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Andrew Chicken
Project Energy Ltd
By email only

Dear Andrew,

RE: Ground Investigation at Paradise Street, Ramsbottom

Introduction

GRM Development Solutions Ltd (GRM) have been instructed by Project Energy Ltd (Client) to undertake a ground investigation at Paradise Street, Ramsbottom. These works aimed to identify issues regarding potential contamination, and to determine ground conditions beneath the site. This Letter Report details the findings of these works and should be read in conjunction with the following report:

- LK Consult – Phase 1: Preliminary Risk Assessment, ref: LKC 21 1149, dated May 2021.

GRM Standard Limitations of Reporting are provided in Appendix A of this report.

Site Description

The site is located approximately 100m north east of Ramsbottom town centre. The National Grid Reference for the approximate centre of the site is SD 791 170. A Site Location and Boundary Plan is presented in Appendix B.

The site occupies an area of approximately 0.04Ha and currently comprises a number of vacant terraced properties (10 to 14 Paradise Street), fronting onto Paradise Street, with two external yard areas to the rear, separated by a masonry wall. The site is accessed from Paradise Street via sliding garage doors.

The site is bounded to the north by a residential property, to the east by a retaining wall which drops down to the east, to the south by a residential property and to the west by Paradise Street.



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The ground surface of the internal areas comprises concrete and stone flags. The surface of the external areas comprise stone flags and soil. A brick-lined well, approximately 1.0m in diameter, is present in the northern yard area, with the water level sitting at approximately 5.50m below existing ground level. A concrete-lined vehicle inspection pit, backfilled with rubble and railway sleepers, is present in the southern yard area.

The topography of the site generally slopes from the south down towards the north, following the gradient of Paradise Street. The topography of the surrounding area generally slopes from the west down towards the east, and also from the south down towards the north.

Proposed Development

The Client proposes to redevelop the site into residential properties, including renovation of the existing buildings and the construction of extensions to their rear. A Proposed Development Plan is presented in Appendix C.

Previous Investigation

A Desk Study, undertaken by LK Consult, identified development of the site on the earliest map reviewed (1892), with a number of structures present. Mapping from 1963 identifies the northernmost building as a smithy.

A walkover was undertaken on the 4th of May 2021, during which it was established that Nos.12 and 14 Paradise Street were used as a car garage. Evidence of fuel or oil leakages were observed, a vehicle inspection pit was present to the rear of No.14 and an underground oil storage tank, located adjacent to the inspection pit, was noted. An outbuilding to the rear of No.14 was used as a joinery, with numerous unlabelled chemical containers being present. The smithy in the north of the site was no longer in use at the time of the walkover, with anecdotal evidence suggesting it had subsequently been used as a mechanics garage. A pipe potentially comprising asbestos containing material was noted within the former blacksmiths.

The LK Consult Desk Study identified several potential sources of contamination, namely made ground associated with previous development and previous use of the site as a blacksmiths and mechanics garage. Asbestos, heavy metals, hydrocarbons, PAH and solvents were identified as potential contaminants. An off-site electricity substation was discounted as a potential source of contamination due to its distance from the site.

The Desk Study states the site is likely underlain by superficial deposits of Glacial Till (clay), overlying solid strata of the Brooksbottoms Grit (sandstone) and the Marsden Formation (mudstone and siltstone). Landslide Deposits are recorded to the north west of the site.

Ground Investigation

GRM attended site on the 17th of July 2024 to undertake an intrusive ground investigation. Initially, these works were envisaged to comprise five windowless sample boreholes; however, due to site constraints, three windowless sample boreholes were drilled (WS101 to WS103) with hand dug pits advanced on the positions of WS104 and WS105. WS105 was located within an internal area, into which access with the windowless sampling rig was not possible. Two service clearance pits dug for WS104 encountered obstructions, and in the absence of a viable alternative position, no drilling was undertaken. The exploratory holes were positioned by the Client's structural engineer.

At the time of the fieldwork, the underground oil storage tank had been removed and the excavation backfilled with rubble.

An Exploratory Hole Location Plan and Exploratory Hole Logs are presented in Appendices D and E respectively.

Ground Conditions

The following ground conditions were encountered during the investigation:

- Made Ground
- Alluvium
- River Terrace Deposits

Made Ground

Made ground was encountered in most exploratory holes (with the exception of WS105), from ground level to depths ranging between 0.20m and 1.60m below existing ground level (begl). These strata generally comprised the following:

- Soft, brown and dark brown, sandy, variably gravelly CLAY. The gravel comprises angular to subrounded brick and sandstone. This made ground is considered to represent material derived from previous development of the site. It was encountered in some exploratory holes (WS101 and WS102), in the central and southern site areas, from ground level to depths ranging between 0.40m and 1.30m begl.
- Dark brown, silty SAND. This made ground was encountered in one exploratory hole (WS104), from ground level to a depth of 0.20m begl, and is considered to represent reworked natural material.
- Dark brown, brown and orangish-brown, clayey, gravelly SAND. The gravel comprises angular glass, brick, clinker and sandstone. This made ground was only encountered in WS103, in the yard area of the former blacksmiths. The base of this material was proven at a depth of 1.60m begl.

N-values for Standard Penetration Tests (SPTs) undertaken within the made ground at a depth of 1m begl ranged between 1 and 13, indicative of very loose to medium dense material.

Alluvium

These strata were encountered in all exploratory holes beneath the made ground or, locally, from ground level (WS105). Where proven, the base of these strata was encountered at depths ranging between 3.0m and 3.30m begl.

These strata generally comprised the following:

- Very soft to soft, brown, grey and orangish-brown, occasionally finely laminated, silty, sandy, variably gravelly CLAY. Where present, the gravel comprises subangular to rounded sandstone and quartzite.
- Very soft, grey, clayey, sandy SILT.
- Orangish-brown and brown, silty, gravelly SAND. The gravel comprises subangular to rounded quartzite.

Standard Penetration Tests were undertaken at regular intervals within the Alluvium. SPT N-values ranged between 0 and 6, indicative of very low to low strength cohesive soils.

River Terrace Deposits

These strata were encountered in some exploratory holes (WS101 to WS103) beneath the Alluvium, but were not fully penetrated. They generally comprised the following:

- Stiff, reddish-brown, sandy, gravelly CLAY. The gravel comprises subangular to rounded quartzite and sandstone.
- Brown, variably clayey, silty SAND.
- Brown and orangish-brown, silty, gravelly SAND. The gravel comprises subangular to subrounded quartzite and sandstone.
- Grey, clayey, sandy GRAVEL. The gravel comprises angular to subrounded sandstone, limestone and quartzite.

Standard Penetration Test N-values ranged between 12 and 18, locally 31, indicating that the granular River Terrace Deposits are generally medium dense, locally dense. The cohesive River Terrace Deposits were observed to be high strength.

Contamination Observations

Clinker was observed within made ground encountered in WS103, from ground level to a depth of 1.60m begl. In addition, a hydrocarbon odour was noted in soils recovered from 1.30m to 1.60m within WS103.

Glass was encountered within made ground in WS102, from 1.0m to 1.30m. While this does not pose a chemical risk to end users or controlled waters, it is considered to be a physical contaminant; however, given the depth to this material, it is considered unlikely that it will come into contact with end users.

No further visual or olfactory evidence of contamination was observed during the fieldwork.

Groundwater Observations

A water strike was observed in one exploratory hole (WS101) at a depth of 2.60m begl. Poor sample recovery was noted, likely caused by the presence of groundwater, which prevented identification of the strata in which this groundwater occurred; however, given the generally cohesive nature of the overlying Alluvium, the groundwater encountered is considered to sit within the granular River Terrace Deposits.

Damp strata, representing minor volumes of groundwater, were observed at depths ranging between 1.0m and 3.60m begl, within strata of both the Alluvium and River Terrace Deposits.

The exploratory techniques used were rapid, and may have masked smaller seepages.

The groundwater observations suggest the presence of relatively small, perched volumes within more granular fractions of the Alluvium, with greater volumes of groundwater present within the granular River Terrace Deposits.

Long term monitoring of groundwater levels has not been conducted as part of this investigation and interpreted levels are approximate and may be dependent on seasonal variation.

Ground Gas and Vapours

Ground gas monitoring is not within the scope of this investigation; however, the potential hydrocarbon contamination noted within WS103 may represent a source of vapour, which may pose a risk to end users.

Laboratory Chemical Testing

Human Health

Six samples (five of made ground and one of natural strata) were analysed for a general suite of contaminants (metals, inorganics and speciated PAH). These samples were also screened for the presence of asbestos. Three samples of made ground were analysed for banded aliphatic and aromatic hydrocarbons (TPHCWG). The results of the chemical analysis are presented in Appendix F.

The rationale for the end use specific Tier 1 Acceptance Criteria (TAC) used by GRM is outlined in Appendix A (vi) and for this site the chemical analysis results are being compared against the TAC for residential end use with plant uptake.

A Soil Organic Matter (SOM) content of 2.5% has been used to assess the made ground, as this value is representative of the lowest recorded SOM in it. A SOM of 1% has been used to assess the natural strata.

To provide an initial assessment, the results have been assessed to determine whether benzo(a)pyrene could be used as a surrogate marker in the assessment of carcinogenic risks posed by genotoxic PAHs in soils. It is recommended that such assessments should be based upon toxicological benchmarks derived from the data for two coal tar mixtures presented by Culp et al. (1998) and as described in the Public Health England document “Contaminated land information sheet: risk assessment approaches for polycyclic aromatic hydrocarbons (PAHs)”, dated 2017. The graphs completed show that benzo(a)pyrene can be used as a surrogate marker for genotoxic PAHs, with the exception of naphthalene, for the relaid topsoil and made ground. GRM’s TACs use published C4SL values which are based on minimal risk levels and have been confirmed to be suitable for use in a planning context by the UK Government. Other commercially available values have been published and have been used where C4SLs are not available. A copy of the PAH profile graphs and GRM thresholds used in this assessment are presented in Appendix G.

The concentrations of most contaminants tested for were below the TAC for residential end use with plant uptake; however, the following exceedances of the TAC were reported in a sample of made ground from WS103 at 0.20m:

- Arsenic – reported concentration of 150mg/kg, TAC of 37mg/kg.
- Lead – reported concentration of 1700mg/kg, TAC of 200mg/kg.

The laboratory chemical testing revealed elevated concentrations of hydrocarbons in a sample of made ground from WS103 at 1.30m; however, these were below the TAC for residential end use with plant uptake.

The metal contamination identified is considered to pose a risk to human health and remedial measures will be necessary to protect end users. No specific risk to site workers has been identified; however, the use of appropriate PPE and safe working practices should be adopted during the construction phase.

Controlled Waters

The laboratory chemical testing has identified elevated concentrations of contaminants within the made ground, with concentrations above the TAC for residential end use identified within WS103. The site has been shown to be underlain by largely cohesive Alluvium, which will prevent the downward migration of contaminants to the groundwater in the deeper River Terrace Deposits.

