



Ground Investigation Report

Woodbank Primary School

Brandlesholme Road

Bury

BL8 1AX

Prepared for:

SKW Construction Ltd

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Scarborough

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WOODBANK PRIMARY SCHOOL, BURY

NON-TECHNICAL CLIENT SUMMARY

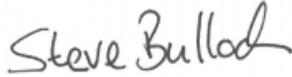
This report presents the findings of a Ground Investigation undertaken to investigate the underlying ground conditions in an area of proposed redevelopment. Pertinent findings and conclusions may be summarised as follows:

- The site comprises a section of a grass playing field associated with Woodbank Primary School in Bury. The proposed development is understood to comprise the construction of a modular classroom and new area of hardstanding to the north of the existing buildings.
- Ground investigation work comprised the drilling of 4 boreholes to a maximum depth of 4.0m. Ground conditions were found to comprise a thin layer of topsoil overlying superficial Glaciofluvial Deposits, generally firm to stiff silty sandy clay or loose to medium dense clayey sand, above bedrock of the Lower Pennine Coal Measures; as recovered in one of the boreholes from ~3.9m. Groundwater was resting at around 0.9m in all boreholes upon completion of the works.
- The ground conditions are considered suitable for the use of spread foundations (strips or pads), formed upon either the granular or cohesive soils of the Glaciofluvial Deposits; with allowable bearing capacities starting from 90kN/m² at approximately 1.0m, and increasing depending on the nature and depth of the foundations.
- A BGS radon report confirms that no radon protection measures are required for the proposed development.
- The site is considered to be at significant risk from being affected by historical coal workings, with a seam recorded directly beneath the school grounds as well as possible shallow workings based on the information provided by the Coal Authority. Therefore, further Coal Mining Risk Assessment will be necessary prior to the commencement of construction work, including the formation of at least one deep (30m) borehole within the footprint of the proposed building.

The above points represent a simplified summary of the findings of this assessment and **must not** form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report, or alternatively get in touch and we'll talk you through it.



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The report has been written, reviewed and authorised by the persons listed above. It has also undergone EPS' in house quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

The National Planning Policy Framework requires a competent person to prepare site investigation information, which is defined as a person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation. EPS considers that it fulfils these criteria and would welcome any request for staff CVs or case studies to demonstrate it.

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1 INTRODUCTION

In August 2023, Environmental Protection Strategies Ltd (EPS) was commissioned by SKW Construction Ltd to complete a Ground Investigation Report, including a Preliminary Coal Mining Risk Assessment for Woodbank Primary School, Brandlesholme Road, Bury, BL8 1AX ('the site'); see Figure 1. Selected site photographs are included as Appendix A.

The work was commissioned in order to provide geotechnical information to assist with the design and construction of a new modular classroom building and playground area to the north of the existing school infrastructure.

It should be noted that a Phase I Desk Study did not form part of the brief for the works undertaken.

1.1 Scope of Work

To perform an exploratory assessment of the site in accordance with the principles and requirements of BS10175 – '*Investigation of Potentially Contaminated Sites*', BS5930:2015 '*Code of practice for ground investigation*' and BS EN 1997 '*Geotechnical Design*' the following tasks were undertaken:

Intrusive Investigation:

- Site walkover, inspection and obtaining photographic records.
- Health and safety briefing/site supervision.
- Completion of a topographic survey of the study area.
- Drilling of 4 windowless sample boreholes to a maximum depth of 4.0m below ground level (bgl), using a track-mounted, percussive rig.
- In-situ testing to assist with geotechnical design, including 4 dynamic cone penetrometer (DCP) tests, to provide in-situ CBR values.
- Continual logging of ground conditions including inspection of samples for visual and olfactory contamination (on a precautionary basis), and laboratory analysis of selected soil samples to classify materials for future off-site disposal and to assist in geotechnical design.

Reporting:

- Review of Consultants Mining Report sourced from the Coal Authority and production of a Preliminary Coal Mining Risk Assessment
- Data collection and interpretation
- Reporting

The findings of these investigations and their conclusions are presented in the following sections.

1.2 Limitations and Constraints

The purpose of this report is to present the findings of a soil sampling investigation conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, EPS makes the following statements:

No investigation method is capable of completely identifying all ground conditions that might be present in the soil or groundwater under a site. Where outlined in our report, we have examined the ground beneath a site by constructing a number of boreholes and / or trial pits to recover soil and / or groundwater samples. The locations of these excavations and sampling points are considered to be representative of the condition of the whole site subsurface however, ground conditions are naturally variable and it may be possible that the ground conditions encountered may differ to those encountered during the investigation.

No visible evidence of Japanese Knotweed was identified during the site walkover. However, this plant can be difficult to identify in the early stages of growth and therefore it is not always possible to identify its presence at certain times of the year. For this reason, EPS cannot confirm that Japanese Knotweed rhizomes do not exist and it is recommended that if it is suspected that this species, or other similarly invasive plants are present at the site, a specialist contractor should be commissioned to make a detailed assessment.

This report does not include a specific survey for the presence of Potential Asbestos Containing Material (PACM), rather it is a soil-survey where asbestos may be identified as a contaminant. Specialist contractors should be commissioned to make detailed assessments and recommendations if these materials are suspected.

2 SITE CONTEXT

The following information has been obtained from publicly available records to characterise the site and setting.

2.1 Site & Location Description

Detail	Description
Location	The site is located to the east of Brandlesholme Road in the north of Bury, approximately 1.2km north west of the town centre.
National Grid Reference	379580, 411932
Topographic Elevation	A topographic survey of the site was arranged by EPS on the 1 st August 2023 and the drawing (Ref: LS/EPS/2642-1) indicates levels throughout the site are generally flat with the elevation approximately 108m above ordnance datum (AOD). A very gradual slope from north to south is noted, with levels reducing by approximately 0.5m.
Site Description	The site comprises of a roughly rectangular plot of land, with the main school buildings located in the centre south, and extending into the north western corner. A converted bus, playground equipment and a wooden gazebo are also located in this area, and the playing field to the east of these features is the location of the proposed development. The playfield fields extend into the north eastern corner and across the east of the school grounds, with the existing playground in the south east and access point and car park in the south west respectively. The main building is largely single storey and of brick construction with both flat and pitched roof sections. Palisade fencing secures the majority of the boundary and small parcels of woodland are present just inside the western limit and north western corner, with a line of mature trees also identified beyond the northern boundary, which is slightly up slope past the fence line.
Surrounding Land Use	Residential estates are present to the north, east and west of the school grounds and Woodbank Cricket Club is located to the south. A local supermarket and fuel station are positioned around 240m south, with a number of other small commercial units nearby.
Geology	Local geological records indicate that the site lies on superficial Glaciofluvial Deposits, which are underlain by bedrock of the Lower Pennine Coal Measures, comprising mudstone, siltstone and sandstone.
Radon	A BGS Radon Report was commissioned for the site in order to assess whether radon protective measures would be required for the proposed development. Based on the report, between 1% and 3% of properties are estimated to be at or above the action level, however, the report also states that radon protective measures are not required for the proposed development. The full radon report is available within Appendix B.

3 PRELIMINARY COAL MINING RISK ASSESSMENT

The following section summarises the information sourced and made available by the Coal Authority for the site regarding the potential presence of coal and historic workings. A copy of the full Consultants Coal Mining Report is included as Appendix B.

3.1 Coal Authority Mining Report Summary

Hazard	Potential
Past underground mining	None recorded
Probable unrecorded shallow workings	Yes
Spine roadways at shallow depth	None recorded
Mine entries	None recorded within 100m
Abandoned mine plan catalogue numbers	16820
Outcrops	Arley Coal workable seam
Geological faults, fissures and breaklines	None recorded
Opencast mines	None recorded within 500m
Coal Authority managed tips	None recorded within 500m
Site investigations/ remediated sites	None recorded within 50m
Coal mining subsidence	None recorded within 50m

3.2 Geological Overview

According to the online BGS mapping and the BGS 1:50,000 Series Sheet 85 (Manchester, Solid and Drift Geology) maps, superficial Glaciofluvial Deposits are anticipated beneath the school grounds, which overlie bedrock of the Pennine Lower Coal Measures.

3.3 Outcrops and Faults

The Arley coal seam is mapped to extend directly beneath the north eastern section of the site, orientated approximately east-west and recorded as shallow. The outcrop is worked to the south and is in an area designated to have had probable shallow coal mine workings.

3.4 Mine Entries & Underground Workings

No mine entries have been recorded within 100m of the boundary. Several are mapped in the wider surrounding area.

3.5 Opencast Coal Mining

As stated within the Consultants Coal Mining Report, no opencast mines entries are recorded within 500m.

3.6 Other Pertinent Points of Coal Authority Report

No notices have been given, under Section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

There is no current 'Stop Notice' delaying the start of remedial works or repairs to the property.

No damage notices or claims have been received for the subject property, or any property within 50 metres of the enquiry boundary since 31st October 1994.

There is no record of mine gas emission requiring action within 500m.

There are no records of mine water treatment schemes within 500m.

3.7 Summary of Findings & Recommendations

Based on the above, the risk of ground stability issues as a result of coal mining below the site is considered to be significant, as evidenced by the property being highlighted in a 'Development High Risk Area' by the Coal Authority. Therefore, further assessment is considered necessary in the form of a full Coal Mining Risk Assessment which will include further intrusive works. It is anticipated that the Coal Authority will require at least one deep borehole to be drilled to 30m beneath the footprint of the proposed building to evidence the absence of any voiding or features associated with coal mining.

4 SUMMARY OF INTRUSIVE INVESTIGATIONS

The intrusive ground investigation was undertaken on the 1st September 2023, in accordance with EPS standard operating procedures, copies of which will be made available on request. A summary of all site activities is presented in the following sections:

4.1 Exploratory Hole Locations

Exploratory locations were primarily selected through consideration of the proposed development layout, with the location of below ground utilities, as well as operational and health & safety considerations also taken into account.

A total of 4 windowless sample boreholes (WS01-WS04) were formed to a maximum depth of 4.0mbgl across the proposed development area, to assess the nature and strength of the underlying ground conditions.

Furthermore, 4 DCP tests (DCP01-DCP04) were also completed to provide in-situ strength data for shallow soils across the site, to assist with future pavement design parameters.

The wider objective in terms of exploratory hole locations was to deliver an appropriate lateral and vertical coverage of the site in order to offer information relating to the nature, quality and strength of the underlying soils.

The exploratory holes were formed in accordance with standard EPS methodologies, and all sub-contractors were supervised by an EPS engineer throughout the works. All intrusive locations were backfilled and reinstated with compacted soil arising's upon completion.

An intrusive location plan is presented as Figure 2.

4.2 In-Situ Testing & Soil Sampling

Each borehole was logged for ground conditions encountered and inspected for any physical evidence of contamination, such as soil staining, odour and the presence of separate phase liquids on a precautionary basis.

Standard or cone penetration tests (SPT / CPT) were carried out in all the windowless sample boreholes using an automatic trip hammer. The number of blows required to advance a standard split spoon, (or solid 60° nose cone for the CPT test), over the final 300mm of a 450mm total drive was recorded, and is shown on the borehole records at the penetration resistance ("N" value).

Soil samples were recovered from each location at regular intervals for record purposes and future laboratory testing. Selection of samples from the boreholes focused on providing an assessment of the geotechnical properties of the materials encountered as well as to classify the soils to assess the most appropriate off-site disposal method for any surplus arising's generated through future groundworks.

Furthermore, a 'falling head' infiltration test was attempted at WS01 in order to provide an initial assessment of shallow soil permeability in the proposed development area, and the feasibility of the use of soakaways or other similar methods of surface water disposal.

4.3 Laboratory Analysis

Samples obtained for environmental analysis were submitted to Derwentside Environmental Testing Services Ltd in Consett, who hold appropriate accreditation (UKAS / MCERT) for the required testing. Samples were transported in laboratory supplied containers and delivered by an approved courier.

Geotechnical testing was undertaken by The Testing Lab, Doncaster, a UKAS accredited laboratory.

Laboratory testing schedules, detailing all samples submitted for laboratory analysis are included in Tables 1 & 2. Copies of chain of custody documentation are held by EPS and will be made available on request.

5 FINDINGS OF THE INVESTIGATION

This section of the report provides a summary of the findings of the various aspects of the ground investigation.

5.1 Ground Conditions

BGS mapping indicates the site to be underlain by superficial Glaciofluvial Deposits above bedrock of the Pennine Lower Coal Measures. Given this, and the nature of the ground conditions encountered during the intrusive investigation, the shallow soils have been interpreted to consist of the following:

- Topsoil
- Glaciofluvial Deposits
- Pennine Lower Coal Measures

A summary of the general strata encountered across the site is provided in the table below, with more detailed description given in the following sub-sections.

