOIL-71666		Non Hazardous		12

Related documents

#	Name	Description
1	HWOL_25-09964-20251016.HWOL	Chemtech Environmental .hwol file used to populate the Job
2	Example worst case waste stream template: 17 05 04 or 17 05 03 *	waste stream template used to create this Job

Report

Created by: Sai Turlapati

Created date: 03 Nov 2025 15:41 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	15
Appendix B: Rationale for selection of metal species	16
Appendix C: Version	17

Classification of sample: WS03-0.25--02/10/2025-SOIL-71663

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

Sample details

Sample name:	LoW Code:
WS03-0.25--02/10/2025-SOIL-71663	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
31.5% (wet weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 31.5% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	asbestos fibres detected (Yes/No)				No					
			ACM_FIBRES							
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				<1.8 mg/kg	1.895	<3.41 mg/kg	<0.000341 %		<LOD
	033-005-00-1									
3	cadmium { cadmium sulfate }				<1.6 mg/kg	1.855	<2.967 mg/kg	<0.000297 %		<LOD
	048-009-00-9	233-331-6	10124-36-4							
4	chromium in Cr(III) compounds { chromium(III) oxide }				4.99 mg/kg	1.462	4.996 mg/kg	0.0005 %	✓	
		215-160-9	1308-38-9							
5	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.04 mg/kg	2.27	<0.0908 mg/kg	<0.00000908 %		<LOD
	024-017-00-8									
6	copper { copper sulphate pentahydrate }				29.5 mg/kg	3.929	79.396 mg/kg	0.00794 %	✓	
	029-023-00-4	231-847-6	7758-99-8							
7	lead { lead chromate }			1	2.8 mg/kg	1.56	2.992 mg/kg	0.000192 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.7 mg/kg	1.353	<0.947 mg/kg	<0.0000947 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel dibromate }				5.3 mg/kg	5.358	19.453 mg/kg	0.00195 %	✓	
	028-053-00-5	238-596-1	14550-87-9							
10	selenium { nickel selenate }				<3 mg/kg	2.554	<7.662 mg/kg	<0.000766 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				52.4 mg/kg	2.774	99.575 mg/kg	0.00996 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				24.4 mg/kg		16.714 mg/kg	0.00167 %	✓	
			TPH							
13	confirm TPH has NOT arisen from diesel or petrol				☒					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
15	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
16	toluene				0.002 mg/kg		0.0013 mg/kg	0.000000137 %	✓	
	601-021-00-3	203-625-9	108-88-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
17	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
18	xylene 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]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
19	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
20	pH		PH		7.1 pH		7.1 pH	7.1 pH			
21	naphthalene 601-052-00-2	202-049-5	91-20-3		0.022 mg/kg		0.0151 mg/kg	0.00000151 %		✓	
22	acenaphthylene 205-917-1	208-96-8			<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %			<LOD
23	acenaphthene 201-469-6	83-32-9			0.017 mg/kg		0.0116 mg/kg	0.00000116 %		✓	
24	fluorene 201-695-5	86-73-7			<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %			<LOD
25	phenanthrene 201-581-5	85-01-8			0.134 mg/kg		0.0918 mg/kg	0.00000918 %		✓	
26	anthracene 204-371-1	120-12-7			0.025 mg/kg		0.0171 mg/kg	0.00000171 %		✓	
27	fluoranthene 205-912-4	206-44-0			0.161 mg/kg		0.11 mg/kg	0.000011 %		✓	
28	pyrene 204-927-3	129-00-0			0.173 mg/kg		0.119 mg/kg	0.0000119 %		✓	
29	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.107 mg/kg		0.0733 mg/kg	0.00000733 %		✓	
30	chrysene 601-048-00-0	205-923-4	218-01-9		0.096 mg/kg		0.0658 mg/kg	0.00000658 %		✓	
31	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.148 mg/kg		0.101 mg/kg	0.0000101 %		✓	
32	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.069 mg/kg		0.0473 mg/kg	0.00000473 %		✓	
33	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		0.094 mg/kg		0.0644 mg/kg	0.00000644 %		✓	
34	indeno[123-cd]pyrene 205-893-2	193-39-5			0.104 mg/kg		0.0712 mg/kg	0.00000712 %		✓	
35	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %			<LOD
36	benzo[ghi]perylene 205-883-8	191-24-2			0.062 mg/kg		0.0425 mg/kg	0.00000425 %		✓	
Total:									0.0223 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%)
because: Total TPH's to be less than 1000 mg/kg to be recorded as Non-Hazardous sample.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 1.37e-07%)