Remediation

Protection of End Users

Concentrations of arsenic and lead in excess of the TAC for residential end use with plant uptake have been identified in a sample of made ground collected from WS103. This exploratory hole was located in the north of the site, in the yard of the building used as a blacksmiths and made ground was proven to a depth of 1.60m below in this location. The made ground encountered in this location was not observed in the other exploratory holes, and remedial measures are not considered to be necessary elsewhere. A plan showing the extent of the area requiring remediation is presented in Appendix H.

It is considered that the use of a 600mm thick clean soil capping layer in private gardens and soft landscaped areas, to break the source-pathway-receptor linkage between the contaminated made ground and end users, currently represents the most suitable form of remediation. The capping layer should comprise topsoil/subsoil. It is recommended that a maximum thickness of 300mm of topsoil is used to ensure the longevity of the quality of it. No capping would be required below areas of hardstanding, or in areas which fall within the footprint of the proposed extension, as the hard cover will remove the possibility of a plausible linkage being present by removing the pathway.

If current ground levels are to be maintained or reduced, then sufficient materials should be removed to accommodate the capping layer. Any materials imported to construct the soil capping layer will require chemical validation to confirm that they are suitable for use. Samples of these materials will need to be analysed for a suite of contaminants including metals, inorganics, speciated PAHs and other contaminants such as speciated hydrocarbons and asbestos, depending on the source. A minimum of three samples per source and material type is considered appropriate.

The results of the chemical analysis should be compared to the Tier 1 Assessment Criteria presented in Appendix G. It is also recommended that the topsoil is subjected to analysis to BS3882 to confirm that it conforms to this standard.

Following construction of the capping layer, the thickness of the capping layer will require verification by way of hand dug pits in each affected garden.

There is no topsoil at the site and so some will need to be imported for use as a growing medium in gardens. Any imported topsoil for use in constructing the growing medium will require chemical validation to confirm that it is chemically suitable for use. Samples of the topsoil will need to be analysed for a suite of contaminants including metals, inorganics, speciated PAHs and other contaminants such as, speciated hydrocarbons and asbestos depending on the source.

Protection of Site Workers

Based on the concentrations of contaminants recorded in the testing undertaken, no remediation is necessary to protect site workers. The general comments outlined in Appendix A (vii) should be considered when site-specific risk assessments are being completed.

Should any material suspected of being significantly contaminated be encountered during the redevelopment of the site, GRM can be contacted to undertake additional investigation if necessary. The local Environmental Health Officer should be contacted and informed of any additional remedial work required.

Protection of Controlled Waters

Based on the ground conditions encountered during the intrusive investigation and the results of the laboratory chemical testing, it is considered that no remediation is necessary to protect controlled waters. However, there may be a need to undertake some chemical testing around the location of the former tank and inspection pits and/or the groundwater in the well to determine whether controlled waters are being affected by these features.

Protection of Water Pipes

At this stage, based on the chemical laboratory testing undertaken, it is considered that should new water supply pipes come into contact with the made ground, upgraded water supply pipes should be allowed for. It is recommended that the local water supply company should be contacted to confirm their requirements with regard to pipe materials.

Remedial Strategy

A Remedial Strategy is required.

Disposal and Classification

Based on the Waste Classification Reports presented in Appendix I, it is considered that the made ground encountered in WS103 will be classified as Hazardous for disposal purposes. The made ground present across the remainder of the site will be classified as Non-Hazardous for disposal purposes. The natural strata will also be classified as Non-Hazardous and are likely to be classified as Inert for disposal purposes; however, further testing will be required to confirm this.

Care should be taken to keep natural arisings free from construction materials and made ground, as natural soils mixed with these materials may attract additional disposal costs.

Other Considerations

Whilst a geotechnical assessment is outside the scope of this report, in addition to the recommendations above, consideration should be given to the following:

- Very low strength/very loose Alluvium was observed to depths ranging between 3.0m and 3.30m begl. The design of new foundations should take the poor anticipated bearing capacity of these soils into account.
- Excavations advanced through the Alluvium will be liable to collapse in the short term, which is likely to be exacerbated by the presence of groundwater. Care should be taken during excavation works to avoid compromising the structural integrity of adjacent structures, both on and off site.
- The design of any new foundations should take into account the presence of the retaining wall which forms the eastern site boundary, and should be designed so as not to affect the structural integrity of this wall. It is recommended that the retaining wall is inspected by a structural engineer prior to the commencement of development.
- A well, located in the rear yard area in the north of the site, will require infilling with clean, geotechnically suitable material, placed to an appropriate standard. Any new foundations spanning this feature will require engineer design. An engineer-designed cap may be required.

Further Works

The following further works are recommended:

- Production of a Remedial Strategy to address the identified contamination and detail a suitable methodology to protect end-users.
- Engagement with a foundation designer, including the provision of the logs contained within this report, to determine a suitable foundation solution for the proposed development. They may require additional site investigation and/or geotechnical testing.
- Inspection of the adjacent retaining wall by a suitably qualified structural engineer, with an assessment of the effect of new foundations on this structure.

We trust this is suitable for your current requirements. Should you require any further information or would like any clarification of the points raised please do not hesitate to contact us.

Yours Sincerely,
for GRM Development Solutions Ltd

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Appendices

- Appendix A – GRM Standard Limitations
- Appendix B – Site Location and Boundary Plan
- Appendix C – Proposed Development Plan
- Appendix D – Exploratory Hole Location Plan
- Appendix E – Exploratory Hole Logs
- Appendix F – Laboratory Chemical Testing Results
- Appendix G – Thresholds and PAH Profiles
- Appendix H – Area Requiring Remediation Plan
- Appendix I – Waste Classification Report



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GENERAL APPRAISAL COMMENTS

i INFORMATION SOURCES

Where available the following sources have been used for the identification and assessment of potential ground hazards:

- Relevant British Standards
- British Geological Survey (BGS) Geology Map Scale 1:10,000 for local area
- British Geological Survey (BGS) Geology Map Scale 1:50,000/1:63,320
- BGS Memoir
- BGS Borehole Records: <https://mapapps2.bgs.ac.uk/geoindex/home.html>
- BGS online viewer: <https://geologyviewer.bgs.ac.uk>
- Magic Groundwater Vulnerability Maps
- Historical Ordnance Survey (OS) Maps
- Environmental Data Report
- Environment Agency Website: <http://www.environment-agency.gov.uk/>
- Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, UKWIR, 2010.
- Coal Authority Records / Coal Mining Report
- DEFRA/Environment Agency Contaminated Land publications and DoE Industry Profiles
- BRE Guide BR211 (2023), 'Radon: Guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects)'
- UK HSA Radon Maps: <https://www.ukradon.org/information/ukmaps>
- CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings'
- BS8485:2015 +A1: 2019, 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'
- Other technical references used throughout this document are detailed in the text.

ii CONTAMINANTS OF CONCERN

The DoE Industry Profiles are normally used to assess likely contaminants from past land use and potential nearby industrial sources. For land uses where no profile is available, likely contaminants of concern are selected by GRM based on past experience of similar sites, a general screening suite of contaminants covered by CLEA and common contaminants from the Industry Profiles.

- | | | |
|------------|-------------------|--|
| · Arsenic | · Copper | · Water soluble sulphate |
| · Cadmium | · Nickel | · PAH (polycyclic aromatic hydrocarbons) |
| · Chromium | · Zinc | |
| · Lead | · Phenols | |
| · Mercury | · cyanide (total) | |
| · Selenium | · pH | |

Asbestos and PCBs are listed in the vast majority of profiles. PCBs are listed as the profiles expect electricity substations and switch boxes on all industrial sites. There is the potential for asbestos containing material to be mixed up with made ground, following any demolition works.

iii CONCEPTUAL MODEL METHODOLOGY

The consideration of contamination is based upon the principles of risk assessment, using the 'source-pathway-receptor' model in order to establish the presence, or potential presence, of a pollutant linkage.

To create a risk, contamination must have the potential to cause harm to susceptible targets or receptors such as humans, the water environment or the built environment. The potential for harm to occur requires three conditions to be satisfied to form a pollutant linkage:

- The presence of substances that may cause harm (SOURCE).
- The presence of a target which may be harmed (RECEPTOR).
- The existence of a plausible migration route between the source and the receptor (PATHWAY).

In the absence of a plausible pollutant linkage there is no risk. Where a potential linkage is identified in order for it not to pose a risk to the identified receptor it must be broken.

iv INTRUSIVE INVESTIGATION SAMPLING METHODOLOGY

The ground investigation (including fieldwork, sampling, monitoring and laboratory analyses) has been designed to identify and assess potential ground related problems and to allow cost effective solutions to be advised. It has been planned on the basis of the desk study, site inspection and the proposed development layout (where available). All fieldwork and soil descriptions were carried out in general accordance with relevant British Standards.

The exploratory holes have been positioned and advanced to depths to determine the general ground/groundwater/gas conditions below the site. A general grid pattern has been adopted, where possible, to provide sufficient information based on the current proposed layout scheme. Some holes have been targeted at particular hazards identified in the Phase I assessment. The resultant exploratory hole density is considered to be commensurate with the complexity of the site conditions and detail of information required for this phase of the investigation.

v GROUND GAS RISK ASSESSMENT METHODOLOGY

Gas monitoring programmes undertaken by GRM are designed to broadly comply with the recommendations outlined in CIRIA Report C665 'Assessing risks posed by hazardous ground gas to buildings' (2007) and BS8576 'Guidance on Investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs) (2013).

To assess the risks posed by ground gases such as radon, carbon dioxide and methane, the relevant current guidance has been used. For radon the site has been assessed following the guidelines in 'Radon: guidance on protective measures for new dwellings (including supplementary advice for extensions, conversions and refurbishment projects) (BR211: 2023)'. For methane and carbon dioxide the primary guidance document used to determine if protection measures are required is *BS8485:2015 Code of practice for the design of protective measures from methane and carbon dioxide ground gases for new buildings*. This uses hazardous gas flow rates (Q_{hg}), which are gas concentrations multiplied by borehole flow rates, to derive a Gas Flow Rate (GSV) for the site. The gas regime is then determined based on the GSV and other limiting factors such as gas concentrations.

Where flow is not recorded during the monitoring a default flow rate of 0.1l/hr will be used in the assessment to produce a positive result.

vi HUMAN HEALTH RISK ASSESSMENT METHODOLOGY

Guidance contained in the Environment Agency's CLEA Reports has been used to assess the risks posed to human health.

For residential developments that include domestic gardens the default Tier 1 Assessment Criteria (TAC) for 'residential land with plant uptake' are used, i.e. a female with a start age class of one and an end age class of six. All pathways are considered including the consumption of home-grown vegetables.

For residential developments that do not include domestic gardens the default Tier 1 Assessment Criteria (TAC) for 'residential land without plant uptake' are used, i.e. a female with a start age class of one and an end age class of six. All pathways are considered except the consumption of home-grown vegetables. For commercial/industrial developments the default Tier 1 Assessment Criteria (TAC) for 'commercial/industrial' are used, i.e. a female with a start age class of sixteen and an end age class of eighteen. All pathways are considered except the consumption of home-grown vegetables.