Strata	Maximum Depth to Base of Strata (m bgl)	Strata Thickness (m)
Topsoil	0.38	0.25-0.38
Glaciofluvial Deposits	>4.0	>1.75->3.67 (where proven)
Pennine Lower Coal Measures	>4.0	>0.1 (not proven)

5.1.1 Topsoil

Found beneath the surface surfacing within each location, the topsoil was recorded to be a dark brown, sandy clay loam with active rootlets throughout. Some rare gravels of weak reddish sandstone were noted.

No evidence of made ground materials such as construction debris (brick and/ or concrete fragments) were identified in any of the soils recovered.

5.1.2 Glaciofluvial Deposits

Soils interpreted to be representative of the locally mapped superficial Glaciofluvial Deposits were found beneath the topsoil in each location and varied between predominantly clay based and granular soil layers.

Within WS01 and WS02, the soils were recorded as medium dense to dense, but occasionally loose, silty, clayey sands with some silts and gravels occurring in weak lenticular structures.

Within WS03 and WS04, the soils were recorded as firm to stiff sandy clays, again with some variability in silt and gravel content; generally increasing with depth, including a more distinguishable section of silt in WS04 between 1.1m and 1.3m. The silt was otherwise generally observed as grey veining, thought to be historic rootlet structures.

The full depth of the superficial soils wasn't proven in WS01-WS03 as the boreholes either reached target depth or refused due to the in-situ strength of the soils encountered, however, the base of the profile was proven in WS04 at 3.9m bgl.

5.1.3 *Pennine Lower Coal Measures*

Towards the base of WS04, some orange/beige fragmented sandstone was recovered, interpreted to be weathered top surface of the Pennine Lower Coal Measures. Some fragments of anthracitic coal were noted within the SPT at the base of the hole.

Site specific borehole logs are presented as Appendix C.

5.2 **Groundwater**

Groundwater was encountered within all boreholes during the site investigation, struck at approximately 1.0m and measured between 0.80m in WS03 and 0.91m in WS01 following the completion of drilling works. It should be noted that initial strike depth was difficult to estimate, due to the speed and nature of the drilling process masking potential inflows.

5.3 **Physical Evidence of Contamination**

No palpable evidence of contamination was encountered at any of the borehole locations formed during the ground investigation. The soils did not include any notable evidence of waste or putrefiable material, with hydrocarbon staining/ odours also absent.

5.4 **Waste Analysis**

Waste classification (i.e. hazardous or non-hazardous) was undertaken on samples of the natural soil layers encountered beneath the study area, which included total concentrations of metals and hydrocarbons, using computer software provided by HazWaste Online™. Waste Acceptance Criteria (WAC) testing was subsequently undertaken on one sample of topsoil and one sample of the natural Glaciofluvial Deposits to provide further information on the most appropriate method of off-site disposal for these materials; most likely to account for any surplus arising's generated during the formation of shallow excavations for new foundations and services.

The results of the WAC analysis are included within Appendix D and the outputs from the software are included in a Waste Classification Report in Appendix E. These results, together with those of the waste classification above are summarised in the following table:

Location (Strata)	Typical Depth (mbgl) and Description	Is it Hazardous? (No. of hazardous samples)	Waste Acceptance Criteria	Appropriate Landfill
Topsoil	GL-0.3m: Brown slightly sandy clay with rootlets.	No (0 of 1)	Fails criteria for inert landfill	NON-HAZARDOUS
Glaciofluvial Deposits	0.3-~4.0m: Brown silty, clayey sands or sandy clays with occasional gravel.	No (0 of 2)	Passed criteria for inert landfill	INERT

Based on the above, the topsoil beneath the proposed development area can be classified as **NON-HAZARDOUS** for the purposes of off-site disposal, based on high Total Organic Carbon (TOC). This was supported by the observations made onsite with significant rootlet structures and organic matter being recorded. The underlying Glaciofluvial Deposits can be classified as **INERT**, under the waste code **17 05 04**.

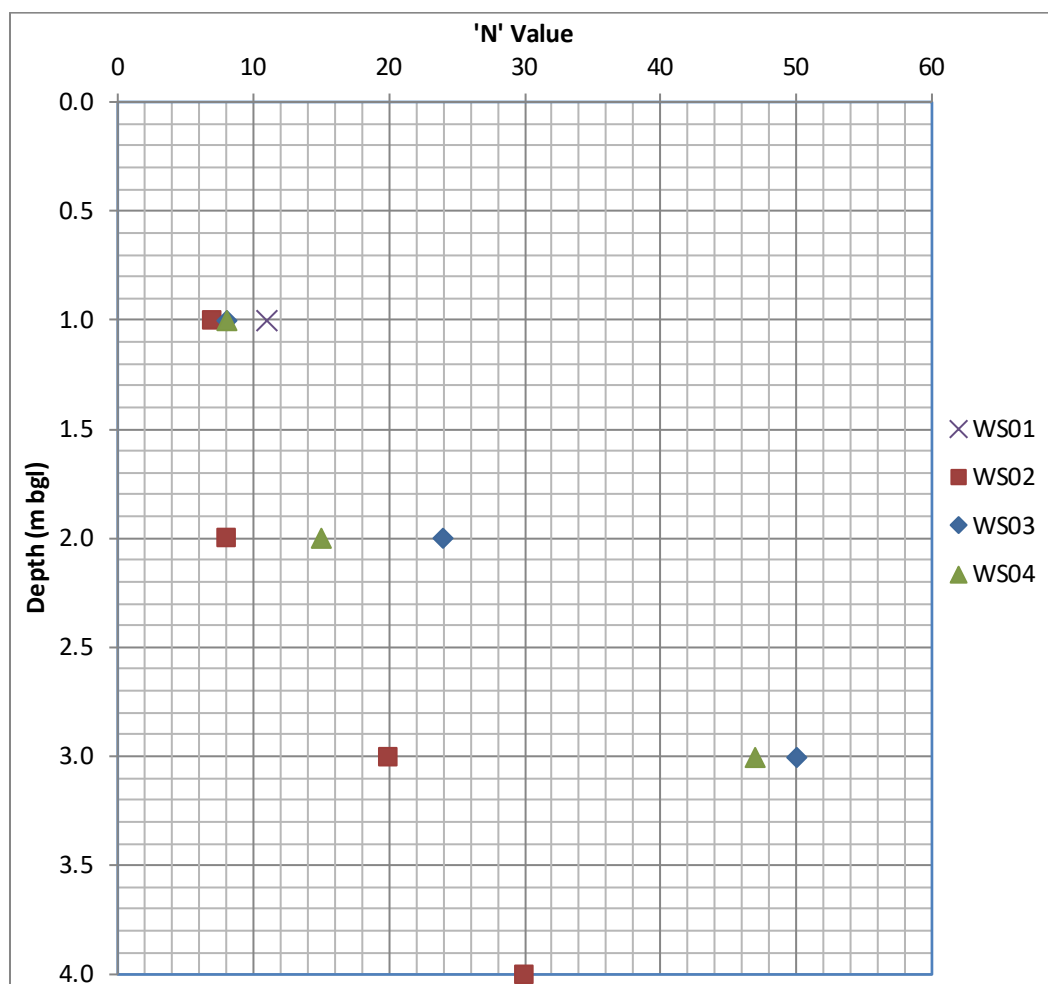
It should be noted that the final decision on waste acceptance criteria will lie with the chosen waste receiver.

5.5 Geotechnical Testing

5.5.1 In-situ Geotechnical Results

The results of in-situ geotechnical testing conducted throughout the windowless sample boreholes, are summarised in the graph below.

As expected, the below graph confirms variable soil strength beneath the site, particularly in the shallow layers (<2.0m below the surface). Although some lower strength material (predominantly loose sands) were recorded in WS02 for example, no 'N' values were measured below 10, which indicates that the materials were generally competent, with no evidence of particularly low strength soil or voiding highlighted.



5.5.2 Laboratory Geotechnical Testing

The results of geotechnical laboratory testing are included in Appendix F and summarised in the tables below.

Strata	Range of Parameters			
	Moisture Content (%)		Plasticity Index (%)	
	Min	Max	Min	Max
Glaciofluvial Deposits (cohesive)	20		13	

Strata	Particle Size Distribution (%)					
	Fines		Sands		Gravel	
	Min	Max	Min	Max	Min	Max
Glaciofluvial Deposits (granular)	15	54	40	82	0	21

The moisture, content, liquid and plastic limits and plasticity and liquidity indexes were established for two samples of the Glaciofluvial Deposits, tested in line with BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3 and 5.4.

Particle Size Distribution (PSD) testing was conducted on four samples of predominantly soil in accordance with BS1377: Part 1: 2016: 8.3 & 8.4.5 & BS1377: Part 2: 1990: 9.2, 9.5.

Sulphate contents and pH values determinations were carried out by the analytical laboratory, the results of which are included in Appendix D and summarised in Section 6.6.

6 GEOTECHNICAL APPRAISAL

The ground conditions have been found to comprise topsoil underlain by superficial Glaciofluvial Deposits in the form of either generally firm to stiff silty sandy clay or loose to medium dense clayey sand, above bedrock of the Lower Pennine Coal Measures recovered in one of the boreholes from ~3.9m.

Groundwater was identified in each of the boreholes, and was found to be resting as shallow as 0.8m upon completion of the intrusive works.

No evidence of infilled soils was encountered, but is anticipated in close proximity of existing buildings.

6.1 Geotechnical Category

Geotechnical Category (BS EN 1997-1:2004)	Definition
GC1	Geotechnical Category 1 (GC1) should only include small and relatively simple structures for which it is possible to ensure that the fundamental requirements will be satisfied on the basis of experience and qualitative geotechnical investigations with negligible risk in terms of overall stability or ground movements and in ground conditions which are known.
GC2	Geotechnical Category 2 (GC2) should include conventional types of structure and foundation with no exceptional risk or difficult or loading conditions. Designs for structures in Geotechnical Category 2 should normally include quantitative geotechnical data and analysis.
GC3	Geotechnical Category 3 (GC3) should include structures or parts of structures, which fall outside the limits of Geotechnical Categories 1 and 2. This may include very large or unusual structures, structures involving abnormal risks, or unusual or exceptionally difficult ground or loading conditions, or structures in areas of probable site instability or persistent ground movements that require separate investigation or special measures.

The proposed development comprises a new modular classroom building and playground area, and therefore the below assessment has been undertaken in accordance with Geotechnical Category 2 (GC2), including conventional types of structure and foundation with no exceptional risk or difficult ground or loading conditions, as defined by BS EN 1997-1:2004.

6.2 Structural Foundations

6.2.1 Spread Foundations

As detailed above, the development is understood to comprise the construction of a new modular classroom building, with foundations being vertically loaded. The foundation assessment has been undertaken in accordance with BS EN 1997-1:2004 to take in to account;

- Bearing Pressure (Ultimate Limit State)
- Settlement (Serviceability Limit State)

The ground conditions are considered suitable for the use of conventional spread foundations, either strip footings or pad foundations bearing on the underlying granular or cohesive soils of the Glaciofluvial Deposits. Allowable bearing capacities have been calculated and are presented in the table below.

Foundation Depth (m bgl)	Allowable Bearing Capacity* (kN/m ²)	
	Strip	Pad
1.0	90	110
1.5	120	145

* BS EN 1997 (EC7) Geo Load Combination 2

The allowable bearing capacity is the permissible increase in vertical stress at the level of the underside of the foundation, above existing overburden pressure, which may be calculated on the basis of a soil density of 19kN/m³.

At the above allowable bearing capacities, total settlements are considered unlikely to exceed roughly 20-25mm in the cohesive Glaciofluvial Deposits and will likely comprise a small amount of immediate settlement and a larger proportion of consolidation settlement, which will occur over a long period of time. Settlement in any granular soils at formation depth with likely be limited to approximately 10-15mm, and occur rapidly as loadings increase.

A minimum foundation depth of 0.75m, below existing or proposed ground level is considered suitable for any new buildings, subject to the following provisos:

- All foundations should fully penetrate any disturbed or made ground and extend a minimum of 150mm into undisturbed natural strata. It is acknowledged that whilst made ground has not been encountered throughout the ground investigation works, some localised sections could be identified in close proximity to and beneath the existing structures.