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00167%)

Classification of sample: WS07-0.50--03/10/2025-SOIL-71664

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

Sample details

Sample name:	LoW Code:
WS07-0.50--03/10/2025-SOIL-71664	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18.5% (wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 18.5% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	asbestos fibres detected (Yes/No)				No						
			ACM_FIBRES								
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				10.1 mg/kg	1.895	15.595	mg/kg	0.00156 %	✓	
	033-005-00-1										
3	cadmium { cadmium sulfate }				<1.6 mg/kg	1.855	<2.967	mg/kg	<0.000297 %		<LOD
	048-009-00-9	233-331-6	10124-36-4								
4	chromium in Cr(III) compounds { chromium(III) oxide }				14.9 mg/kg	1.462	17.748	mg/kg	0.00177 %	✓	
		215-160-9	1308-38-9								
5	chromium in Cr(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.04 mg/kg	2.27	<0.0908	mg/kg	<0.0000908 %		<LOD
	024-017-00-8										
6	copper { copper sulphate pentahydrate }				8.9 mg/kg	3.929	28.499	mg/kg	0.00285 %	✓	
	029-023-00-4	231-847-6	7758-99-8								
7	lead { lead chromate }			1	47.6 mg/kg	1.56	60.511	mg/kg	0.00388 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.7 mg/kg	1.353	<0.947	mg/kg	<0.0000947 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel dibromate }				11.1 mg/kg	5.358	48.474	mg/kg	0.00485 %	✓	
	028-053-00-5	238-596-1	14550-87-9								
10	selenium { nickel selenate }				<3 mg/kg	2.554	<7.662	mg/kg	<0.000766 %		<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				55.8 mg/kg	2.774	126.16	mg/kg	0.0126 %	✓	
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				27 mg/kg		22.005	mg/kg	0.0022 %	✓	
			TPH								
13	confirm TPH has NOT arisen from diesel or petrol				☒						
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.002 mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
15	benzene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.001 mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	xylene 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]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
19	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
20	pH		PH		8.3 pH		8.3 pH	8.3 pH		
21	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %		<LOD
22	acenaphthylene 205-917-1	208-96-8			<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
23	acenaphthene 201-469-6	83-32-9			0.014 mg/kg		0.0114 mg/kg	0.00000114 %	✓	
24	fluorene 201-695-5	86-73-7			<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %		<LOD
25	phenanthrene 201-581-5	85-01-8			0.112 mg/kg		0.0913 mg/kg	0.00000913 %	✓	
26	anthracene 204-371-1	120-12-7			0.027 mg/kg		0.022 mg/kg	0.0000022 %	✓	
27	fluoranthene 205-912-4	206-44-0			0.157 mg/kg		0.128 mg/kg	0.0000128 %	✓	
28	pyrene 204-927-3	129-00-0			0.162 mg/kg		0.132 mg/kg	0.0000132 %	✓	
29	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.103 mg/kg		0.0839 mg/kg	0.00000839 %	✓	
30	chrysene 601-048-00-0	205-923-4	218-01-9		0.079 mg/kg		0.0644 mg/kg	0.00000644 %	✓	
31	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.125 mg/kg		0.102 mg/kg	0.0000102 %	✓	
32	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.05 mg/kg		0.0408 mg/kg	0.00000408 %	✓	
33	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		0.091 mg/kg		0.0742 mg/kg	0.00000742 %	✓	
34	indeno[123-cd]pyrene 205-893-2	193-39-5			0.099 mg/kg		0.0807 mg/kg	0.00000807 %	✓	
35	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %		<LOD
36	benzo[ghi]perylene 205-883-8	191-24-2			0.052 mg/kg		0.0424 mg/kg	0.00000424 %	✓	
Total:								0.0298 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%)
because: Total TPH's to be less than 1000 mg/kg to be recorded as Non-Hazardous sample.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0022%)