The TAC used by GRM include Category 4 Screening Levels (C4SLs) published by DEFRA, values calculated by GRM using the CLEA v1.071 risk assessment, and values and Suitable for Use Levels (S4UL) developed by LQM/CIEH. The TAC used in the assessment are selected based on the lowest site specific SOM values returned as part of the chemical analysis.

Where soil chemical analysis results are found to exceed the TAC, Site-Specific Risk Assessments may be undertaken using the CLEA v1.071 risk assessment software using the age classes and pathways described above.

vii RISK TO SITE WORKERS – GENERAL COMMENTS

The risks to site workers are similar to those posed to site end users, although likely to be less severe due to the site workers' shorter exposure to the identified contamination. However, site workers (particularly groundworkers) are more likely to come into direct contact with contaminated soils due to the nature of their work. On this basis ground and construction workers should be provided with basic Personal Protective Equipment based on the site's general health and safety risk assessment, but including as a minimum safety footwear, gloves and overalls.

A site specific risk assessment should be carried out for all hazards identified within the ground investigation in accordance with current health and safety legislation. This assessment should identify any measures required to further reduce risks i.e. providing further Personal Protective Equipment, welfare facilities and if necessary preventing access to certain areas.

Demolition and dismantling of existing structures on the site must be carried out to a safe and acceptable standard, in accordance with current UK guidance and best practice. Whilst not ground related, asbestos and hazardous substances surveys should be conducted prior to any demolition.

Any unusual colours, odours and suspicious ground should be reported immediately to site management and then GRM.

Whilst this appraisal has considered the long-term effects of contamination, GRM can also help during the formulation of Health and Safety documentation, if required.

viii CONTROLLED WATERS RISK ASSESSMENT METHODOLOGY

Where the desk study and fieldwork do not reveal a potential source of contamination no leachate or groundwater testing will be performed. Where a potential source is identified the testing will comprise leachate testing on the material considered most likely to pose a risk, groundwater testing will be undertaken if water is present at shallow depth.

The UK Drinking Water Standards (UKDWS) or Environmental Quality Standards (EQS) are usually adopted for comparison with the leachate/groundwater test results. When the most sensitive receptor is considered to be the aquifer (groundwater) UKDWS will be adopted as the Initial Tier 1 screening values.

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Where the most sensitive receptor is a surface water feature the EQS values will be used as Initial Tier I Screening values.

ix CONSTRUCTION MATERIALS RISK ASSESSMENT METHODOLOGY

The 'screening levels' adopted for the assessment of risk to construction materials are taken from the following documents:

- UK Water Industry Research (UKWIR) Contamination thresholds for sub-surface water pipes, for the protection of buried pipes.
- Building Research Establishment (BRE) Special Digest SD1 (2005), 'Concrete in Aggressive Ground', for the protection of buried concrete.

x WASTE DISPOSAL, SITE WASTE MANAGEMENT PLANS AND MATERIAL MANAGEMENT PLANS

Under current Waste Management Regulations, waste soil materials produced from the site will require characterisation to enable it to be disposed of correctly.

The chemical analysis results included in this report should be provided to the relevant landfill operators to establish the characterisation of the waste, confirm its suitability for landfill disposal and provide estimated costings. If material is classified as hazardous, then the site will need to be registered with the Environment Agency prior to the movement of the waste. Depending on the receiving landfill's current permit, further chemical analysis, incorporating Waste Acceptance Criteria (WAC) leachate analysis, may be required.

All materials removed from the site will be classified as 'waste' and therefore must be removed by a suitably licensed carrier of waste. This applies whether or not the waste is contaminated. All waste removed to landfill will attract Landfill Tax.

The developer/builder is likely to be classed as the waste producer and therefore, has a duty of care to ensure that all waste is disposed of appropriately. This includes ensuring the waste carrier is licensed and disposes of the waste to a suitably licensed landfill site. They are also required to keep a paper trail from 'cradle to grave' including copies of the waste disposal tickets.

Efficient materials management on site is recommended as it can lead to significant cost savings when compared to the traditional side casting or single stockpile of arisings. GRM can assist in the production of Material Management Plans under the CL:AIRE Definition of Waste: Code of Practice. The DoWCoP enables:

- The direct transfer and re-use of clean naturally occurring soil materials between sites, and
- The re-use of both contaminated and uncontaminated materials on their site of origin and between sites within defined Cluster projects.

GRM can also undertake the role of Qualified Person and submit the DoW CoP project Declaration.

Likewise making the site as volume neutral as possible will reduce the costs of development. Whilst not a statutory requirement, Site Waste Management Plans allow better waste management practices, help to reduce the amount of waste produced and identify best environmental disposal options. Implementing a Site Waste Management Plan (SWMP) can reduce costs (increasing business profits) and maximise resource efficiency.

xi GEOTECHNICAL ASSESSMENT GENERAL COMMENTS

Where finished floor levels of proposed structures have not been provided by the Client, then for the purposes of initial assessment, GRM will assume that finished levels will not vary appreciably from the existing ground levels. If the depths of any underground engineering works (i.e. sewers, pumping stations etc.) are unknown they will not be taken in to account in the assessment and it will be assumed that any such works will not compromise foundation or ground stability.

Should the development proposals or finished levels be different from these assumptions then the comments/recommendations in the Geotechnical Assessment may require revising.

It should be noted that the results of window sampling and/or cable percussive boreholes may not give a true indication of a soils actual engineering properties (i.e. stability, mass structure etc). GRM consider that that prior to development trial pitting should be undertaken to confirm the recommendations in the Geotechnical Assessment.

xii GEOTECHNICAL ASSESSMENT – ENGINEERING GROUND TREATMENT

Near surface soils have the potential to be disturbed by weathering and site traffic. Precautions should always be taken to avoid this, as excessive disturbance may leads to more onerous floor slab designs, road cap thickness and increased amounts of off-site disposal etc.

Near surface soils may need treatment or reinforcing to allow safe movement of construction plant and labour. An assessment by the contractor should be undertaken once the type of machinery/plant needed to complete the development is known.

xiii GEOTECHNICAL ASSESSMENT – EXCAVATIONS

Excavation instability (over-break) can result in damage to existing services or structures (e.g. foundations, roads or boundary walls/fences) both on and off-site, as well as increased foundation concrete costs. In order to minimise this, all excavations deeper than 1.2m deep (or any excavation within 1.5m of any existing structure or service) should be supported. Full support should be provided to the full depth of all near vertically sided excavations in made ground, soft and very soft clays and granular soils. A reduction to intermediate support should be acceptable within firm and stiffer natural clays.

Wherever possible, man entry into excavations should be prevented; however, where this is not possible, entry to, and time spent in, excavations should be kept to a minimum.

The build program should be tailored to reflect the impact that deep excavations through potentially unstable strata can have on adjacent properties, so that they are not undermined.

All excavations on site should be in accordance with HSE guidelines and stability should be practically maintained at all times. Reference should be made to HSE construction information sheet No. 8 (Revision 1) 'Safety in Excavations'.

Care should be taken to ensure that falls from excavation faces do not adversely affect the integrity of foundation concrete.

If contaminated water enters excavations it should be removed and transported to an appropriate treatment facility by a suitably licensed carrier before construction begins.

xiv GEOTECHNICAL ASSESSMENT – SUBSTRUCTURES

Where practicable, existing buried construction should be fully removed; however, if this is not practicable all new foundations should be carried down to fully penetrate it and it should be broken well away from all new structures.

There may be existing structures and/or infrastructure in close proximity to the proposed development. New build foundations may be constructed next to pavements with existing underground services beneath them, or excavations may be required near existing footings associated with adjacent properties. These potential hazards need to be taken into consideration when designing foundations and the groundworker needs to be made aware of their potential impact during the redevelopment works. Foundations close to existing underground services or buildings may require alternative foundation techniques (such as piling) to protect the integrity of these structures.

The contractor for the works should carry them out in such a fashion so as to not cause excessive overbreak, concrete usage or undermine existing buildings/roads/ services that are to be retained.

xv **GEOTECHNICAL ASSESSMENT – SOAKAWAYS**

Soakaway testing in trial pits by GRM is broadly carried out in accordance with BRE DG 365 (2016). The testing comprises the excavation of a test pit to a suitable depth, and the placement of water into the pit. The level of water present is then monitored over time. For borehole installations, the permeability testing (falling head/rising head) is undertaken in accordance with BS5930.

If it is decided to proceed with the use of soakaway drainage, then the following general points should be noted:

- Soakaways should not be placed so that water can be discharged through potentially contaminated made ground.
- The Environment Agency may require soakaways to be sealed systems such that only roof run off falls to soakaway.
- Interceptors are likely to be required for soakaways for highway drainage. The adopting authority for the highways should be consulted at the earliest opportunity regarding the use of soakaways for highways drainage.
- Consideration of site levels and slopes should be taken into account during the design.
- The construction of all soakaways should be in accordance with the current building regulations.
- Soakaways should not be placed within 5m of a proposed building.
- Placement of soakaways needs to be considered so as to avoid ponding of water down slope.
- The base of a soakaway should not be below the highest recorded water level.
- The Environment Agency prefer 1m of dry soil to be present between the base of a soakaway and the water table to provide attenuation for contamination.

xvi **GEOTECHNICAL ASSESSMENT – FOUNDATIONS**

If soft or hard spots are encountered during foundation excavation then they should be replaced with suitably compacted material or the footings deepened to suitable strata, to avoid differential settlement.

If strata of differing bearing character (e.g. sand and clay) are encountered at foundation levels within the excavations for a single plot then the excavation depths should be altered as appropriate to ensure the foundations rest on a single stratum, or strata that will not induce differential settlement. Where this is impractical then GRM should be contacted to assess a reinforced concrete detail or an alternative foundation solution (e.g. piles or vibro-replacement).

NOTES ON LIMITATIONS

General

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

GRM Development Solutions Limited accepts no responsibility or liability for:

- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) the consequences of this document being used by any third party with whom an agreement has not been executed.

Phase I Environmental Audits/ Desk Studies

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, GRM Development Solutions Limited reserves the right to review such information and as considered necessary and appropriate to modify the opinions accordingly. It should be noted that any risks identified in a Phase 1 report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Environmental Audits (Contamination Investigations)

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated with potential human targets, building materials, and controlled waters.

The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to the areas unoccupied by the building(s) on the site and by buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues need to be resolved.

For these reasons if costs have been included in relation to site remediation these must be considered as provisional only and must, in any event, be confirmed by a commercial adviser.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. Whilst exploratory testing is intended to gain an accurate representation of the site, the very nature of sampling and testing is such that it cannot ensure that all localised conditions are detected.

The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

Phase II Geo-environmental Investigations (Combined Geotechnical and Contamination Investigations)

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions to provide a reasonable assessment of the environment risks together with engineering and development implications. If costs have been included in relation to site development a commercial adviser must confirm these.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site for each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time the site work was conducted. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects. The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.