- b) The bearing pressures outlined in the table above have been limited according to the strength of the granular soils at anticipated formation depth in certain parts of the site, which are generally medium, but occasionally lower strength, as well as for the presence of groundwater, which will also result in a reduction in bearing potential of any granular soils. Furthermore, excavations below groundwater will lead to significant loosening of any granular soils through the 'running sand' effect, and therefore some form of support would be required where excavations are influenced by the presence of groundwater in order to prevent the collapse of excavations as will semi-permanent groundwater control.
- c) Sections of the Glaciofluvial Deposits have been confirmed as a cohesive material by the geotechnical laboratory and as such will be subject to volume change, (subsidence and / or heave) due to the presence of trees. Foundation design will therefore need to take into account the presence of trees, both those to remain and those to be planted as well as to be removed from site; if necessary to accommodate the proposed development. The cohesive soils of the Glaciofluvial Deposits are a 'low volume change potential' soil in accordance with *NHBC Standards Chapter 4.2 'Building Near Trees'*.
- d) The foundation design recommendations are subject to further assessment into potential impacts from the historic coal mining works in the area. Records show that the site is located within an area of probable shallow workings with the Arley coal seam mapped as extending directly beneath the school grounds. Therefore, further assessment in the form of at least one 30m borehole beneath the footprint of the proposed building has been recommended in advance of finalising substructure design.

Where foundations cross a change in strata, from cohesive to granular, it is recommended that nominal reinforcement is incorporated in foundations to control the effects of differential settlements.

6.3 Groundworks

Excavations in the natural cohesive Glaciofluvial Deposits may remain stable for short periods, however any excavations in granular layers from the same strata should not be relied upon in unsupported excavations.

Heavy plant and stockpiles of materials should not be permitted close to the edges of unsupported excavations. Further reference may be made to CIRIA Report No. 97 '*Trenching Practice*' 1992.

Excavations must not be carried out in close proximity of any existing on-site or neighbouring structures/ retaining features without permanent support measures in place. Care should also be taken to ensure excavations do not destabilise any slopes.

On the basis of the findings of the ground investigation, groundwater will likely be encountered within shallow excavations for foundations or drainage, and appropriate dewatering facilities such as sump pumps should be available during the groundworks phase.

6.4 External Works

6.4.1 Pavement Design

Four dynamic cone penetrometer (DCP) tests were undertaken through the shallow profile in order to estimate CBR values for any new areas of hardstanding.

The results of the DCP testing are presented graphically as part of Appendix F and identify variable results largely between 3% and 6% for the shallow ground profile. Based on the results of the DCP testing, together with EPS's experience of the natural materials encountered (sandy clay with plasticity of ~10% a design CBR value of 3% is likely to be appropriate for the Glaciofluvial Deposits; but could be increased depending on the thickness of pavement construction.

Once the formation level for the new pavement has been achieved, proof rolling should be carried out using a heavy roller, and any significant/ extensive soft areas revealed should be excavated and a greater depth of sub-base provided.

Exposed subgrades will likely deteriorate rapidly on exposure to wet weather and should be shaped to shed water. Sub-base should be placed as soon as possible to minimise the exposure of the subgrade to adverse weather conditions.

6.4.2 Drainage

A 'falling head' infiltration test was attempted at WS01 to give an initial indication of the permeability of the underlying soils. However, due to the presence of shallow groundwater, which was resting between 0.80m and 0.91m upon completion of intrusive activities, it is concluded that the use of infiltration drainage is not feasible for the site and alternative methods of surface water disposal will have to be considered.

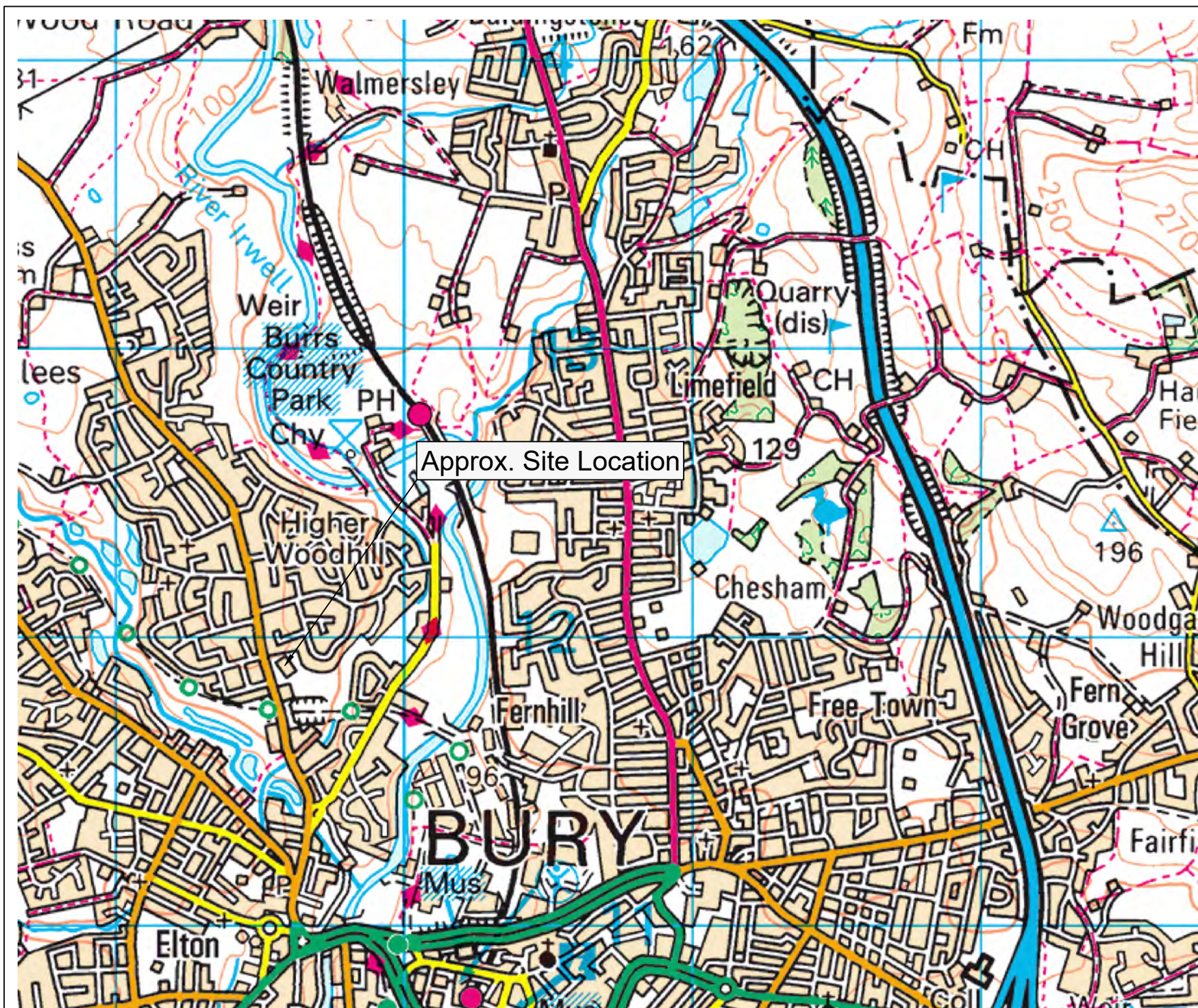
6.5 Concrete Grade

Sulphate contents and pH values determinations were carried out for the natural soil by the analytical laboratory, the results of which are included within Appendix D. Results for concrete grade testing are summarised within the following table:

Strata	Water Soluble Sulphate (mg/l SO ₄)		pH	
	Min	Max	Min	Max
Glaciofluvial Deposits	<10		5.5	6.6

In accordance with Part 1 of the BRE Special Digest 1 'Concrete in Aggressive Ground' 2005, a Design Sulphate Class (DS) of DS-1 is considered appropriate for the cohesive and granular Glaciofluvial Deposits, with an aggressive chemical environment for concrete (ACEC) of AC-1, for shallow buried concrete.

FIGURES



- Notes:
1. Base map reproduced under Crown Copyright Licence Number: 100054115



Rev	Date	Drawn	Description	CHK'd



The Geotechnical and Environmental Engineers
www.epstrategies.co.uk

Site
Woodbank Primary School

Client
SKW Construction

Title
Figure 01 - Site Location Plan

Surveyed by:	WT	Drawn by:	WT
Checked by:	BV	Date:	02/10/23

Scale:	(1:4 Sheet)	Drawing Reference:	NTS
Job No:	UK23.6632	Fig_01_UK23.6632	Rev

UK23.6632	01
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KEY:

Window Sample Location

DCP Location

Notes:

1. Base map reproduced under Crown Copyright Licence Number: 100054115

N

Rev	Date	Drawn	Description	CHK'd

eps

The Geotechnical and Environmental Engineers

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Site

Woodbank Primary School

Client

SKW Construction

Title

Figure 02 - Intrusive Location Plan

Surveyed:	WT	Drawn by:	WT
Checked by:	BV	Date:	02/10/23
Scale	(A4 Sheet)	Drawing Reference	

NTS	Fig_02_UK23.6632		
Job No	UK23.6632	Rev	01

TABLES

Table 1 – Laboratory Testing Schedule – Environmental

Sample ID	Sample Depth (m bgl)	EPS Waste Suite
WS01	1.10-1.20	X
WS02	0.20-0.35	X
WS03	1.30-1.80	X

mbgl

X

EPS Waste Suite

meters below ground level

Sample Analysed

Metals, PAH's, MTBE, BTEX, TPH, PCB's & Inert WAC

Table 2 – Laboratory Testing Schedule – Geotechnical

Sample ID	Sample Depth (m bgl)	Moisture Content	Atterberg Limits	Particle Size Distribution
WS01 B1	0.5-1.0	-	-	X
WS02 B1	1.1-1.8	-	-	X
WS02 B2	2.2-2.7	X	X	X
WS03 D1	1.0-1.3	X	X	-
WS04 B1	1.0-1.6	-	-	X

mbgl

X

-

meters below ground level

Sample Analysed

Sample Not Analysed

APPENDICES

APPENDIX A

Selected Site Photographs



KEY:

- Notes:
1. Base map reproduced under Crown Copyright Licence Number: 100054115



Rev	Date	Drawn	Description	CHK'd



The Geotechnical and Environmental Engineers
www.epstrategies.co.uk

Site
Woodbank Primary School

Client
SKW Construction

Title
App. A - Photo Location Plan

Surveyed:	WT	Drawn by:	WT
Checked by:	BV	Date:	02/10/23

Scale	(A4 Sheet)	Drawing Reference
NTS		App.A

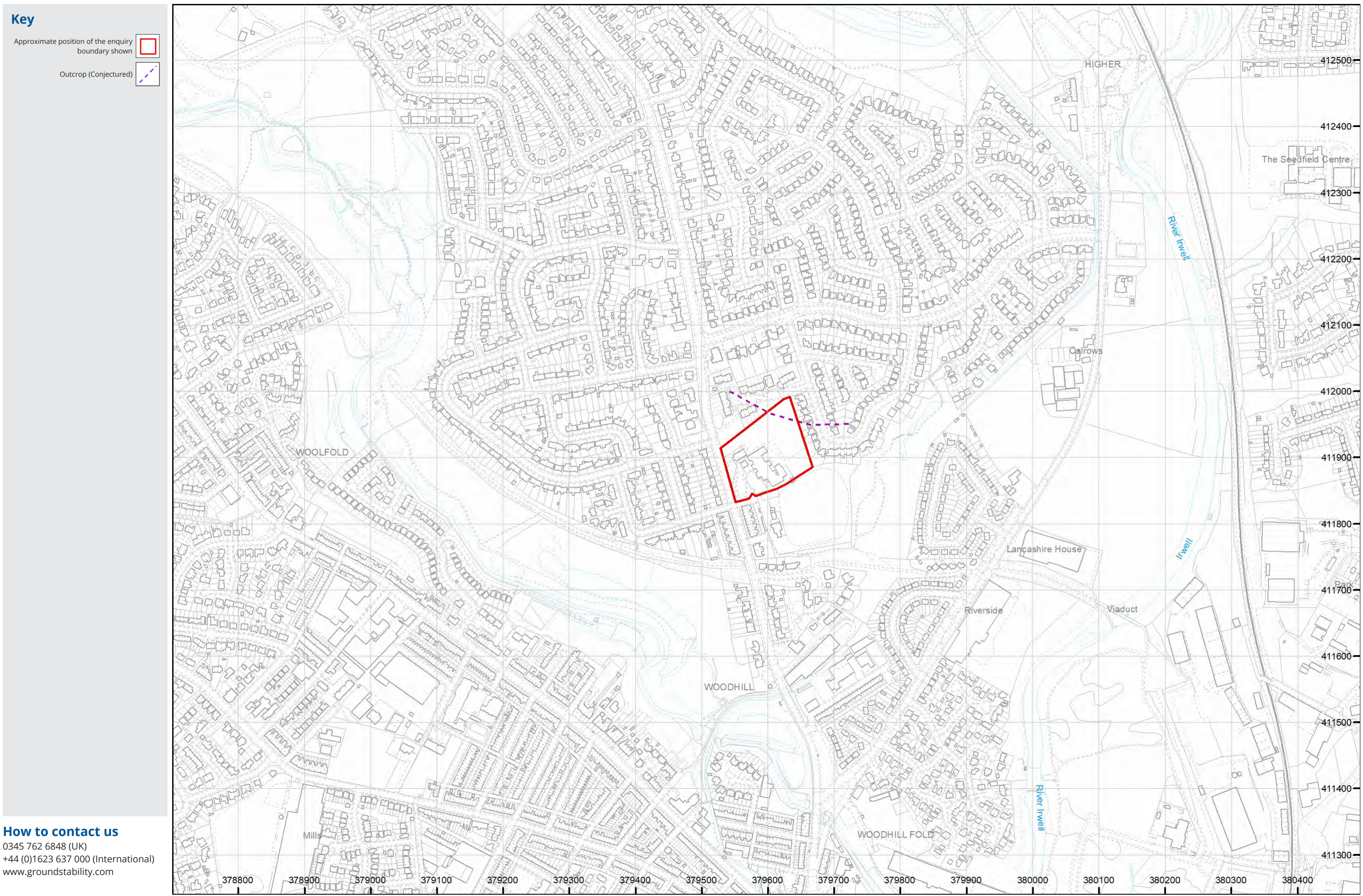
Job No	Rev
UK23.6632	01

Photo 1: Rig in location of WS01.	Photo 2: Rig in location of WS02.
	