Classification of sample: HP01-0.60--02/10/2025-SOIL-71665

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

Sample details

Sample name:	LoW Code:
HP01-0.60--02/10/2025-SOIL-71665	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
3.7% (wet weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 3.7% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	asbestos fibres detected (Yes/No)				No					
			ACM_FIBRES							
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				7.9 mg/kg	1.895	14.413 mg/kg	0.00144 %	✓	
	033-005-00-1									
3	cadmium { cadmium sulfate }				<1.6 mg/kg	1.855	<2.967 mg/kg	<0.000297 %		<LOD
	048-009-00-9	233-331-6	10124-36-4							
4	chromium in Cr(III) compounds { chromium(III) oxide }				7.88 mg/kg	1.462	11.091 mg/kg	0.00111 %	✓	
		215-160-9	1308-38-9							
5	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.04 mg/kg	2.27	<0.0908 mg/kg	<0.00000908 %		<LOD
	024-017-00-8									
6	copper { copper sulphate pentahydrate }				<1.6 mg/kg	3.929	<6.286 mg/kg	<0.000629 %		<LOD
	029-023-00-4	231-847-6	7758-99-8							
7	lead { lead chromate }			1	26.7 mg/kg	1.56	40.106 mg/kg	0.00257 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.7 mg/kg	1.353	0.912 mg/kg	0.0000912 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel dibromate }				6 mg/kg	5.358	30.96 mg/kg	0.0031 %	✓	
	028-053-00-5	238-596-1	14550-87-9							
10	selenium { nickel selenate }				<3 mg/kg	2.554	<7.662 mg/kg	<0.000766 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				27 mg/kg	2.774	72.131 mg/kg	0.00721 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				16.4 mg/kg		15.793 mg/kg	0.00158 %	✓	
			TPH							
13	confirm TPH has NOT arisen from diesel or petrol				☒					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
15	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
16	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
17	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
18	xylene 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]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %			<LOD
19	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
20	pH		PH		8.7 pH		8.7 pH	8.7 pH			
21	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %			<LOD
22	acenaphthylene 205-917-1	208-96-8			<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %			<LOD
23	acenaphthene 201-469-6	83-32-9			<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %			<LOD
24	fluorene 201-695-5	86-73-7			<0.013 mg/kg		<0.013 mg/kg	<0.0000013 %			<LOD
25	phenanthrene 201-581-5	85-01-8			<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %			<LOD
26	anthracene 204-371-1	120-12-7			<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %			<LOD
27	fluoranthene 205-912-4	206-44-0			<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %			<LOD
28	pyrene 204-927-3	129-00-0			<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %			<LOD
29	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %			<LOD
30	chrysene 601-048-00-0	205-923-4	218-01-9		<0.028 mg/kg		<0.028 mg/kg	<0.0000028 %			<LOD
31	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
32	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.025 mg/kg		<0.025 mg/kg	<0.0000025 %			<LOD
33	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.019 mg/kg		<0.019 mg/kg	<0.0000019 %			<LOD
34	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.019 mg/kg		<0.019 mg/kg	<0.0000019 %			<LOD
35	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %			<LOD
36	benzo[ghi]perylene 205-883-8	191-24-2			<0.019 mg/kg		<0.019 mg/kg	<0.0000019 %			<LOD
Total:									0.0171 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%)
because: Total TPH's to be less than 1000 mg/kg to be recorded as Non-Hazardous sample.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00158%)