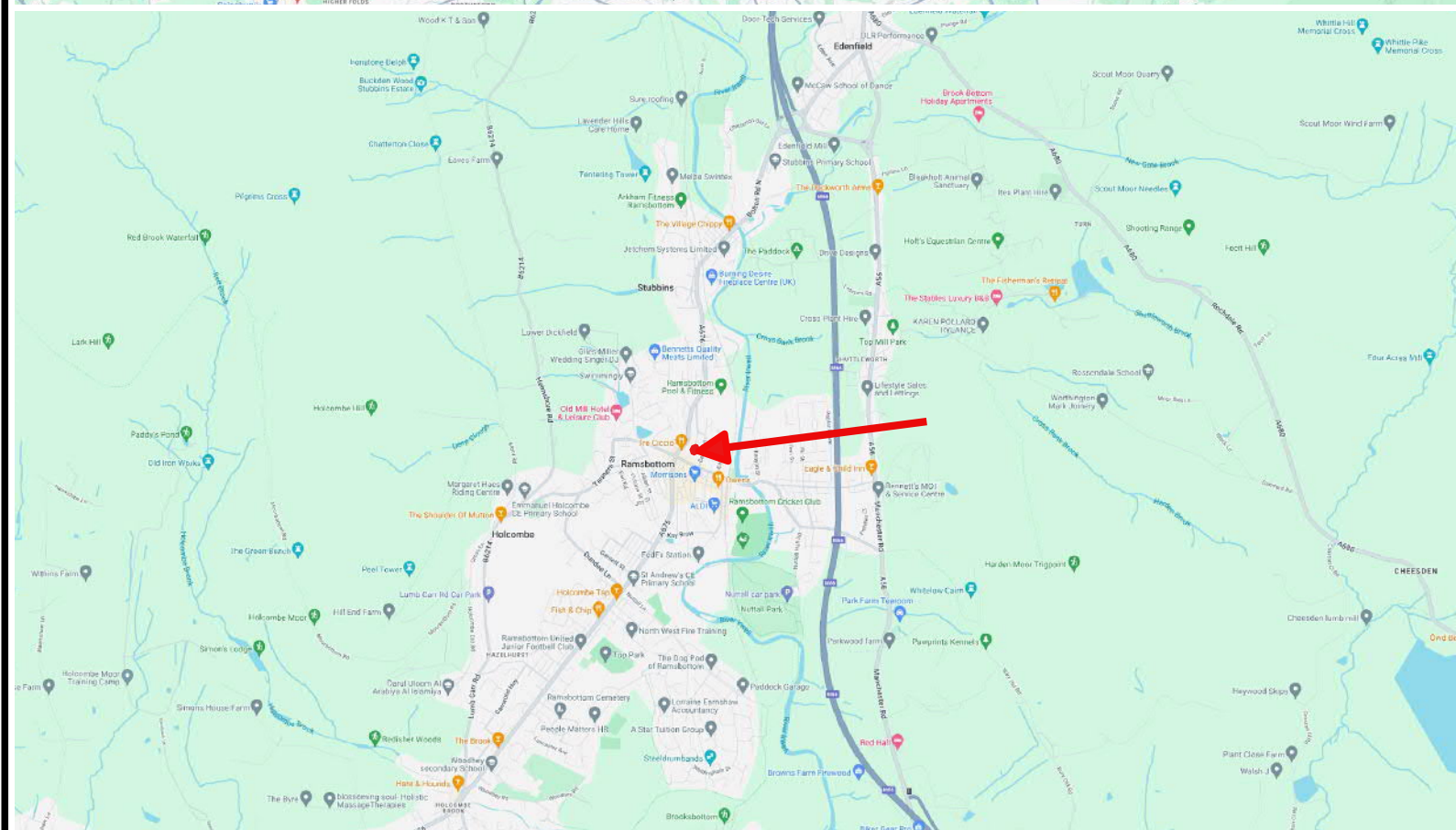
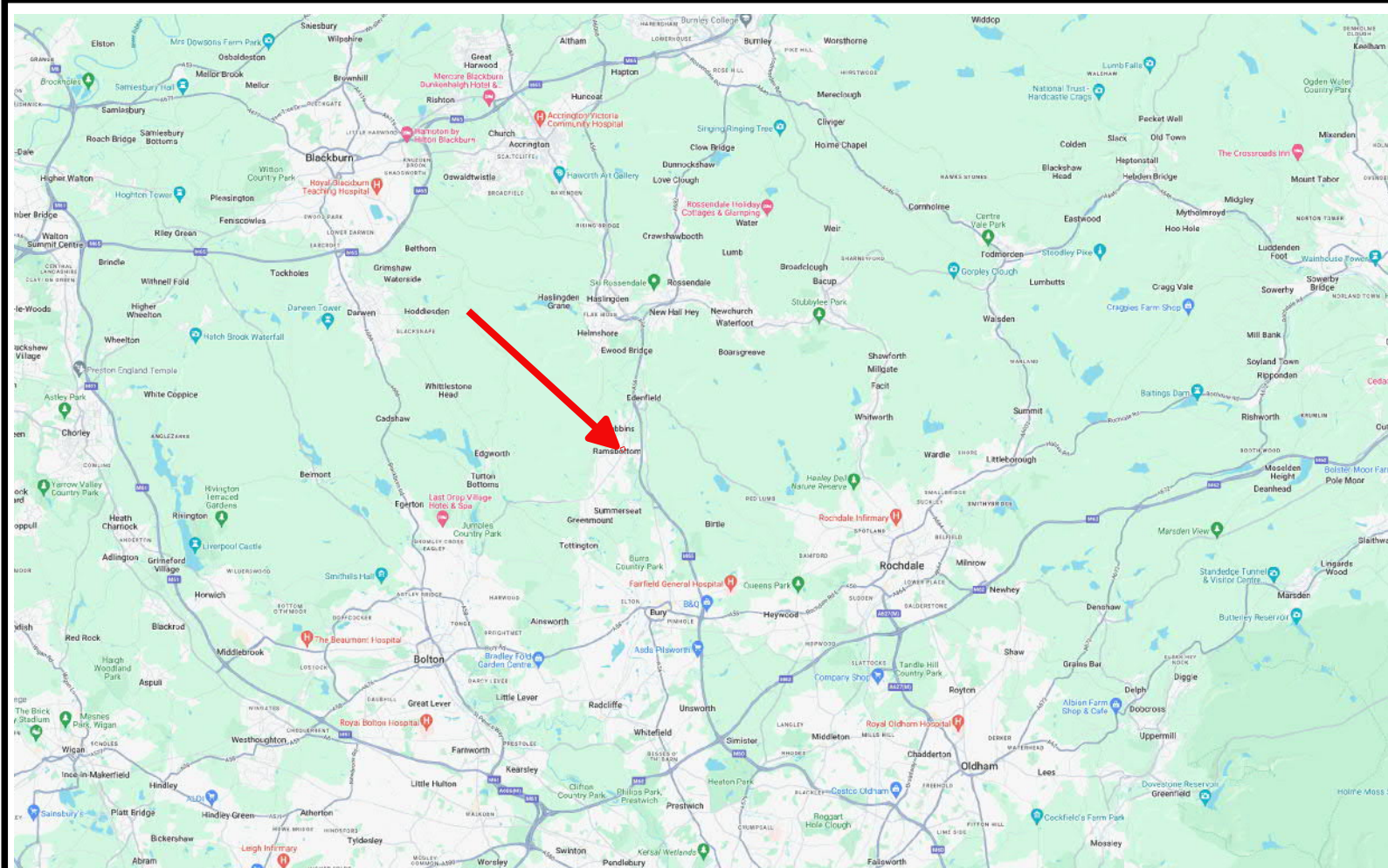
The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.



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NOTES:

CLIENT:

PROJECT ENERGY LTD

PROJECT:

PARADISE STREET, RAMSBOTTOM

TITLE:

SITE LOCATION AND BOUNDARY PLAN

PROJECT No:

P10643

DATE:

AUG 2024

DESIGN/DRAWN:

JB

DRAWING NUMBER:

001

ISSUE:

FINAL

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GRM Development Solutions Ltd

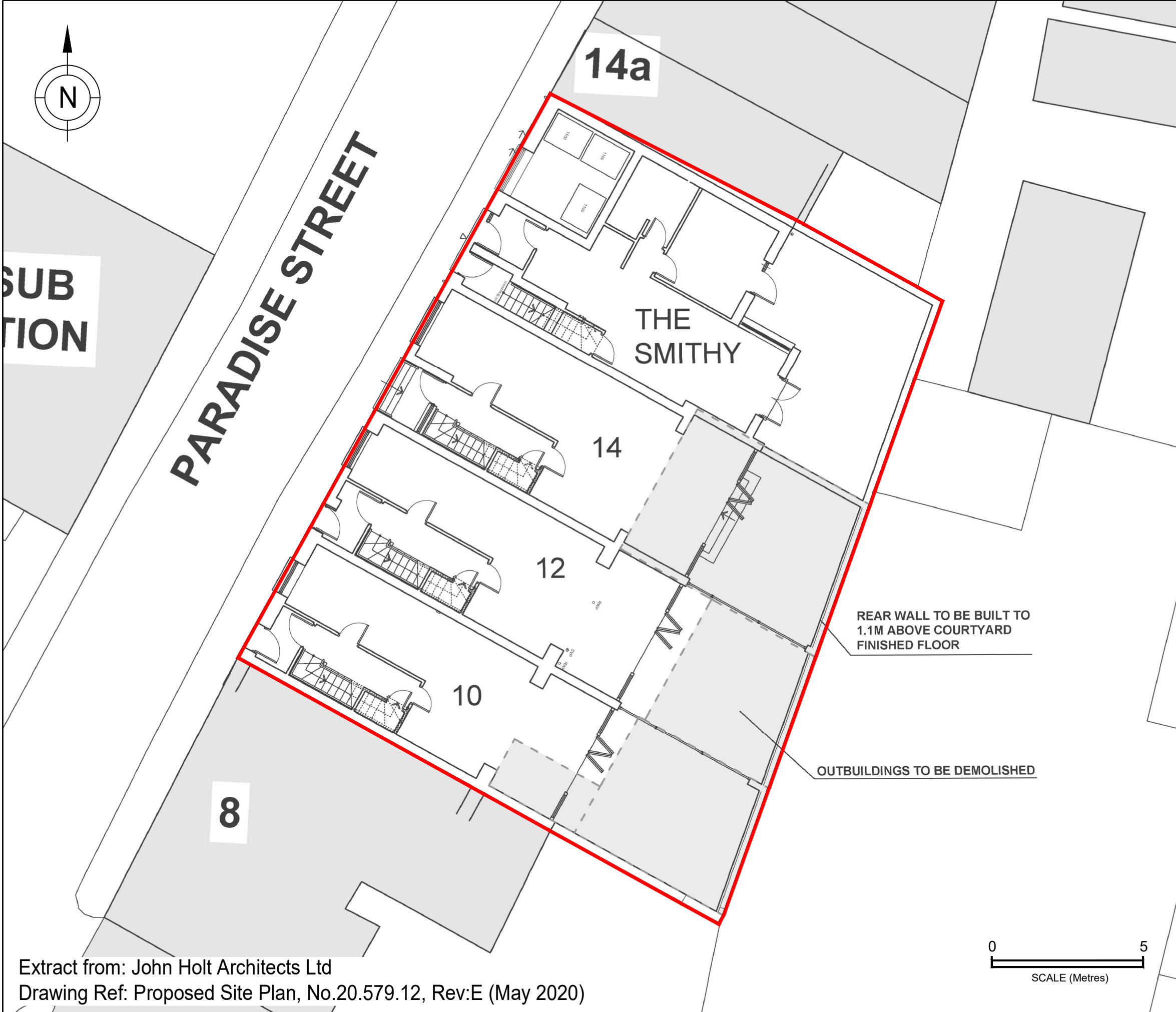
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KEY
 Site Boundary