Photo 3: Soils recovered from WS01.	Photo 4: Soils recovered from WS04.
	

APPENDIX B

Consultants Coal Mining Report and Radon Risk Report

The map highlights any specific surface or subsurface features within or near to the boundary of the site.



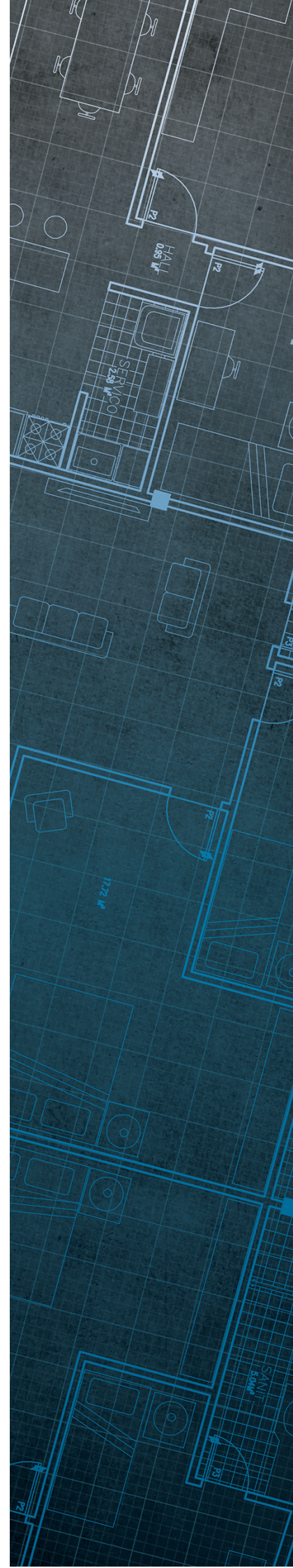


The Coal
Authority

Consultants Coal Mining Report

Woodbank With Elton Childrens
Centre
Woodbank County Primary School
Brandlesholme Road
Bury
Bury
BL8 1AX

Date of enquiry:	2 October 2023
Date enquiry received:	2 October 2023
Issue date:	2 October 2023
Our reference:	51003381040001
Your reference:	UK23.6632



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

EPS LTD

Enquiry address

Woodbank With Elton Childrens Centre
Woodbank County Primary School
Brandlesholme Road
Bury
Bury
BL8 1AX

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

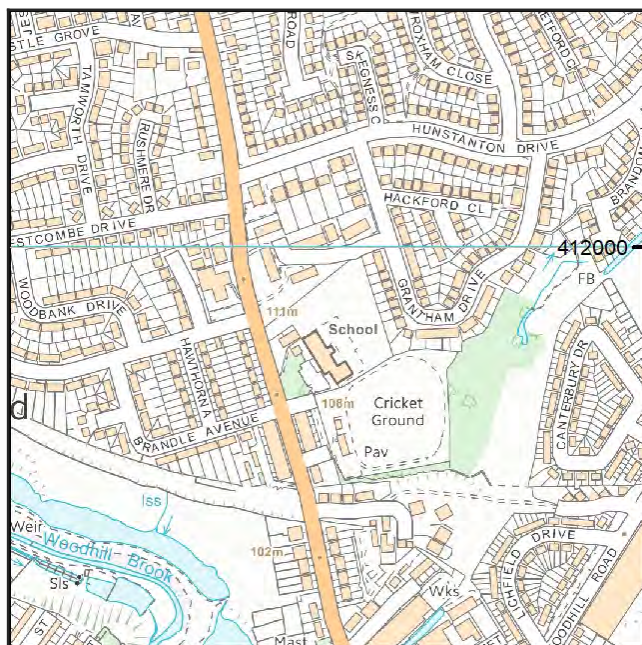
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

16820		
-------	--	--

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
ARLEY	Coal	Yes	Within	N/A	118

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

ALEXANDRA BURTON-KENDRICK
EPS LTD
UNIT 7
CAXTON HOUSE
BROAD STREET
GREAT CAMBOURNE
CAMBRIDGE
CB23 6JN

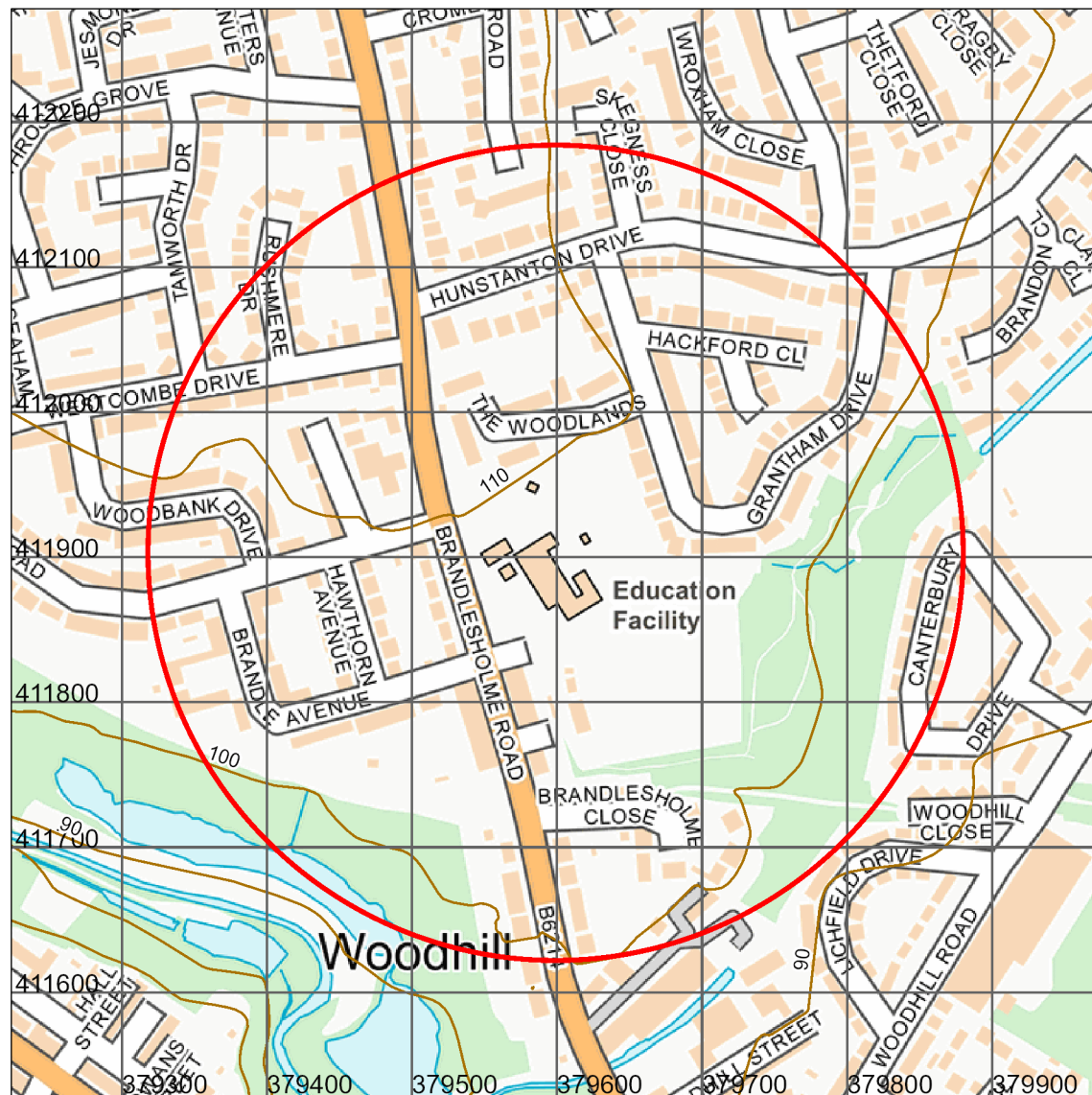
Radon Report

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: *BGS_335104/48932*

Client reference: UK23.6632

Search location



Contains OS data © Crown Copyright and database right 2023. OS OpenMap Local: Scale: 1:5 000 (1cm = 50 m)

Search location indicated in red

Area centred at: 379599,411903

Radius of site area: 281 metres

Radon Report: UK

When extensions are made to existing buildings in high radon areas, or new buildings are constructed in these areas, the Building Regulations for England, Wales, Scotland and Northern Ireland require that protective measures are taken against radon entering the building.

This report provides information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. No protective measures
2. Basic protective measures
3. Full protective measures

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2023 edition)*, which also provides guidance on what to do if the result indicates that protective measures are required.

Is the property in an area where radon protective measures are required for new buildings or extensions to existing ones as described in publication BR211 (2023 edition) Radon: Guidance on protective measures for new buildings?

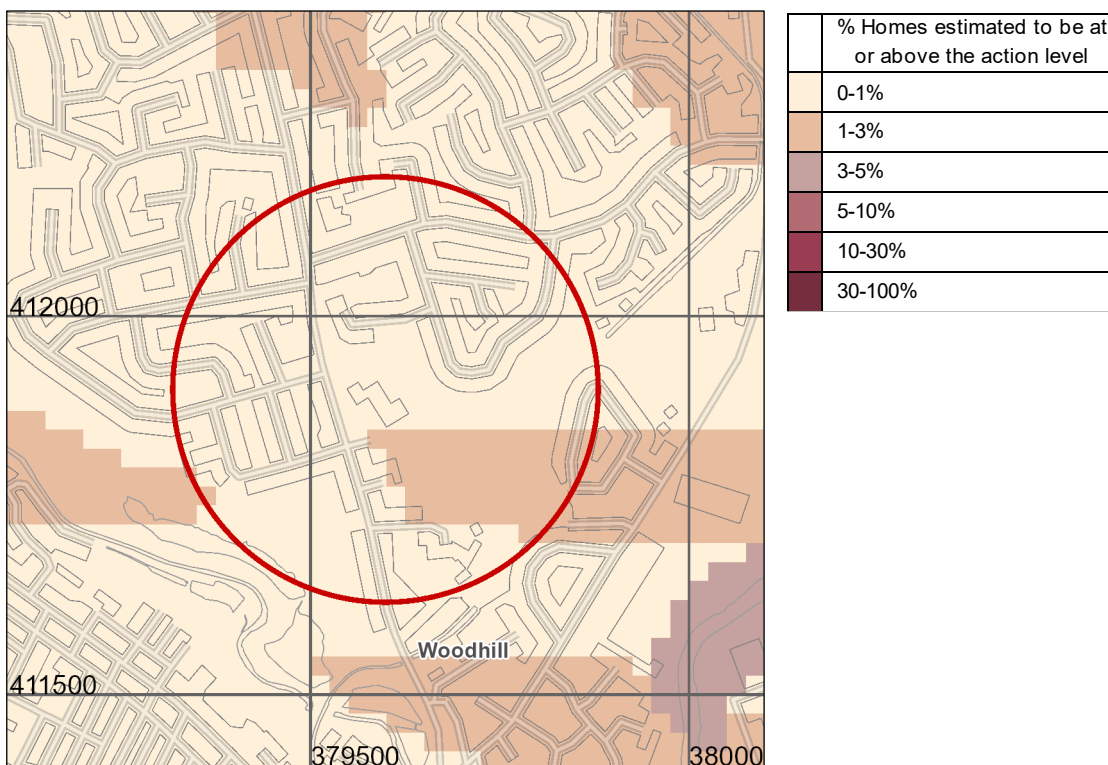
NO RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

More details of the protective measures required are available in *BR211 Radon: Guidance on protective measures for new buildings (2023 Edition)*. Additional information and guidance is available from the Building Research Establishment website (<http://www.bre.co.uk/radon/>).