Classification of sample: HP02-0.30--02/10/2025-SOIL-71666

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

Sample details

Sample name:	LoW Code:
HP02-0.30--02/10/2025-SOIL-71666	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
17.3% (wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 17.3% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	asbestos fibres detected (Yes/No)				No						
			ACM_FIBRES								
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				13.4 mg/kg	1.895	20.995 mg/kg		0.0021 %	✓	
	033-005-00-1										
3	cadmium { cadmium sulfate }				<1.6 mg/kg	1.855	<2.967 mg/kg		<0.000297 %		<LOD
	048-009-00-9	233-331-6	10124-36-4								
4	chromium in Cr(III) compounds { chromium(III) oxide }				14.4 mg/kg	1.462	17.405 mg/kg		0.00174 %	✓	
		215-160-9	1308-38-9								
5	chromium in Cr(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.04 mg/kg	2.27	<0.0908 mg/kg		<0.0000908 %		<LOD
	024-017-00-8										
6	copper { copper sulphate pentahydrate }				25.2 mg/kg	3.929	81.883 mg/kg		0.00819 %	✓	
	029-023-00-4	231-847-6	7758-99-8								
7	lead { lead chromate }			1	71.4 mg/kg	1.56	92.104 mg/kg		0.0059 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.7 mg/kg	1.353	<0.947 mg/kg		<0.0000947 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel dibromate }				14.4 mg/kg	5.358	63.811 mg/kg		0.00638 %	✓	
	028-053-00-5	238-596-1	14550-87-9								
10	selenium { nickel selenate }				<3 mg/kg	2.554	<7.662 mg/kg		<0.000766 %		<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				66.6 mg/kg	2.774	152.795 mg/kg		0.0153 %	✓	
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				61.4 mg/kg		50.778 mg/kg		0.00508 %	✓	
			TPH								
13	confirm TPH has NOT arisen from diesel or petrol				☒						
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.002 mg/kg		<0.002 mg/kg		<0.0000002 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
15	benzene				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
16	toluene				<0.001 mg/kg		<0.001 mg/kg		<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
18	xylene 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]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
19	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
20	pH		PH		8.2 pH		8.2 pH	8.2 pH		
21	naphthalene 601-052-00-2	202-049-5	91-20-3		0.091 mg/kg		0.0753 mg/kg	0.00000753 %	✓	
22	acenaphthylene 205-917-1	208-96-8			0.015 mg/kg		0.0124 mg/kg	0.00000124 %	✓	
23	acenaphthene 201-469-6	83-32-9			0.109 mg/kg		0.0901 mg/kg	0.00000901 %	✓	
24	fluorene 201-695-5	86-73-7			0.071 mg/kg		0.0587 mg/kg	0.00000587 %	✓	
25	phenanthrene 201-581-5	85-01-8			0.846 mg/kg		0.7 mg/kg	0.00007 %	✓	
26	anthracene 204-371-1	120-12-7			0.159 mg/kg		0.131 mg/kg	0.0000131 %	✓	
27	fluoranthene 205-912-4	206-44-0			1.26 mg/kg		1.042 mg/kg	0.000104 %	✓	
28	pyrene 204-927-3	129-00-0			1.32 mg/kg		1.092 mg/kg	0.000109 %	✓	
29	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		0.732 mg/kg		0.605 mg/kg	0.0000605 %	✓	
30	chrysene 601-048-00-0	205-923-4	218-01-9		0.635 mg/kg		0.525 mg/kg	0.0000525 %	✓	
31	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		1.03 mg/kg		0.852 mg/kg	0.0000852 %	✓	
32	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.337 mg/kg		0.279 mg/kg	0.0000279 %	✓	
33	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		0.645 mg/kg		0.533 mg/kg	0.0000533 %	✓	
34	indeno[123-cd]pyrene 205-893-2	193-39-5			0.747 mg/kg		0.618 mg/kg	0.0000618 %	✓	
35	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		0.14 mg/kg		0.116 mg/kg	0.0000116 %	✓	
36	benzo[ghi]perylene 205-883-8	191-24-2			0.396 mg/kg		0.327 mg/kg	0.0000327 %	✓	
Total:								0.0454 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%)
because: Total TPH's to be less than 1000 mg/kg to be recorded as Non-Hazardous sample.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.00508%)

Appendix A: Classifier defined and non GB MCL determinands

▀ **asbestos fibres detected (Yes/No)** (CAS Number: ACM_FIBRES)

Description/Comments: not classified, information only

Data source: N/A

Data source date: 15 Jan 2020

Hazard Statements: None.

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

Description/Comments: Data from ECHA's C&L inventory database

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

Data source date: 30 Apr 2020

Hazard Statements: Acute Tox. 4; H302 , Skin Sens. 1; H317 , Eye Irrit. 2; H319

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

Description/Comments: Unknown Oil

Hazard statements taken from WM3 1st Edition 2015

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

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

▀ **confirm TPH has NOT arisen from diesel or petrol**

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

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

GB MCL index number: 006-007-00-5

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

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

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

▀ **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

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

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

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

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

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

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

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

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

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

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

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst case CLP species based on hazard statements/molecular weight and conversion factor for arsenic acid H₃AsO₄. (edit as required)

cadmium {cadmium sulfate}

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

chromium in Cr(III) compounds {chromium(III) oxide}

Worst case scenario CRIII selected as levels of oxygen too low to be oxidised.

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

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

copper {copper sulphate pentahydrate}

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

lead {lead chromate}

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

mercury {mercury dichloride}

Reasonable worst case CLP species based on hazard statements/molecular weight and assuming no evidence for the use of explosives. (edit as required)



nickel {nickel dibromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

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

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

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2025.303.6844.12384 (30 Oct 2025)

HazWasteOnline Database: 2025.303.6844.12384 (30 Oct 2025)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024

GB MCL List v6.0 - version 6.0 of 15th February 2025