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



LK
CONSULT LIMITED

Client: **Quanthill Ltd**

Site: **Paradise Street, Ramsbottom**

Title: **Proposed Development Plan**

Job No.: LKC 21 1149	Scale (See Scale Bar): 1:125 @ A3	Figure: 2	Revision:
Drawn By: AC	Checked By: CB	Drawn: May 2021	

Extract from: John Holt Architects Ltd
Drawing Ref: Proposed Site Plan, No.20.579.12, Rev:E (May 2020)



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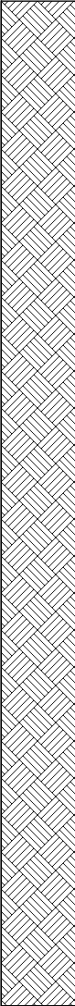
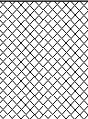
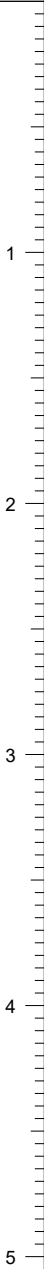
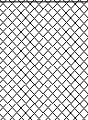
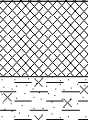
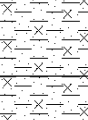
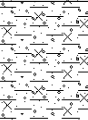
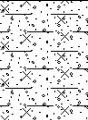
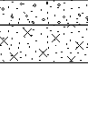


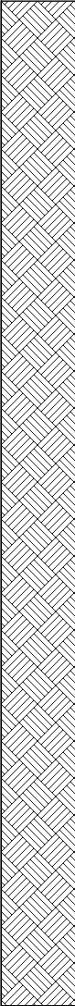
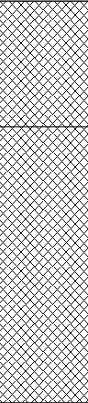
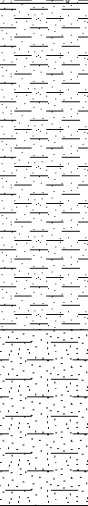
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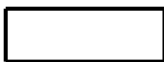
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		GRM Development Solutions Ltd Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		Windowless Sample Borehole				Borehole No WS101 Sheet 1 of 1		
Site Name: Paradise Street, Ramsbottom								Ground Level (mAOD)		
Client: Project Energy Ltd						GRM Project Ref: P10643		Coordinates E N		
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth	Type	SPT Result						
		0.20	ES		0.40			Soft, brown and dark brown, slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded brick and sandstone.		
					0.55			MADE GROUND <i>Pocket of dark brown, gravelly SAND from 0.25m to 0.30m. Sand is fine to coarse. Gravel is fine to medium, angular brick.</i>		
					0.60			Soft, approximately low strength, brown, silty, very sandy CLAY. Sand is fine to coarse.		
	▼	1.00	C	N=0 (0,0/0,0,0,0)	0.62			ALLUVIUM	1	
					0.67			Soft to firm, approximately low to medium strength, grey, finely laminated, silty CLAY.		
					0.72			ALLUVIUM		
					1.10			Soft to firm, approximately low to medium strength, grey, finely laminated, silty CLAY.		
					1.40			ALLUVIUM		
					1.55			Soft to firm, approximately low to medium strength, grey, finely laminated, silty CLAY.		
								ALLUVIUM		
		2.00	C	N=31 (8,8/7,8,8,8)				Orangish-brown SAND. Sand is fine to coarse.		
								ALLUVIUM		
								Soft to firm, approximately low to medium strength, grey, finely laminated, silty CLAY.		
								ALLUVIUM	2	
								Very soft, very low strength, grey, laminated, silty CLAY.		
								ALLUVIUM		
								<i>Damp strata at 1.0m.</i>		
								Very soft, very low strength, grey, clayey, sandy SILT. Sand is fine to coarse.		
	▼				2.60			Recovered damp.		
								ALLUVIUM		
								Soft, low strength, grey, laminated, silty CLAY. Occasional rootlets.		
								ALLUVIUM		
		3.00	C	N=18 (2,3/3,5,5,5)	3.00			Medium dense, grey, slightly clayey, sandy GRAVEL. Gravel is fine to coarse, angular to subrounded sandstone, limestone and quartzite.	3	
					3.25			RIVER TERRACE DEPOSITS		
								<i>Becoming grey mottled orangish-brown at 1.70m.</i>		
								<i>Becoming orangish-brown at 1.80m.</i>		
								<i>Becoming very clayey at 2.25m.</i>		
								<i>Becoming slightly clayey at 2.40m.</i>		
								<i>Damp strata at 2.50m.</i>		
								No recovery 2.60m to 3.0m.		
								<i>Water strike at 2.60m.</i>		
		4.00	C	N=12 (3,3/3,3,3,3)	4.00			Stiff, high strength, reddish-brown, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to rounded sandstone and quartzite.	4	
								RIVER TERRACE DEPOSITS		
								Medium dense, brown and orangish-brown, silty SAND.		
								RIVER TERRACE DEPOSITS		
								End of Borehole at 4.000m		
										5
Crew: Dynamic Sampling Ltd.				Logger: JB			Weather: Sunny			
Equipment: Tracked windowless sampling rig										
Reason for termination of borehole: Target depth achieved										
Groundwater Remarks: Damp strata at 1.0m and 2.50m. Water strike at 2.60m.										
General Remarks:										
Hole Started: 17/07/2024		Hole Complete: 17/07/2024			Version: FINAL		Scale: 1:31			

		GRM Development Solutions Ltd Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		Windowless Sample Borehole				Borehole No WS102 Sheet 1 of 1	
Site Name: Paradise Street, Ramsbottom								Ground Level (mAOD)	
Client: Project Energy Ltd					GRM Project Ref: P10643			Coordinates E N	
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.20	ES		0.50			Medium dense, orangish-brown mottled grey, silty, gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular sandstone. MADE GROUND	
								Soft, brown mottled orangish-brown, silty, very sandy CLAY. Sand is fine to coarse. MADE GROUND	
		1.00	ES	N=1 (0,0/1,0,0,0)	1.00			Very loose, brown and orangish-brown, slightly clayey, gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, angular glass. MADE GROUND	
		1.00	C		1.30			Very soft, very low strength, dark brown mottled orangish-brown, silty, very sandy CLAY. Sand is fine to coarse. ALLUVIUM	
					1.80			Very soft, very low strength, orangish-brown, silty, sandy CLAY. Sand is fine to coarse. ALLUVIUM	
		2.00	C	N=4 (1,1/1,1,1,1)	2.00			Very soft, very low strength, light grey mottled orangish-brown, slightly gravelly, silty, sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded sandstone and quartzite. ALLUVIUM	
					2.60			2.60m to 3.0m - No recovery.	
					3.00			Medium dense, orangish-brown and brown, slightly gravelly, clayey, silty SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded quartzite and sandstone. RIVER TERRACE DEPOSITS <i>Damp strata at 3.0m.</i>	
					3.50			Orangish-brown, gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, angular to subangular sandstone. RIVER TERRACE DEPOSITS	
					3.60			Medium dense, brown, very silty SAND. Sand is fine to coarse. RIVER TERRACE DEPOSITS <i>Damp strata at 3.60m.</i>	
					3.75			3.75m to 4.0m - No recovery. End of Borehole at 4.000m	
				4.00	C	N=18 (5,5/4,5,4,5)	4.00		
Crew: Dynamic Sampling Ltd.				Logger: JB		Weather: Sunny			
Equipment: Tracked windowless sampling rig									
Reason for termination of borehole: Target depth achieved									
Groundwater Remarks: Damp strata at 3.0m and 3.60m.									
General Remarks:									
Hole Started: 17/07/2024		Hole Complete: 17/07/2024		Version: FINAL		Scale: 1:31			

		GRM Development Solutions Ltd Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		Windowless Sample Borehole				Borehole No WS103 Sheet 1 of 1		
Site Name: Paradise Street, Ramsbottom								Ground Level (mAOD)		
Client: Project Energy Ltd					GRM Project Ref: P10643			Coordinates E N		
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth	Type	SPT Result						
		0.20	ES	N=13 (1,0/3,3,3,4)	0.50			Loose, dark brown, gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, angular to subangular clinker. MADE GROUND	1	
		0.60	ES					Medium dense, brown, slightly clayey, gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular brick, clinker and sandstone. MADE GROUND		
		1.00	C							
				1.30	ES	N=0 (0,0/0,0,0,0)	1.60		Becoming dark brownish-grey at 1.30m with strong hydrocarbon odour.	2
				2.00	C				Soft, approximately low strength, brown, slightly sandy, silty CLAY. Sand is fine to coarse. ALLUVIUM	
									Very soft, very low strength, light brownish-grey, very sandy CLAY. Sand is fine to coarse. ALLUVIUM	
				3.00	C	N=6 (0,1/0,2,2,2)	3.30		Becoming soft, low strength at 3.0m.	3
					Medium dense, light grey, slightly clayey SAND. Sand is fine to coarse. RIVER TERRACE DEPOSITS					
		4.00	C	N=17 (3,5/5,4,3,5)	4.00			End of Borehole at 4.000m	4	
									5	
Crew: Dynamic Sampling Ltd.				Logger: JB			Weather: Sunny			
Equipment: Tracked windowless sampling rig										
Reason for termination of borehole: Target depth achieved										
Groundwater Remarks: No groundwater encountered										
General Remarks:										
Hole Started: 17/07/2024		Hole Complete: 17/07/2024		Version: FINAL		Scale: 1:31				

		GRM Development Solutions Ltd Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		Trial Pit Log			Trial Pit No WS104 Sheet 1 of 1		
Site Name: Paradise Street, Ramsbottom							Ground Level (mAOD)		
Client: Project Energy Ltd					GRM Project Ref: P10643			Coordinates E N	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	ES		0.20			Dark brown, silty SAND. Sand is fine to coarse. MADE GROUND		
	0.40	ES				Medium dense, orangish-brown and brown, slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded quartzite. ALLUVIUM			
				0.90			Soft, approximately low strength, brown and orangish- brown, very sandy CLAY. Sand is fine to coarse. ALLUVIUM		
				1.10		End of Pit at 1.100m			
Date Excavated: 17/07/2024			Groundwater Observations:						
Date Backfilled: 17/07/2024			No groundwater encountered						
Shoring: None									
Stability: Stable during excavation									
Plant Used: Hand dug			Trial Pit Dimensions (m):		Reason for termination of Trial Pit:				
Logged by: JB			0.30  0.30		Terminated on obstruction				
General Remarks:									
Relative density is approximate and determined by observation only.									
Version: FINAL			Scale: 1:25						