Whether or not the radon level in a building is above or below the radon Action Level can only be established by having the building tested. The UKHSA provides a radon testing service which can be accessed at www.ukradon.org or by telephone (01235 822622).

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.

Radon Affected Area



Contains OS data © Crown Copyright and database right 2023

Scale: 1:10 000 (1cm = 100 m)

Search area indicated in red

Is the property in a radon Affected Area as defined by the UK Health Security Agency (UKHSA) and if so what percentage of homes are estimated to be at or above the Action Level? YES

Additional Information

THE PROPERTY IS IN A RADON AFFECTED AREAS WHERE 1 TO 3% OF HOMES ARE ESTIMATED TO BE AT OR ABOVE THE ACTION LEVEL.

The UKHSA recommends a radon 'Action Level' of 200 Becquerels per cubic metre of air (Bq m^{-3}) for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to be at or above the Action Level the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level at this location. Being in an Affected Area does not necessarily mean there is a high radon level within the property; the only way to determine the radon level is to carry out a radon measurement.

The UKHSA advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels at or above the Action Level (200 Bq m⁻³) should be remediated. Householders with levels between the Target Level (100 Bq m⁻³) and Action Level should seriously consider reducing their radon level, especially if they are at greater risk, such as if they are current or ex smokers. Whether or not a home is in fact above or below the Action Level or Target Level can only be established by having the building tested. The UKHSA provides a validated radon testing service which can be accessed at www.ukradon.org.

The information in this report provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as Law Society CON29 Enquiries of the Local Authority (2016); 3.14 Radon Gas: Do records indicate that the property is in a “Radon Affected Area” as identified by the UKHSA. The data can also be used to advise house buyers and sellers in Scotland and Northern Ireland.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were at or above the radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information on radon is available from the UKHSA at www.ukradon.org.

What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level is at or above the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations 2017 require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293): **Radon in the workplace**. BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.uk website: www.brebookshop.com

Contact Details

Keyworth Office

British Geological Survey
Environmental Science Centre
Nicker Hill
Keyworth
Nottingham
NG12 5GG
Tel: 0115 9363100
Email: enquiries@bgs.ac.uk

Wallingford Office

British Geological Survey
Maclean Building
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Oxford
OX10 8BB
Email: enquiries@bgs.ac.uk

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Research Avenue South
Edinburgh
EH14 4AP
Tel: 0131 6671000
Email: enquiry@bgs.ac.uk

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- Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.
- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
- The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
- Data may be compiled from the disparate sources of information at BGS's disposal, including material donated to BGS by third parties, and may not originally have been subject to any verification or other quality control process.
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**Report issued by
BGS Enquiry Service**

APPENDIX C

Site Specific Borehole Logs



Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name: Woodbank Primary School

Project No.
UK23.6632

Co-ords: -257164E - 7095439N

Hole Type
WLS

Location: Bury

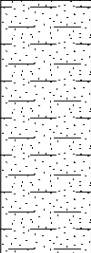
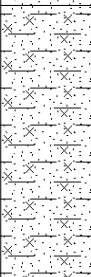
Level:

Scale
1:25

Client: SKW Construction

Dates: 01/09/2023

Logged By
WT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.25			0.25			TOPSOIL - Dark brown, sandy CLAY loam with active rootlets seen throughout. Some rare gravel clasts of reddish sandstone observed.	
		0.50	D					Medium dense brown with black flecking, very clayey, SAND with historic rootlets. GLACIOFLUVIAL DEPOSITS	
		1.00	SPT	N=11 (1,2/2,3,3,3)				Medium dense brown with black flecking, silty, clayey SAND. Sands observed to be fine to medium. Lenses of silt/fine black sands seen throughout section. GLACIOFLUVIAL DEPOSITS	
		1.10	B		1.10				
					2.00			End of Borehole at 2.000m	2
									3
									4
									5

RemarksTermination Reason: Target Depth Achieved
Groundwater: Measured following drilling at 0.91m



Borehole Log

Borehole No.

WS02

Sheet 1 of 1

Project Name: Woodbank Primary School

Project No.
UK23.6632

Co-ords: -257168E - 7095410N

Hole Type
WLS

Location: Bury

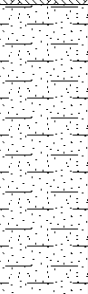
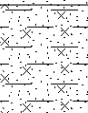
Level:

Scale
1:25

Client: SKW Construction

Dates: 01/09/2023

Logged By
WT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	ES		0.33			TOPSOIL - Dark brown, sandy CLAY loam with active rootlets seen throughout.	1
								Loose brown with black flecking, very clayey, SAND with historic rootlets. GLACIOFLUVIAL DEPOSITS	
		1.00 1.10	SPT B	N=7 (2,3/2,1,2,2)	1.30			Loose to medium dense brown with black flecking, silty, clayey SAND. Sands observed to be fine to medium. Some reddish sandstone gravel clasts observed. GLACIOFLUVIAL DEPOSITS	2
								<u>Silt Lense</u>	
		2.00 2.20	SPT B	N=8 (1,1/1,2,2,3)				<u>Silt Lense</u>	
								<u>Fragmented Sandstone Clast</u>	
		3.00	SPT	N=20 (3,3/4,5,5,6)	3.20			Dense brown silty SAND. Increasing sand content and size with depth, base of hole being a slightly silty medium sand. GLACIOFLUVIAL DEPOSITS	3
		4.00	SPT	N=30 (6,7/7,7,8,8)	4.00			End of Borehole at 4.000m	4
									5

Remarks

Termination Reason: Target Depth Achieved
Groundwater: Measured following drilling at 0.85m



Borehole Log

Borehole No.

WS03

Sheet 1 of 1

Project Name: Woodbank Primary School

Project No.
UK23.6632

Co-ords: -257147E - 7095404N

Hole Type
WLS

Location: Bury

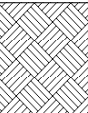
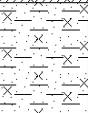
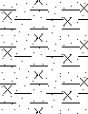
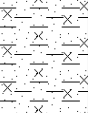
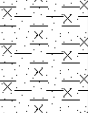
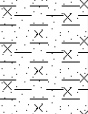
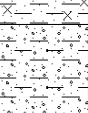
Level:

Scale
1:25

Client: SKW Construction

Dates: 01/09/2023

Logged By
WT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
					0.37			TOPSOIL - Dark brown, sandy CLAY loam with active rootlets seen throughout. Some fine gravel clasts of mixed lithologies observed.	
								Firm to very stiff brown, silty, slightly sandy CLAY with rare gravels. Ferruginous staining from orange/brown sandstone clasts seen throughout section. Greyish silt veining from historic rootlet structures also recorded. GLACIOFLUVIAL DEPOSITS	
								<u>Flint Cobble</u>	1
		1.00 1.00	D SPT	N=8 (1,1/1,2,2,3)					
		1.30	ES						
		2.00	SPT	N=24 (1,2/3,6,8,7)	2.30				2
		3.00	SPT	N=50 (25,25/50 for 10mm)	3.10			Very stiff brown, gravelly, sandy CLAY. Gravels are generally fine to coarse, predominantly fragmented, sub-angular sandstone. GLACIOFLUVIAL DEPOSITS	3
								End of Borehole at 3.100m	
									4
									5

Remarks

Termination Reason: Refusal at 3.1m on suspected sandstone cobble
Groundwater: Measured following drilling at 0.80m



Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: Woodbank Primary School

Project No.
UK23.6632

Co-ords: -257143E - 7095434N

Hole Type
WLS

Location: Bury

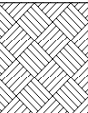
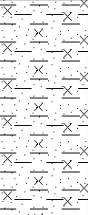
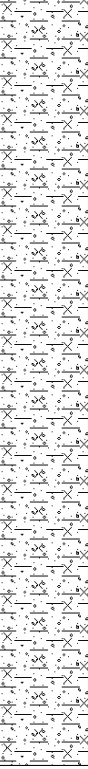
Level:

Scale
1:25

Client: SKW Construction

Dates: 01/09/2023

Logged By
WT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
					0.38			TOPSOIL - Dark brown, sandy CLAY loam with active rootlets seen throughout. Some rare gravel clasts of reddish sandstone observed.	
								Firm brown, silty, slightly sandy CLAY. Greyish silt veining from historic rootlet structures also recorded. GLACIOFLUVIAL DEPOSITS	
		1.00 1.00	B SPT	N=8 (1,1/1,2,3,2)	1.10			Brown very sandy SILT. GLACIOFLUVIAL DEPOSITS	1
					1.30			Stiff to hard brown, silty, sandy, slightly gravelly CLAY. Gravel content increasing in content with depth, generally observed to sandstone/mudstone subangular fragments. GLACIOFLUVIAL DEPOSITS	2
		2.00	SPT	N=15 (2,2/3,4,4,4)					
		3.00	SPT	N=47 (6,7/11,10,11,15)					3
					3.90 4.00			Orange/beige SANDSTONE. Recovered as sandy gravel. Weathered bedrock with visible weak layers. Some fragments of anthracitic coal recovered within SPT. PENNINE LOWER COAL MEASURES End of Borehole at 4.000m	4
									5

RemarksTermination Reason: Target Depth Achieved
Groundwater: Measured following drilling at 0.89m

APPENDIX D

Laboratory Results – Environmental



Certificate of Analysis

Certificate Number 23-21192

Issued: 21-Sep-23

Client EPS (Leeds) Ltd
10-12 East Parade
Leeds
LS1 2BH

Our Reference 23-21192

Client Reference UK23.6632

Order No (not supplied)

Contract Title (not supplied)

Description 3 Soil samples, 3 Leachate samples.

Date Received 06-Sep-23

Date Started 06-Sep-23

Date Completed 21-Sep-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 23-21192

Client Ref UK23.6632

Contract Title

Lab No	2229389	2229390	2229391
Sample ID	WS01 ES1	WS02 ES2	WS03 ES3
Depth	1.10-1.20	0.20-0.35	1.30-1.80
Other ID			
Sample Type	SOIL	SOIL	SOIL
Sampling Date	01/09/2023	01/09/2023	01/09/2023
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Preparation						
Moisture Content	DETSC 1004	0.1	%	18	25	13
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	2.4	30	9.1
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.6	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	15	20	17
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	22	67	25
Lead	DETSC 2301#	0.3	mg/kg	11	110	11
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.26	< 0.05
Nickel	DETSC 2301#	1	mg/kg	12	22	25
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	37	100	61
Inorganics						
pH	DETSC 2008#		pH	6.6	5.6	5.5
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	< 10	32	< 10
Sulphur as S, Total	DETSC 2320	0.01	%	< 0.01	0.04	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.01	0.06	< 0.01
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03

Summary of Chemical Analysis Soil Samples

Our Ref 23-21192

Client Ref UK23.6632

Contract Title

Lab No	2229389	2229390	2229391
Sample ID	WS01 ES1	WS02 ES2	WS03 ES3
Depth	1.10-1.20	0.20-0.35	1.30-1.80
Other ID			
Sample Type	SOIL	SOIL	SOIL
Sampling Date	01/09/2023	01/09/2023	01/09/2023
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.14	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.12	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	0.04	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	0.38	< 0.10

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-21192

Client Ref UK23.6632

Contract Title

Sample Id WS01 ES1 1.10-1.20

Sample Numbers 2229389 2229392

Date Analysed 21/09/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETS02084# Total Organic Carbon	%	0.8	3	5	6
DETS02003# Loss On Ignition	%	2.4	n/a	n/a	10
DETS03321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETS03401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETS03311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETS03301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETS02008# pH	pH Units		n/a	>6	n/a
DETS073* Acid Neutralisation Capacity (pH4)	mol/kg		n/a	TBE	TBE
DETS073* Acid Neutralisation Capacity (pH7)	mol/kg		n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETS02306 Arsenic as As	0.39	< 0.01	0.5	2	25
DETS02306 Barium as Ba	1.6	< 0.1	20	100	300
DETS02306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETS02306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETS02306 Copper as Cu	1.8	< 0.02	2	50	100
DETS02306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETS02306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETS02306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETS02306 Lead as Pb	0.9	< 0.05	0.5	10	50
DETS02306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETS02306 Selenium as Se	0.37	< 0.03	0.1	0.5	7
DETS02306 Zinc as Zn	< 1.3	< 0.01	4	50	200
DETS02055 Chloride as Cl	3600	< 100	800	15,000	25,000
DETS02055* Fluoride as F	< 100	< 0.1	10	150	500
DETS02055 Sulphate as SO4	9800	< 100	1000	20,000	50,000
DETS02009* Total Dissolved Solids	12000	120	4000	60,000	100,000
DETS02130 Phenol Index	< 100	< 1	1	n/a	n/a
DETS02033* Dissolved Organic Carbon	5200	52	500	800	1000