		GRM Development Solutions Ltd Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		Trial Pit Log			Trial Pit No WS105 Sheet 1 of 1	
Site Name: Paradise Street, Ramsbottom							Ground Level (mAOD)	
Client: Project Energy Ltd					GRM Project Ref: P10643		Coordinates E N	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.60			Medium dense, greyish-brown and orangish-brown, silty, slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded quartzite. ALLUVIUM	1
				0.85			Firm, approximately medium strength, slightly gravelly, silty, sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded quartzite. ALLUVIUM Obstruction at 0.85m. End of Pit at 0.850m	
Date Excavated: 17/07/2024				Groundwater Observations:				
Date Backfilled: 17/07/2024				No groundwater encountered				
Shoring: None								
Stability: Stable during excavation								
Plant Used: Hand dug				Trial Pit Dimensions (m):		Reason for termination of Trial Pit:		
Logged by: JB				0.30  0.30		Terminated on obstruction		
General Remarks:								
Relative density is approximate and determined by observation only.								
Version: FINAL								
Scale: 1:25								



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4161



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Leicester
LE1 4DH

GRM Development Solutions

Laurus House
First Avenue
Centrum 100
Burton Upon Trent
DE14 2WH

Analytical Test Report: L24/06532/GRM - 24-47612

Your Project Reference:	Paradise Street, Ramsbottom P10643		
Your Order Number:	P10643	Samples Received / Instructed:	18/07/2024 / 19/07/2024
Report Issue Number:	1	Sample Tested:	19/07 to 29/07/2024
Samples Analysed:	6 soil samples	Report issued:	29/07/2024

Signed

James Gane
Analytical Services Manager
CTS Group

Notes:**General**

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report with the exception of the asbestos test portion which is held for 6 months unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Asbestos

Please note: Where further analysis is required samples identified as containing asbestos are screened and tested on an as received basis. No correction is made for moisture content and these results are not covered by our accreditation

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

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 29.05.2024

Issued by: J. Gane

Issue No: 4

Rev No: 10

L24/06532/GRM - 24-47612

Project Reference - Paradise Street, Ramsbottom P10643

Analytical Test Results - Solid

Lab Reference			382971	382972	382973	382974	382975	382976
Client Sample ID			-	-	-	-	-	-
Client Sample Location			WS103	WS103	WS102	WS101	WS104	WS105
Client Sample Type			ES	ES	ES	ES	ES	ES
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			0.20	1.30	1.00	0.20	0.10	0.10
Depth - Bottom (m)			0.20	1.30	1.00	0.20	0.10	0.10
Date of Sampling			17/07/2024	17/07/2024	17/07/2024	17/07/2024	17/07/2024	17/07/2024
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Sand	Clay	Clay	Clay	Clay	Clay
Determinant	Units	Accreditation						
Arsenic	(mg/kg)	MCERTS	150	25	21	21	27	< 10
Cadmium	(mg/kg)	MCERTS	7.3	1.4	0.9	1.1	1.0	0.6
Chromium (Total)	(mg/kg)	UKAS	130	11	6.1	10	8.7	7.8
Copper	(mg/kg)	MCERTS	520	70	61	67	50	16
Lead	(mg/kg)	MCERTS	1700	130	150	160	120	13
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Nickel	(mg/kg)	MCERTS	79	27	19	28	24	19
Selenium	(mg/kg)	u	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
Zinc	(mg/kg)	MCERTS	2700	160	93	160	90	51
Total Phenols	(mg/kg)	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyanide (Total)	(mg/kg)	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium (Hexavalent)	u		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
pH	pH Units	MCERTS	7.7	7.1	8.1	7.9	7.4	5.9
Sulphate (Water soluble as SO ₄)	(mg/l)	u	420	64	23	150	91	140
Acenaphthene	(mg/kg)	MCERTS	0.06	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Acenaphthylene	(mg/kg)	UKAS	0.10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Anthracene	(mg/kg)	UKAS	0.42	0.06	< 0.02	0.08	0.04	< 0.02
Benzo (a) anthracene	(mg/kg)	MCERTS	2.0	0.09	< 0.02	0.20	0.12	< 0.02
Benzo (a) pyrene	(mg/kg)	MCERTS	1.8	0.07	< 0.02	0.14	0.12	< 0.02
Benzo (b) fluoranthene	(mg/kg)	MCERTS	2.4	0.14	< 0.02	0.20	0.23	< 0.02
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.96	0.09	< 0.02	0.09	0.13	< 0.02
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.85	0.04	< 0.02	0.06	0.06	< 0.02
Chrysene	(mg/kg)	MCERTS	1.7	0.08	< 0.02	0.16	0.12	< 0.02
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	0.30	< 0.02	< 0.02	< 0.02	0.03	< 0.02
Fluoranthene	(mg/kg)	MCERTS	3.0	0.11	< 0.02	0.43	0.18	< 0.02
Fluorene	(mg/kg)	MCERTS	0.09	0.08	< 0.02	< 0.02	< 0.02	< 0.02
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	1.1	0.06	< 0.02	0.08	0.10	< 0.02
Naphthalene	(mg/kg)	MCERTS	0.29	0.26	< 0.02	0.05	0.08	< 0.02
Phenanthrene	(mg/kg)	MCERTS	1.4	0.21	< 0.02	0.19	0.17	< 0.02
Pyrene	(mg/kg)	MCERTS	2.5	0.17	< 0.02	0.39	0.19	< 0.02
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	19	1.5	< 0.32	2.2	1.7	< 0.32
SOM (via TOC)	(%)	UKAS	31	5.9	4.0	8.4	5.6	0.9
Asbestos	-	UKAS	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected



4161



L24/06532/GRM - 24-47612

Project Reference - Paradise Street, Ramsbottom

P10643

Analytical Test Results - VPH / EPH

Lab Reference			382971	382972	382973
Client Sample ID			-	-	-
Client Sample Location			WS103	WS103	WS102
Client Sample Type			ES	ES	ES
Client Sample Number			-	-	-
Depth - Top (m)			0.20	1.30	1.00
Depth - Bottom (m)			0.20	1.30	1.00
Date of Sampling			17/07/2024	17/07/2024	17/07/2024
Time of Sampling			-	-	-
Sample Matrix			Sand	Clay	Clay
Determinant	Units	Accreditation			
Benzene	(mg/kg)	MCERTS	0.08	0.22	< 0.01
Toluene	(mg/kg)	MCERTS	0.05	0.09	< 0.01
Ethylbenzene	(mg/kg)	MCERTS	< 0.01	0.08	< 0.01
m&p Xylene	(mg/kg)	MCERTS	0.05	0.44	< 0.02
o-Xylene	(mg/kg)	MCERTS	< 0.01	0.11	< 0.01
MTBE	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01
Aliphatic >C ₅ to C ₆ [HS_MS_1D_AL]	(mg/kg)	MCERTS	0.11	< 0.06	< 0.06
Aliphatic >C ₆ to C ₈ [HS_MS_1D_AL]	(mg/kg)	MCERTS	< 0.06	0.28	< 0.06
Aliphatic >C ₈ to C ₁₀ [HS_MS_1D_AL]	(mg/kg)	MCERTS	< 0.06	0.65	< 0.06
Aliphatic >C ₁₀ to C ₁₂ [EH_2D_AL]	(mg/kg)	u	4.9	5.8	< 1.0
Aliphatic >C ₁₂ to C ₁₆ [EH_2D_AL]	(mg/kg)	u	12	18	1.3
Aliphatic >C ₁₆ to C ₂₁ [EH_2D_AL]	(mg/kg)	u	14	30	7.3
Aliphatic >C ₂₁ to C ₃₅ [EH_2D_AL]	(mg/kg)	u	26	350	11
Aliphatic >C ₃₅ to C ₄₀ [EH_2D_AL]	(mg/kg)	u	2.9	30	< 1.0
Aromatic >C ₅ to C ₇ [HS_MS_1D_AR]	(mg/kg)	MCERTS	0.08	0.22	< 0.01
Aromatic >C ₇ to C ₈ [HS_MS_1D_AR]	(mg/kg)	MCERTS	0.05	0.09	< 0.01
Aromatic >C ₈ to C ₁₀ [HS_MS_1D_AR]	(mg/kg)	MCERTS	< 0.06	2.2	< 0.06
Aromatic >C ₁₀ to C ₁₂ [EH_2D_AR]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aromatic >C ₁₂ to C ₁₆ [EH_2D_AR]	(mg/kg)	u	2.0	1.9	1.3
Aromatic >C ₁₆ to C ₂₁ [EH_2D_AR]	(mg/kg)	u	8.3	10	6.8
Aromatic >C ₂₁ to C ₃₅ [EH_2D_AR]	(mg/kg)	u	31	97	3.6
Aromatic >C ₃₅ to C ₄₀ [EH_2D_AR]	(mg/kg)	u	3.9	11	< 2.0
Total >C ₅ to C ₄₀ [EH_2D+HS_1D_Total]	(mg/kg)	u	110	560	31



4161



7 - 11 Harding Street
Leicester
LE1 4DH

L24/06532/GRM - 24-47612

Project Reference - Paradise Street, Ramsbottom P10643

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
382971	-	WS103	ES	-	Made Ground- dark grey gravelly silty sand with occasional brick fragments slag	34	19	96
382972	-	WS103	ES	-	Greyish brown slightly gravelly slightly sandy silty clay	27	3.8	100
382973	-	WS102	ES	-	Greyish brown slightly gravelly slightly sandy silty clay	18	1.9	100
382974	-	WS101	ES	-	Made Ground- greyish brown slightly gravelly slightly sandy silty clay with rare rootlets brick fragments	27	70	83
382975	-	WS104	ES	-	Greyish brown slightly gravelly slightly sandy silty clay	26	< 0.1	100
382976	-	WS105	ES	-	Orangish brown slightly gravelly sandy silty clay	17	2.2	100



L24/06532/GRM - 24-47612

Project Reference - Paradise Street, Ramsbottom P10643

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
382971	-	WS103	ES	-	VPH/BTEX - Sample taken from container with headspace.
382972	-	WS103	ES	-	VPH/BTEX - Sample taken from container with headspace.
382973	-	WS102	ES	-	VPH/BTEX - Sample taken from container with headspace.
382974	-	WS101	ES	-	
382975	-	WS104	ES	-	
382976	-	WS105	ES	-	



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Leicester
LE1 4DH

L24/06532/GRM - 24-47612

Project Reference - Paradise Street, Ramsbottom P10643

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
SKALARCNS	MS - CL - Cyanide by Skalar	As received	Passing 10mm test sieve	Determination of cyanide (total / free / complex) in soil using a Skalar segmented flow analyser
SKALARHCS	MS - CL - Hexavalent Chromium by Skalar	As received	Passing 10mm test sieve	Determination of hexavalent chromium in soil using Skalar segmented flow analyser
ICPMETS	MS - CL - ICP Metals	Air dried	Passing 10mm test sieve	Determination of metals in soils via ICP
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
PAHASRDS	MS - CL - PAH (As Received)	As received	Passing 10mm test sieve	Determination of Polyaromatic hydrocarbons in soil via GC-MS
SKALARPHS	MS - CL - Phenols by Skalar	As received	Passing 10mm test sieve	Determination of total phenols in soil using Skalar segmented flow analyser
TOCS	MS - CL - TOC Eltra	Air Dried	Passing 10mm test sieve	Determination of Total Organic Carbon in soils
GCXGCS	MS - CL - TPH & EPH by GCXGC	As received	Passing 10mm test sieve	Determination of TPH and EPH in soils via GCxGC-FID
CWGS	Calculation from VPH-S and EPH-S	As received	Passing 10mm test sieve	Determination of TPH CWG (Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons) in soils via Headspace-GC-MS and GC-GC-FID respectively
VPHS	MS - CL - VPH	As received	Passing 10mm test sieve	Determination of VPH in soils via Headspace-GC-MS
ASB	MS - AS - Asbestos	-	-	Fibre identification is in accordance with in house documented methods which are based on the procedure documented in the HSE Document HSG 248 "Asbestos: The analysts guide for sampling, analysis and clearance procedures"
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis



4161

**L24/06532/GRM - 24-47612****Project Reference - Paradise Street, Ramsbottom P10643****Sample Deviations**

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
382971	-	WS103	ES	-	MS - CL - VPH	X
382972	-	WS103	ES	-	MS - CL - VPH	X
382973	-	WS102	ES	-	MS - CL - VPH	X



4161



L24/06532/GRM - 24-47612

Project Reference - Paradise Street, Ramsbottom P10643

HWOL TPH Acronym Index

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
Total	Aliphatics and Aromatics
AL	Aliphatics Only
AR	Aromatics Only
2D	GC-GC - Double Coil Gas Chromatography
#1	EH_Total but with humics mathmatically subtracted
#2	EH_Total but with fatty acids mathmatically subtracted
_	Operator - underscore to separate acronyms (except for +)
+	Operator to indicate cumlative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

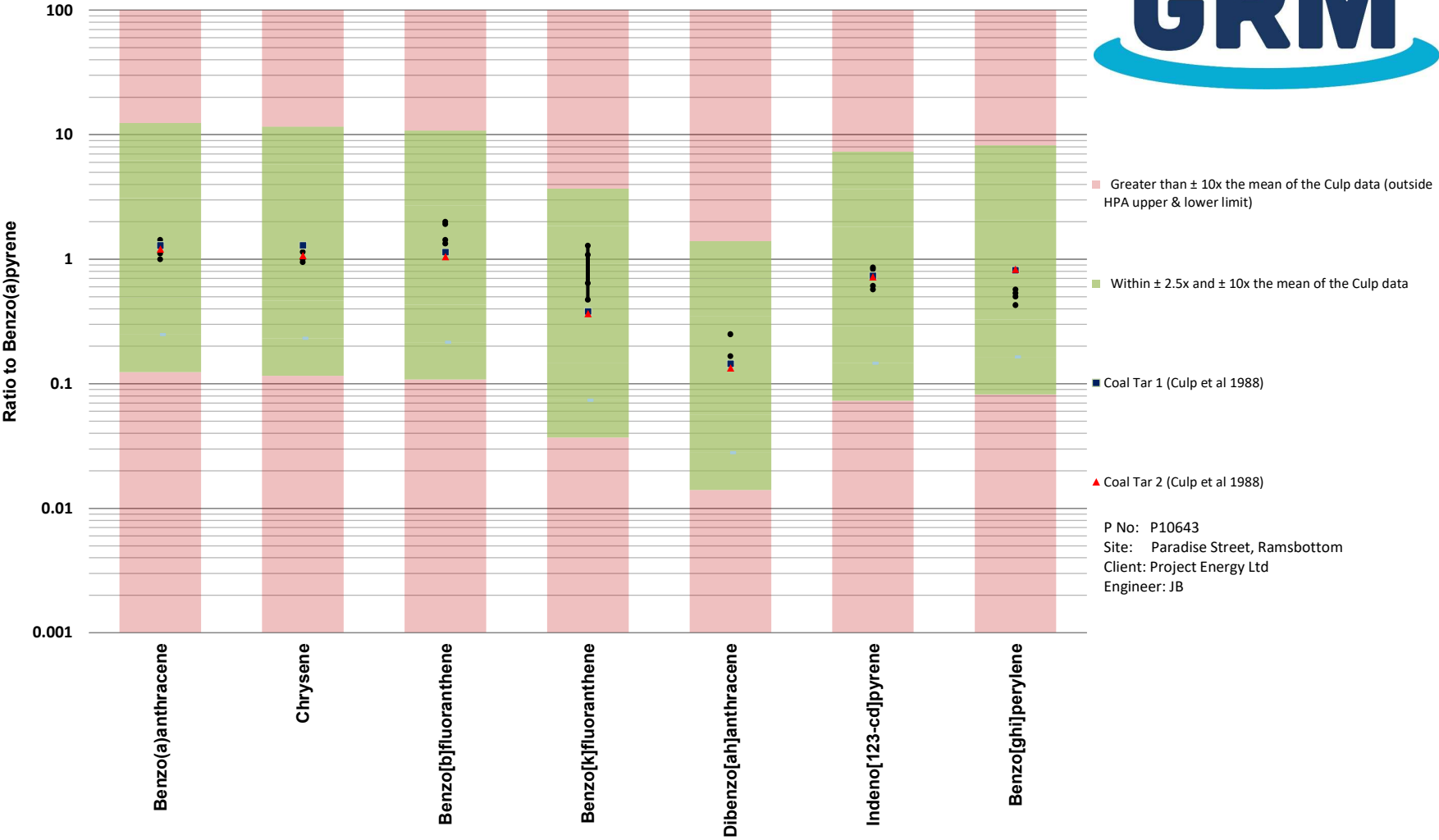


A P P E N D I X G

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PAH Mixture Analysis



	GRM TIER 1 ASSESSMENT CRITERIA		
LAND USE	Residential with Plant Uptake		
CONTAMINANT	Metals and Inorganic Compounds		
^a Arsenic	37		
^a Cadmium	22		
^b Chromium III	910		
^a Chromium VI	21		
^a Lead	200		
^{b/c} Mercury	11		
^b Selenium	250		
^b Nickel	130		
^b Phenols	200		
^b Copper	2400		
^b Zinc	3700		
^d Cyanide	34		
	Organic Compounds		
BTEX	1% SOM	2.5% SOM	6% SOM
^a Benzene	0.20	0.41	0.87
^b Toluene	130	290	660
^b Ethylbenzene	47	110	260
^b <i>o</i> - xylene	60	140	330
^b <i>m</i> - xylene	59	140	320
^b <i>p</i> - xylene	56	130	310
Non Genotoxic PAHs			
^b Acenaphthene	210	510	1100
^b Acenaphthylene	170	420	920
^b Anthracene	2400	5400	11000
^b Fluoranthene	280	560	890
^b Fluorene	170	400	860
^b Naphthalene	2.3	5.6	13
^b Phenanthrene	95	220	440
^b Pyrene	620	1200	2000
Genotoxic PAHs			
^{a/e} Benzo(a)pyrene	5	5	5
ALIPHATIC HYDROCARBONS			
^b C5-C6	42	78	160
^b C6-C8	100	230	530
^b C8-C10	27	65	150
^b C10-C12	130	330	760
^b C12-C16	1100	2400	4300
^b C16-35	65000	92000	110000
AROMATIC HYDROCARBONS			
^b C5-7 (benzene)	70	140	300
^b C7-8 (toluene)	130	290	660
^b C8-C10	34	83	190
^b C10-C12	74	180	380
^b C12-C16	140	330	660
^b C16-C21	260	540	930
^b C21-C35	1100	1500	1700

Notes

- a C4SL - SP1010 (2014) - Benzene (2.5% SOM) and Benzo(a)pyrene values (1% and 2.5% SOM) have been calculated using default C4SL parameters in CLEA v1.071. Cadmium using lifetime exposure.
- b LQM/CIEH S4UL values (2015). Publication number S4UL3066.
- c S4UL for Methyl Hg used.
- d Atkins ATRISKsoil Value
- e Benzo(a)pyrene is a surrogate marker for the 8 genotoxic PAHs (Benzo(a)pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(ah)anthracene, Ideno(1,2,3-cd)pyrene)
All values in mg/kg unless otherwise stated

GRM TAC 02-2024



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NOTES:

CLIENT:	PROJECT ENERGY LTD
PROJECT:	PARADISE STREET, RAMSBOTTOM
TITLE:	AREA REQUIRING REMEDIATION

PROJECT No:	P10643
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DATE:	AUG 2024
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DESIGN/DRAWN:	JB
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DRAWING NUMBER:	003
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ISSUE:	FINAL
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GRM

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A P P E N D I X I

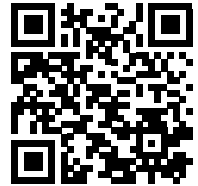
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Waste Classification Report

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)



YLAL9-WFQ36-J9V9V

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

Job name

P10643[1]

Description/Comments

Project

P10643 10-14 Paradise Street, Ramsbottom.

Site

P10643 10-14 Paradise Street, Ramsbottom.