Additional Information	
DETS02008 pH	6.8
DETS02009 Conductivity uS/cm	17.5
* Temperature*	19.0
Mass of Sample Kg*	0.120
Mass of dry Sample Kg*	0.098
Stage 1	
Volume of Leachant L2*	0.963
Volume of Eluate VE1*	0.91

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

V.2.06 * DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-21192

Client Ref UK23.6632

Contract Title

Sample Id WS02 ES2 0.20-0.35

Sample Numbers 2229390 2229393

Date Analysed 21/09/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETS02084# Total Organic Carbon	%	7.2	3	5	6
DETS02003# Loss On Ignition	%	14.0	n/a	n/a	10
DETS03321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETS03401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETS03311# EPH (C10 - C40): EH_1D_Total	mg/kg	21.0	500	n/a	n/a
DETS03301 PAHs	mg/kg	2.5	100	n/a	n/a
DETS02008# pH	pH Units		n/a	>6	n/a
DETS073* Acid Neutralisation Capacity (pH4)	mol/kg		n/a	TBE	TBE
DETS073* Acid Neutralisation Capacity (pH7)	mol/kg		n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETS02306 Arsenic as As	0.56	< 0.01	0.5	2	25
DETS02306 Barium as Ba	2.1	< 0.1	20	100	300
DETS02306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETS02306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETS02306 Copper as Cu	1.8	< 0.02	2	50	100
DETS02306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETS02306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETS02306 Nickel as Ni	< 0.50	< 0.1	0.4	10	40
DETS02306 Lead as Pb	0.91	< 0.05	0.5	10	50
DETS02306 Antimony as Sb	0.21	< 0.05	0.06	0.7	5
DETS02306 Selenium as Se	< 0.25	< 0.03	0.1	0.5	7
DETS02306 Zinc as Zn	1.3	0.013	4	50	200
DETS02055 Chloride as Cl	1300	< 100	800	15,000	25,000
DETS02055* Fluoride as F	< 100	< 0.1	10	150	500
DETS02055 Sulphate as SO4	2200	< 100	1000	20,000	50,000
DETS02009* Total Dissolved Solids	11000	110	4000	60,000	100,000
DETS02130 Phenol Index	< 100	< 1	1	n/a	n/a
DETS02033* Dissolved Organic Carbon	4400	< 50	500	800	1000

Additional Information	
DETS02008 pH	6.5
DETS02009 Conductivity uS/cm	16.1
* Temperature*	19.0
Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.097
Stage 1	
Volume of Leachant L2*	0.942
Volume of Eluate VE1*	0.89

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 23-21192

Client Ref UK23.6632

Contract Title

Sample Id WS03 ES3 1.30-1.80

Sample Numbers 2229391 2229394

Date Analysed 20/09/2023

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETS02084# Total Organic Carbon	%	1.3	3	5	6
DETS02003# Loss On Ignition	%	3.6	n/a	n/a	10
DETS03321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETS03401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETS03311# EPH (C10 - C40): EH_1D_Total	mg/kg	13.0	500	n/a	n/a
DETS03301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETS02008# pH	pH Units		n/a	>6	n/a
DETS073* Acid Neutralisation Capacity (pH4)	mol/kg		n/a	TBE	TBE
DETS073* Acid Neutralisation Capacity (pH7)	mol/kg		n/a	TBE	TBE

Test Results On Leachate			WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached* mg/kg	Limit values for LS10 Leachate		
	10:1	LS10	Inert Waste	SNRHW	Hazardous Waste
DETS02306 Arsenic as As	1.4	0.014	0.5	2	25
DETS02306 Barium as Ba	4.7	< 0.1	20	100	300
DETS02306 Cadmium as Cd	< 0.030	< 0.02	0.04	1	5
DETS02306 Chromium as Cr	< 0.25	< 0.1	0.5	10	70
DETS02306 Copper as Cu	1.2	< 0.02	2	50	100
DETS02306 Mercury as Hg	< 0.010	< 0.002	0.01	0.2	2
DETS02306 Molybdenum as Mo	< 1.1	< 0.1	0.5	10	30
DETS02306 Nickel as Ni	0.84	< 0.1	0.4	10	40
DETS02306 Lead as Pb	0.76	< 0.05	0.5	10	50
DETS02306 Antimony as Sb	< 0.17	< 0.05	0.06	0.7	5
DETS02306 Selenium as Se	0.27	< 0.03	0.1	0.5	7
DETS02306 Zinc as Zn	2.5	0.025	4	50	200
DETS02055 Chloride as Cl	1000	< 100	800	15,000	25,000
DETS02055* Fluoride as F	210	2.1	10	150	500
DETS02055 Sulphate as SO4	1800	< 100	1000	20,000	50,000
DETS02009* Total Dissolved Solids	9600	96	4000	60,000	100,000
DETS02130 Phenol Index	< 100	< 1	1	n/a	n/a
DETS02033* Dissolved Organic Carbon	4500	< 50	500	800	1000

Additional Information	
DETS02008 pH	6.1
DETS02009 Conductivity uS/cm	13.8
* Temperature*	19.0
Mass of Sample Kg*	0.110
Mass of dry Sample Kg*	0.095
Stage 1	
Volume of Leachant L2*	0.937
Volume of Eluate VE1*	0.885

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

Summary of Asbestos Analysis Soil Samples

Our Ref 23-21192

Client Ref UK23.6632

Contract Title

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2229389	WS01 ES1 1.10-1.20	SOIL	NAD	none	Robertas Ciparis
2229390	WS02 ES2 0.20-0.35	SOIL	NAD	none	Robertas Ciparis
2229391	WS03 ES3 1.30-1.80	SOIL	NAD	none	Robertas Ciparis

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-21192
Client Ref UK23.6632
Contract

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2229389	WS01 ES1 1.10-1.20 SOIL	01/09/23	GJ 250ml, GJ 60ml, PT 1L		
2229390	WS02 ES2 0.20-0.35 SOIL	01/09/23	GJ 250ml, GJ 60ml, PT 1L		
2229391	WS03 ES3 1.30-1.80 SOIL	01/09/23	GJ 250ml, GJ 60ml, PT 1L		
2229392	WS01 ES1 1.10-1.20 LEACHATE	01/09/23	GJ 250ml, GJ 60ml, PT 1L		
2229393	WS02 ES2 0.20-0.35 LEACHATE	01/09/23	GJ 250ml, GJ 60ml, PT 1L		
2229394	WS03 ES3 1.30-1.80 LEACHATE	01/09/23	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total
TPH (C10-C40)	EH_1D_Total

End of Report

APPENDIX E

Waste Classification Report



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)



C2CD3-8TM84-DOMT5

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

Job name

UK23.6621 Woodbank Primary School

Description/Comments

Project

UK23.6621

Site

Woodbank Primary School

Classified by

Name: **Lee Anderson**
Date: **02 Oct 2023 08:49 GMT**
Telephone: **0113 8730211**

Company: **Environmental Strategies Ltd EPS**
10-12 East Parade
Leeds
LS1 2BH

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 Dec 2020

Next 3 year Refresher due by Dec 2023

Purpose of classification

2 - Material Characterisation

Address of the waste

Woodbank Primary School

Post Code BL8 1AX

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of existing playing field for the construction of a modular classroom structure

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

Waste created during the redevelopment of site including the excavation of any foundations

Description of the waste

Soils persisting beneath site, for full details please refer to EPS Report Ref: UK23.6621



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01 ES1/1.10-1.20/2023-09-01	1.10-1.20	Non Hazardous		3
2	WS02 ES2/0.20-0.35/2023-09-01	0.20-0.35	Non Hazardous		5
3	WS03 ES3/1.30-1.80/2023-09-01	1.30-1.80	Non Hazardous		7

Related documents

#	Name	Description
1	23-21192.hwol	DETS North .hwol file used to populate the Job
2	DETS North	waste stream template used to create this Job

Report

Created by: Lee Anderson

Created date: 02 Oct 2023 08:49 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	9
Appendix B: Rationale for selection of metal species	10
Appendix C: Version	11



Classification of sample: WS01 ES1/1.10-1.20/2023-09-01

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

Sample details

Sample name: **WS01 ES1/1.10-1.20/2023-09-01** LoW Code: **17: Construction and Demolition Wastes (including excavated soil from contaminated sites)**
Sample Depth: **1.10-1.20 m** Chapter: **17 05 04 (Soil and stones other than those mentioned in 17 05 03)**
Moisture content: **18%**
(wet weight correction)

Hazard properties

None identified

Determinands

Moisture content: 18% 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		arsenic { arsenic trioxide }				2.4	mg/kg	1.32	2.598	mg/kg	0.00026 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
2		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15	mg/kg	1.462	17.977	mg/kg	0.0018 %	✓	
			215-160-9	1308-38-9									
3		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
		024-017-00-8											
4		copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	20.311	mg/kg	0.00203 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
5		lead { lead chromate }			1	11	mg/kg	1.56	14.07	mg/kg	0.000902 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
6		mercury { mercury dichloride }				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
7		nickel { nickel chromate }				12	mg/kg	2.976	29.286	mg/kg	0.00293 %	✓	
		028-035-00-7	238-766-5	14721-18-7									
8		selenium { nickel selenate }				<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
9		zinc { zinc chromate }				37	mg/kg	2.774	84.168	mg/kg	0.00842 %	✓	
		024-007-00-3	236-878-9	13530-65-9									
10		pH				6.6	pH		6.6	pH	6.6 pH		
				PH									
11		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
12		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
13		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
14		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-469-6	83-32-9									
15		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-695-5	86-73-7									



#	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								
16	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
23	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
24	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
26	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
28	benzo[bk]fluoranthene	[1] 205-911-9 [2] 205-916-6	[1] 205-99-2 [2] 207-08-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
29	cadmium (non-pyrophoric); [1] cadmium oxide (non-pyrophoric) [2]	048-002-00-0	231-152-8 [1] 215-146-2 [2]		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
30	sulfur { sulphur dichloride }	016-013-00-X	234-129-0		<100 mg/kg	3.211	<321.132 mg/kg	<0.0321 %			<LOD
Total:									0.0499 %		

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



Classification of sample: WS02 ES2/0.20-0.35/2023-09-01

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

Sample details

Sample name: **WS02 ES2/0.20-0.35/2023-09-01** LoW Code: **17: Construction and Demolition Wastes (including excavated soil from contaminated sites)**
Sample Depth: **0.20-0.35 m** Chapter: **17 05 04 (Soil and stones other than those mentioned in 17 05 03)**
Moisture content: **25%**
(wet weight correction)

Hazard properties

None identified

Determinands

Moisture content: 25% 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		arsenic { arsenic trioxide }				30 mg/kg	1.32	29.707 mg/kg	0.00297 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
2		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				20 mg/kg	1.462	21.923 mg/kg	0.00219 %	✓		
			215-160-9	1308-38-9								
3		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD	
		024-017-00-8										
4		copper { dicopper oxide; copper (I) oxide }				67 mg/kg	1.126	56.576 mg/kg	0.00566 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
5		lead { lead chromate }			1	110 mg/kg	1.56	128.685 mg/kg	0.00825 %	✓		
		082-004-00-2	231-846-0	7758-97-6								
6		mercury { mercury dichloride }				0.26 mg/kg	1.353	0.264 mg/kg	0.0000264 %	✓		
		080-010-00-X	231-299-8	7487-94-7								
7		nickel { nickel chromate }				22 mg/kg	2.976	49.108 mg/kg	0.00491 %	✓		
		028-035-00-7	238-766-5	14721-18-7								
8		selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD	
		028-031-00-5	239-125-2	15060-62-5								
9		zinc { zinc chromate }				100 mg/kg	2.774	208.061 mg/kg	0.0208 %	✓		
		024-007-00-3	236-878-9	13530-65-9								
10		pH				5.6 pH		5.6 pH	5.6 pH			
				PH								
11		TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD	
				TPH								
12		naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
		601-052-00-2	202-049-5	91-20-3								
13		acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
			205-917-1	208-96-8								
14		acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
			201-469-6	83-32-9								
15		fluorene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
			201-695-5	86-73-7								



#	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							
16	phenanthrene	201-581-5	85-01-8		0.08 mg/kg		0.06 mg/kg	0.000006 %	✓	
17	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	fluoranthene	205-912-4	206-44-0		0.14 mg/kg		0.105 mg/kg	0.0000105 %	✓	
19	pyrene	204-927-3	129-00-0		0.12 mg/kg		0.09 mg/kg	0.000009 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
21	chrysene	601-048-00-0	205-923-4		0.04 mg/kg		0.03 mg/kg	0.000003 %	✓	
22	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
23	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
24	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
25	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
26	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
27	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
28	benzo[bk]fluoranthene	[1] 205-911-9 [2] 205-916-6	[1] 205-99-2 [2] 207-08-9		0.03 mg/kg		0.0225 mg/kg	0.00000225 %	✓	
29	cadmium (non-pyrophoric); [1] cadmium oxide (non-pyrophoric) [2]	048-002-00-0	231-152-8 [1] 215-146-2 [2]		0.6 mg/kg		0.45 mg/kg	0.000045 %	✓	
30	sulfur { sulphur dichloride }	016-013-00-X	234-129-0		400 mg/kg	3.211	963.396 mg/kg	0.0963 %	✓	
Total:								0.143 %		

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



Classification of sample: WS03 ES3/1.30-1.80/2023-09-01

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

Sample details

Sample name: **WS03 ES3/1.30-1.80/2023-09-01** LoW Code: **17: Construction and Demolition Wastes (including excavated soil from contaminated sites)**
Sample Depth: **1.30-1.80 m** Chapter: **17 05 04 (Soil and stones other than those mentioned in 17 05 03)**
Moisture content: **13%**
(wet weight correction)

Hazard properties

None identified

Determinands

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

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }				9.1 mg/kg	1.32	10.453 mg/kg	0.00105 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
2		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				17 mg/kg	1.462	21.616 mg/kg	0.00216 %	✓		
			215-160-9	1308-38-9								
3		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD	
		024-017-00-8										
4		copper { dicopper oxide; copper (I) oxide }				25 mg/kg	1.126	24.488 mg/kg	0.00245 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
5		lead { lead chromate }			1	11 mg/kg	1.56	14.927 mg/kg	0.000957 %	✓		
		082-004-00-2	231-846-0	7758-97-6								
6		mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7								
7		nickel { nickel chromate }				25 mg/kg	2.976	64.734 mg/kg	0.00647 %	✓		
		028-035-00-7	238-766-5	14721-18-7								
8		selenium { nickel selenate }				<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD	
		028-031-00-5	239-125-2	15060-62-5								
9		zinc { zinc chromate }				61 mg/kg	2.774	147.224 mg/kg	0.0147 %	✓		
		024-007-00-3	236-878-9	13530-65-9								
10		pH				5.5 pH		5.5 pH	5.5 pH			
				PH								
11		TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD	
				TPH								
12		naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
		601-052-00-2	202-049-5	91-20-3								
13		acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
			205-917-1	208-96-8								
14		acenaphthene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
			201-469-6	83-32-9								
15		fluorene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD	
			201-695-5	86-73-7								



#	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								
16	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	anthracene	204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
19	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
21	chrysene	601-048-00-0	205-923-4		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
23	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
24	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
25	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
26	benzo[ghi]perylene	205-883-8	191-24-2		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
27	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
28	benzo[bk]fluoranthene	[1] 205-911-9 [2] 205-916-6	[1] 205-99-2 [2] 207-08-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
29	cadmium (non-pyrophoric); [1] cadmium oxide (non-pyrophoric) [2]	048-002-00-0	231-152-8 [1] 215-146-2 [2]		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
30	sulfur { sulphur dichloride }	016-013-00-X	234-129-0		200 mg/kg	3.211	558.77 mg/kg	0.0559 %		✓	
Total:									0.0851 %		

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

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

■ **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

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

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

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

■ **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

■ **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Additional Hazard Statement(s): Carc. 1A; H350

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

■ **benzo[bk]fluoranthene** (EC Number: [1] 205-911-9 [2] 205-916-6, CAS Number: [1] 205-99-2 [2] 207-08-9)

Description/Comments: Combined data from harmonised entries in CLP for benzo[b] and benzo[k]fluoranthene; C&L Inventory Database
Data source: <https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 02 Mar 2017
Hazard Statements: Carc. 1B; H350 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

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

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

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

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

sulfur {sulphur dichloride}

Considered to be the worst case scenario.



Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2023.271.5764.10641 (28 Sep 2023)

HazWasteOnline Database: 2023.270.5761.10634 (27 Sep 2023)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

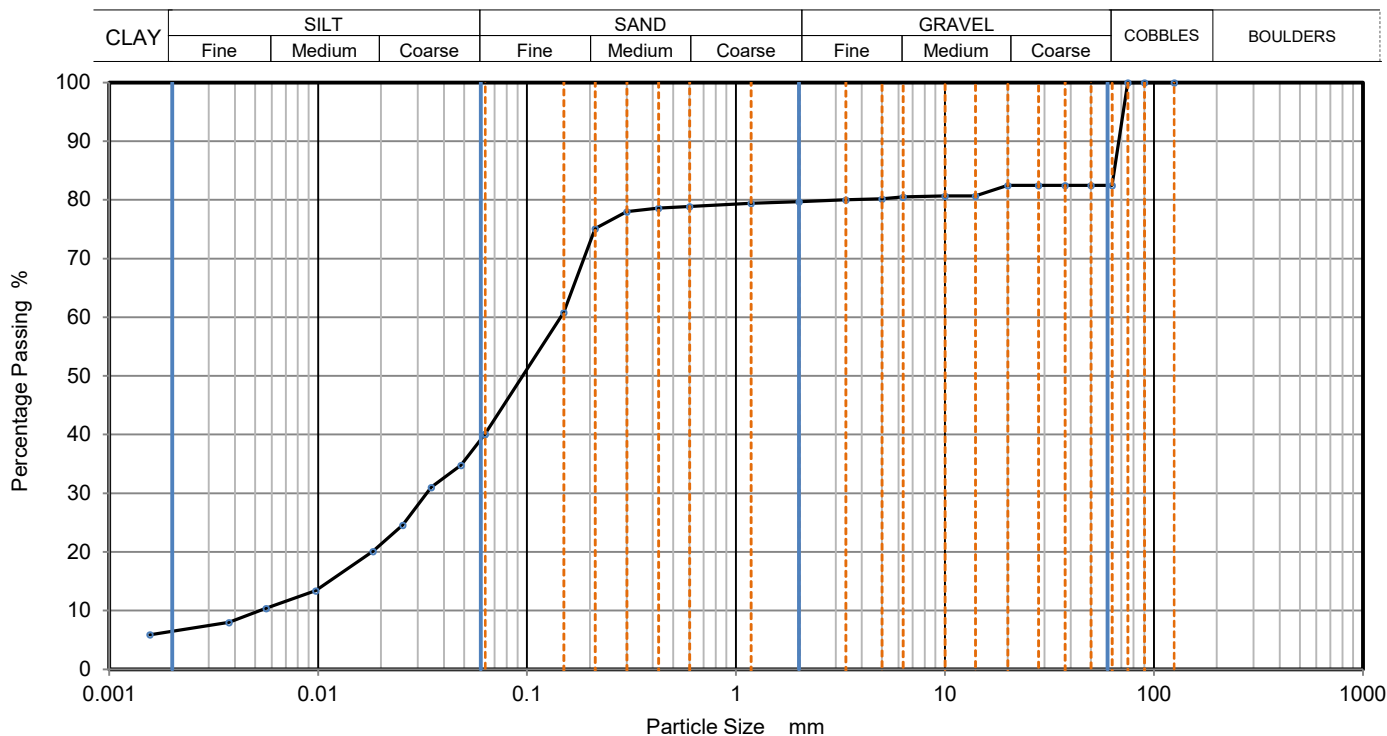
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

APPENDIX F

Laboratory Results – Geotechnical and DCP Test Plot

GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J246976
				Borehole/Pit No.	WS02
Project Name	Woodbank Primary School			Sample No.	2
Soil Description	Greyish brown slightly gravelly sandy SILT.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP2023090729



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	40
90	100	0.0483	35
75	100	0.0348	31
63	83	0.0254	25
50	83	0.0183	20
37.5	83	0.0097	13
28	83	0.0056	10
20	83	0.0037	8
14	81	0.0016	6
10	81		
6.3	81		
5	80		
3.35	80		
2	80		
1.18	79		
0.6	79	Particle density (assumed) 2.65 Mg/m ³	
0.425	79		
0.3	78		
0.212	75		
0.15	61		
0.063	40		

Dry Mass of sample, g

2274

Sample Proportions	% dry mass
Very coarse	18
Gravel	3
Sand	40
Silt	34
Clay	7

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	28
Curvature Coefficient	1.4

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed	12/09/2023
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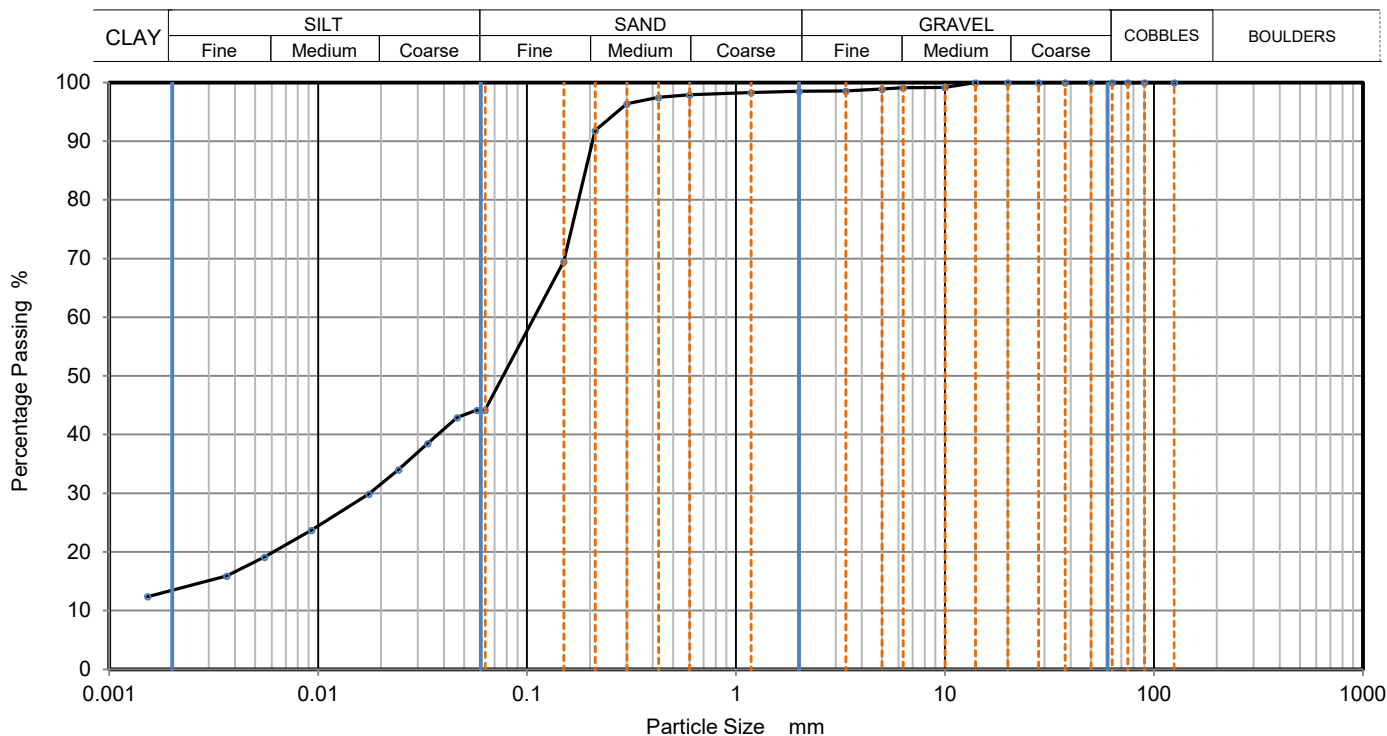


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GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J246976
				Borehole/Pit No.	WS04
Project Name	Woodbank Primary School			Sample No.	1
Soil Description	Brown sandy clayey SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP2023090731



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0577	44
90	100	0.0463	43
75	100	0.0335	39
63	100	0.0242	34
50	100	0.0175	30
37.5	100	0.0093	24
28	100	0.0055	19
20	100	0.0037	16
14	100	0.0015	12
10	99		
6.3	99		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98	Particle density (assumed) 2.65 Mg/m ³	
0.425	98		
0.3	96		
0.212	92		
0.15	70		
0.063	44		

Dry Mass of sample, g

3924

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	54
Silt	31
Clay	14

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed

12/09/2023



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Summary of Classification Test Results

Project No.
J246976

Project Name	Woodbank Primary School
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[illegible]

All tests performed in accordance with BS1377:1990 unless specified otherwise

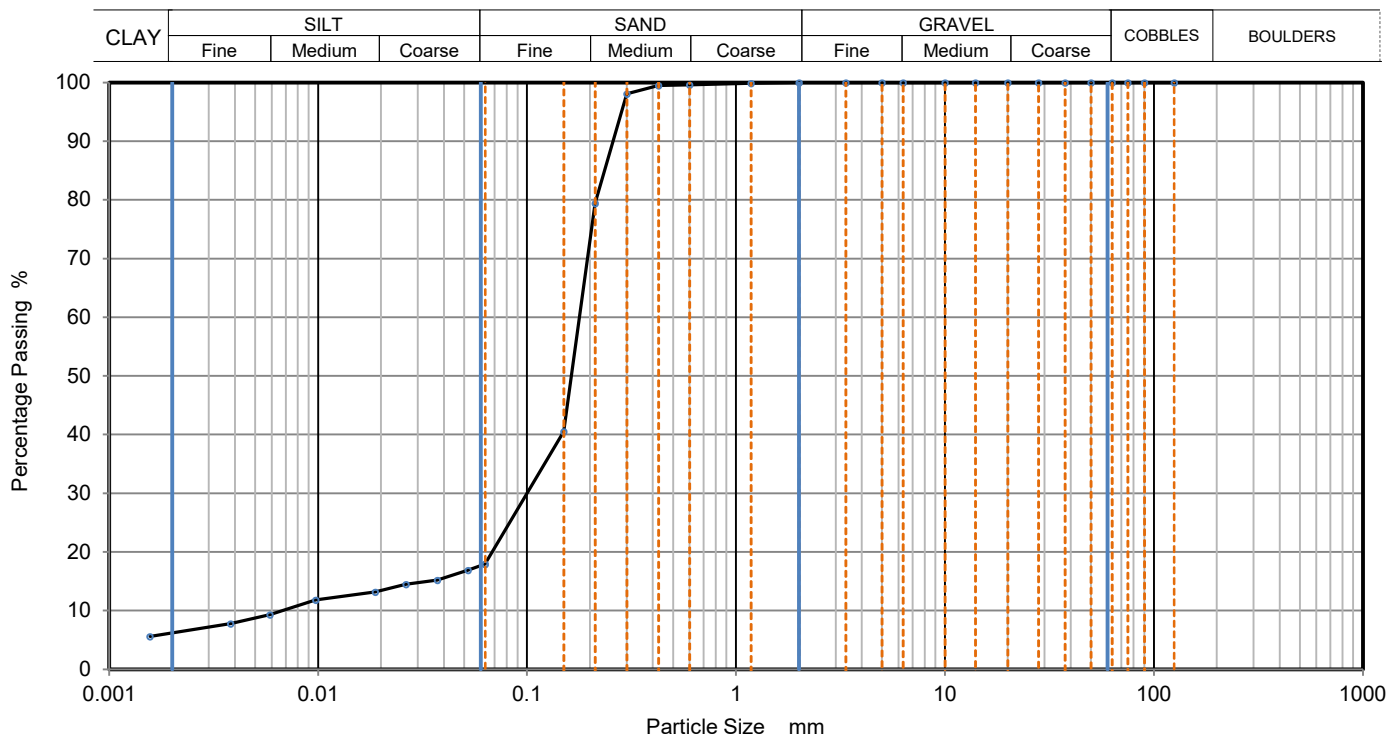
Date Printed	12/09/2023
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Date Printed	12/09/2023
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Key		
Density test	Liquid Limit	Particle density
Linear measurement unless :	4pt cone unless :	sp - small pyknometer
wd - water displacement	cas - Casagrande method	gj - gas jar
wi - immersion in water	1pt - single point test	



GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J246976
				Borehole/Pit No.	WS01
Project Name	Woodbank Primary School			Sample No.	1
Soil Description	Brown silty SAND.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP2023090727



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	18
90	100	0.0521	17
75	100	0.0371	15
63	100	0.0264	15
50	100	0.0187	13
37.5	100	0.0097	12
28	100	0.0059	9
20	100	0.0038	8
14	100	0.0016	6
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed) 2.65 Mg/m ³	
0.425	100		
0.3	98		
0.212	79		
0.15	41		
0.063	18		

Dry Mass of sample, g

1857

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	82
Silt	12
Clay	6

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	26
Curvature Coefficient	8.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed	12/09/2023
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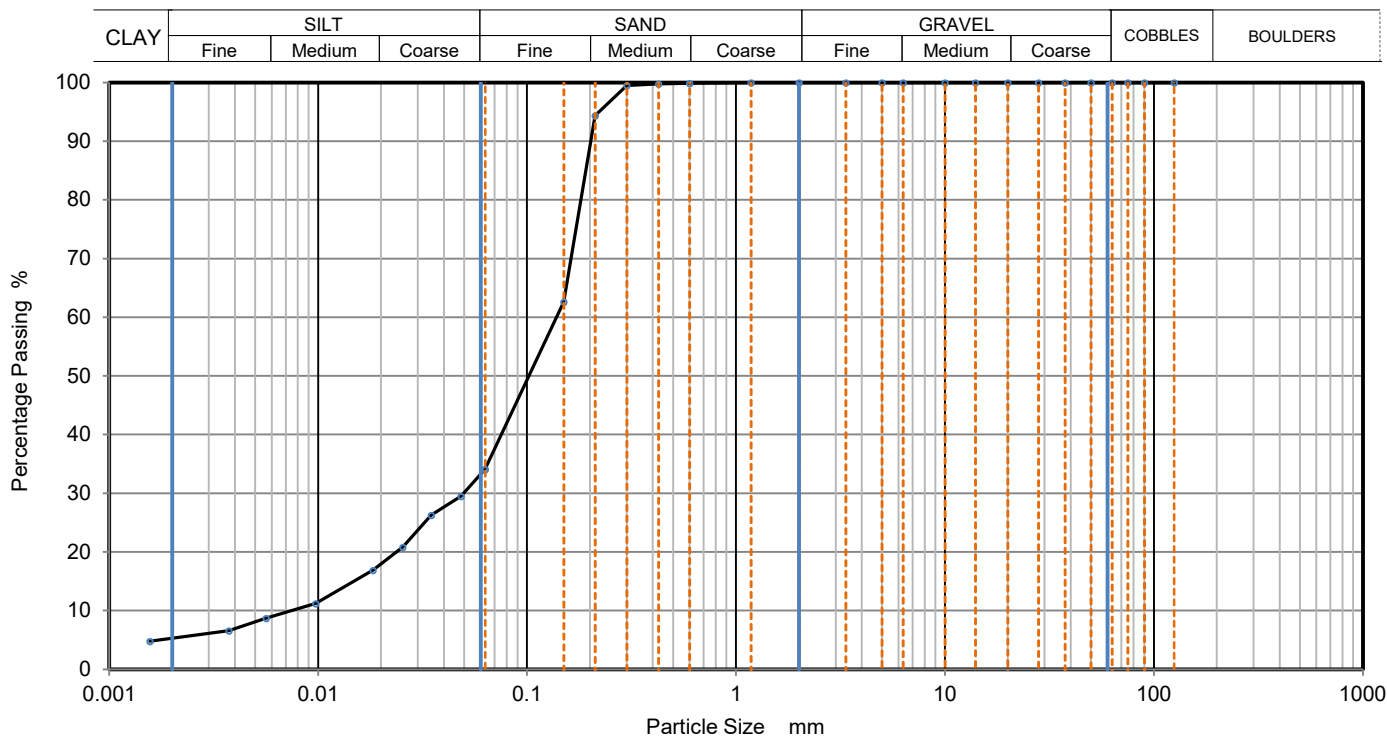


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GQF-008-55 Issue 01 - Oct 22	PARTICLE SIZE DISTRIBUTION			Job Ref	J246976
				Borehole/Pit No.	WS02
Project Name	Woodbank Primary School			Sample No.	1
Soil Description	Brownish grey very sandy SILT.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	TTLP2023090728



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	34
90	100	0.0483	30
75	100	0.0348	26
63	100	0.0254	21
50	100	0.0183	17
37.5	100	0.0097	11
28	100	0.0056	9
20	100	0.0037	7
14	100	0.0016	5
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed) 2.65 Mg/m ³	
0.425	100		
0.3	100		
0.212	94		
0.15	63		
0.063	34		

Dry Mass of sample, g

2844

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	66
Silt	29
Clay	5

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	19
Curvature Coefficient	2.4

Remarks

Preparation and testing in accordance with BS1377 unless noted below

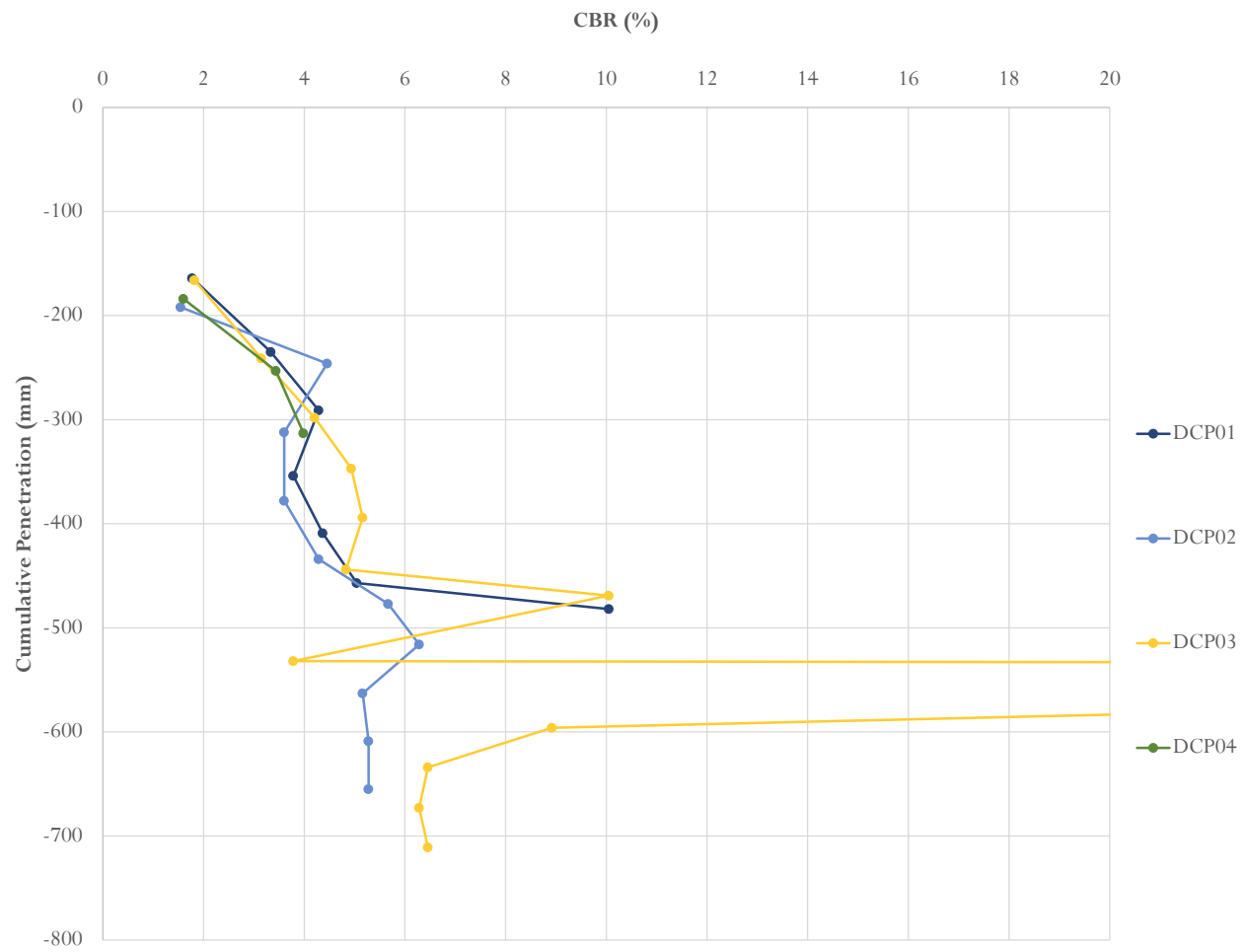
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