Classified by

Name: Alexandra Thornber
Date: 12 Aug 2024 14:14 GMT
Telephone: 01283 551249

Company: GRM Development Solutions Ltd
Laurus House, First Avenue, Centrum 100,
Burton-on-Trent
DE14 2WH

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

07 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

10-14 Paradise St, Ramsbottom, Bury BL0 9BS

Post Code BL0 9BS

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Construction

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

Foundation arisings

Description of the waste

Made ground and natural soil

**Job summary**

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS103	0.2	Hazardous	HP 7, HP 14	3
2	WS103[2]	1.3	Non Hazardous		6
3	WS102	1	Non Hazardous		8
4	WS101	0.2	Non Hazardous		10
5	WS104	0.1	Non Hazardous		12
6	WS105	0.1	Non Hazardous		14

Related documents

#	Name	Description
1	GRM Validation Suite - WM3 V1.2.GB	waste stream template used to create this Job

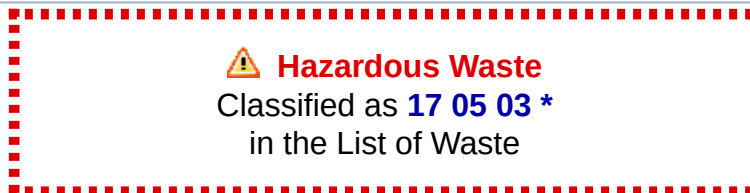
Report

Created by: Alexandra Thornber

Created date: 12 Aug 2024 14:14 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	16
Appendix B: Rationale for selection of metal species	17
Appendix C: Version	18

Classification of sample: WS103



Sample details

Sample name:	LoW Code:	
WS103	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 03 * (Soil and stones containing hazardous substances)
0.2 m		
Moisture content:		
34%		
(dry weight correction)		

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Note 1 conc.: 0.127%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinands:

lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Note 1 conc.: 0.127%)
zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]: (compound conc.: 0.886%)

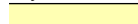
Determinands

Moisture content: 34% Dry 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 }			1	150	mg/kg	1.32	147.798	mg/kg	0.0148 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
2		cadmium { cadmium sulfide }			1	7.3	mg/kg	1.285	7.002	mg/kg	0.000545 %	✓	
		048-010-00-4	215-147-8	1306-23-6									
3		chromium {  chromium(III) oxide (worst case) }			1	130	mg/kg	1.462	141.793	mg/kg	0.0142 %	✓	
			215-160-9	1308-38-9									
4		copper { dicopper oxide; copper (I) oxide }			1	520	mg/kg	1.126	436.912	mg/kg	0.0437 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
5		lead {  lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	1700	mg/kg		1268.657	mg/kg	0.127 %	✓	
		082-001-00-6											
6		mercury { mercury dichloride }			1	<2.5	mg/kg	1.353	<3.384	mg/kg	<0.000338 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
7		nickel { nickel dihydroxide }			1	79	mg/kg	1.579	93.12	mg/kg	0.00931 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									

#	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								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<8 mg/kg	1.405	<11.24 mg/kg		<0.00112 %		<LOD
	034-002-00-8										
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				2700 mg/kg	4.398	8861.493 mg/kg		0.886 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
10	phenol				<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
	006-007-00-5										
12	pH				7.7 pH		7.7 pH		7.7 pH		
			PH								
13	acenaphthene				0.06 mg/kg		0.0448 mg/kg		0.00000448 %	✓	
		201-469-6	83-32-9								
14	acenaphthylene				0.1 mg/kg		0.0746 mg/kg		0.00000746 %	✓	
		205-917-1	208-96-8								
15	anthracene				0.42 mg/kg		0.313 mg/kg		0.0000313 %	✓	
		204-371-1	120-12-7								
16	benzo[a]anthracene				2 mg/kg		1.493 mg/kg		0.000149 %	✓	
	601-033-00-9	200-280-6	56-55-3								
17	benzo[a]pyrene; benzo[def]chrysene				1.8 mg/kg		1.343 mg/kg		0.000134 %	✓	
	601-032-00-3	200-028-5	50-32-8								
18	benzo[b]fluoranthene				2.4 mg/kg		1.791 mg/kg		0.000179 %	✓	
	601-034-00-4	205-911-9	205-99-2								
19	benzo[ghi]perylene				0.96 mg/kg		0.716 mg/kg		0.0000716 %	✓	
		205-883-8	191-24-2								
20	benzo[k]fluoranthene				0.85 mg/kg		0.634 mg/kg		0.0000634 %	✓	
	601-036-00-5	205-916-6	207-08-9								
21	chrysene				1.7 mg/kg		1.269 mg/kg		0.000127 %	✓	
	601-048-00-0	205-923-4	218-01-9								
22	dibenz[a,h]anthracene				0.3 mg/kg		0.224 mg/kg		0.0000224 %	✓	
	601-041-00-2	200-181-8	53-70-3								
23	fluoranthene				3 mg/kg		2.239 mg/kg		0.000224 %	✓	
		205-912-4	206-44-0								
24	fluorene				0.09 mg/kg		0.0672 mg/kg		0.00000672 %	✓	
		201-695-5	86-73-7								
25	indeno[123-cd]pyrene				1.1 mg/kg		0.821 mg/kg		0.0000821 %	✓	
		205-893-2	193-39-5								
26	naphthalene				0.29 mg/kg		0.216 mg/kg		0.0000216 %	✓	
	601-052-00-2	202-049-5	91-20-3								
27	phenanthrene				1.4 mg/kg		1.045 mg/kg		0.000104 %	✓	
		201-581-5	85-01-8								
28	pyrene				2.5 mg/kg		1.866 mg/kg		0.000187 %	✓	
		204-927-3	129-00-0								
29	TPH (C6 to C40) petroleum group				110 mg/kg		82.09 mg/kg		0.00821 %	✓	
			TPH								
Total:									1.107 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: The sample s of soil which will not become flammable.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00821%)

Classification of sample: WS103[2]

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

Sample details

Sample name:	LoW Code:
WS103[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.3 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
27%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 27% Dry 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 }				25 mg/kg	1.32	25.991 mg/kg	0.0026 %		✓	
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	1.4 mg/kg	1.285	1.417 mg/kg	0.00011 %		✓	
	048-010-00-4	215-147-8	1306-23-6								
3	chromium { chromium(III) oxide (worst case) }				11 mg/kg	1.462	12.659 mg/kg	0.00127 %		✓	
		215-160-9	1308-38-9								
4	copper { dicopper oxide; copper (I) oxide }				70 mg/kg	1.126	62.057 mg/kg	0.00621 %		✓	
	029-002-00-X	215-270-7	1317-39-1								
5	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	130 mg/kg		102.362 mg/kg	0.0102 %		✓	
	082-001-00-6										
6	mercury { mercury dichloride }				<2.5 mg/kg	1.353	<3.384 mg/kg	<0.000338 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
7	nickel { nickel dihydroxide }				27 mg/kg	1.579	33.58 mg/kg	0.00336 %		✓	
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<8 mg/kg	1.405	<11.24 mg/kg	<0.00112 %			<LOD
	034-002-00-8										
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				160 mg/kg	4.398	554.069 mg/kg	0.0554 %		✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
10	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
12	pH				7.1 pH		7.1 pH	7.1 pH			
			PH								
13	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
15	anthracene	204-371-1	120-12-7		0.06 mg/kg		0.0472 mg/kg	0.00000472 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.09 mg/kg		0.0709 mg/kg	0.00000709 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.07 mg/kg		0.0551 mg/kg	0.00000551 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.14 mg/kg		0.11 mg/kg	0.000011 %	✓	
19	benzo[ghi]perylene	205-883-8	191-24-2		0.09 mg/kg		0.0709 mg/kg	0.00000709 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.04 mg/kg		0.0315 mg/kg	0.00000315 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.08 mg/kg		0.063 mg/kg	0.0000063 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
23	fluoranthene	205-912-4	206-44-0		0.11 mg/kg		0.0866 mg/kg	0.00000866 %	✓	
24	fluorene	201-695-5	86-73-7		0.08 mg/kg		0.063 mg/kg	0.0000063 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.06 mg/kg		0.0472 mg/kg	0.00000472 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	0.26 mg/kg		0.205 mg/kg	0.0000205 %	✓	
27	phenanthrene	201-581-5	85-01-8		0.21 mg/kg		0.165 mg/kg	0.0000165 %	✓	
28	pyrene	204-927-3	129-00-0		0.17 mg/kg		0.134 mg/kg	0.0000134 %	✓	
29	TPH (C6 to C40) petroleum group		TPH		560 mg/kg		440.945 mg/kg	0.0441 %	✓	
Total:								0.125 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: The sample s of soil which will not become flammable.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0441%)

Classification of sample: WS102

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

Sample details

Sample name:	LoW Code:
WS102	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 18% Dry 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 }			1	21 mg/kg	1.32	23.497 mg/kg	0.00235 %	✓	
		033-003-00-0	215-481-4	1327-53-3							
2		cadmium { cadmium sulfide }			1	0.9 mg/kg	1.285	0.98 mg/kg	0.0000763 %	✓	
		048-010-00-4	215-147-8	1306-23-6							
3		chromium { chromium(III) oxide (worst case) }				6.1 mg/kg	1.462	7.556 mg/kg	0.000756 %	✓	
			215-160-9	1308-38-9							
4		copper { dicopper oxide; copper (I) oxide }				61 mg/kg	1.126	58.203 mg/kg	0.00582 %	✓	
		029-002-00-X	215-270-7	1317-39-1							
5		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	150 mg/kg		127.119 mg/kg	0.0127 %	✓	
		082-001-00-6									
6		mercury { mercury dichloride }				<2.5 mg/kg	1.353	<3.384 mg/kg	<0.000338 %		<LOD
		080-010-00-X	231-299-8	7487-94-7							
7		nickel { nickel dihydroxide }				19 mg/kg	1.579	25.433 mg/kg	0.00254 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<8 mg/kg	1.405	<11.24 mg/kg	<0.00112 %		<LOD
		034-002-00-8									
9		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				93 mg/kg	4.398	346.616 mg/kg	0.0347 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
10		phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
		604-001-00-2	203-632-7	108-95-2							
11		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
		006-007-00-5									
12		pH				8.1 pH		8.1 pH	8.1 pH		
				PH							
13		acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
			201-469-6	83-32-9							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
15	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
19	benzo[ghi]perylene	205-883-8	191-24-2		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
21	chrysene	601-048-00-0	205-923-4	218-01-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
23	fluoranthene	205-912-4	206-44-0		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
24	fluorene	201-695-5	86-73-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
26	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
27	phenanthrene	201-581-5	85-01-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
28	pyrene	204-927-3	129-00-0		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
29	TPH (C6 to C40) petroleum group		TPH		31 mg/kg		26.271 mg/kg	0.00263 %	✓	
Total:								0.0633 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: The sample s of soil which will not become flammable.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00263%)

Classification of sample: WS101

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

Sample details

Sample name:	LoW Code:
WS101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.2 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
27%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 27% Dry 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 }			1	21 mg/kg	1.32	21.832 mg/kg	0.00218 %	✓	
		033-003-00-0	215-481-4	1327-53-3							
2		cadmium { cadmium sulfide }			1	1.1 mg/kg	1.285	1.113 mg/kg	0.0000866 %	✓	
		048-010-00-4	215-147-8	1306-23-6							
3		chromium { chromium(III) oxide (worst case) }				10 mg/kg	1.462	11.508 mg/kg	0.00115 %	✓	
			215-160-9	1308-38-9							
4		copper { dicopper oxide; copper (I) oxide }				67 mg/kg	1.126	59.397 mg/kg	0.00594 %	✓	
		029-002-00-X	215-270-7	1317-39-1							
5		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	160 mg/kg		125.984 mg/kg	0.0126 %	✓	
		082-001-00-6									
6		mercury { mercury dichloride }				<2.5 mg/kg	1.353	<3.384 mg/kg	<0.000338 %		<LOD
		080-010-00-X	231-299-8	7487-94-7							
7		nickel { nickel dihydroxide }				28 mg/kg	1.579	34.824 mg/kg	0.00348 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<8 mg/kg	1.405	<11.24 mg/kg	<0.00112 %		<LOD
		034-002-00-8									
9		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				160 mg/kg	4.398	554.069 mg/kg	0.0554 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
10		phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
		604-001-00-2	203-632-7	108-95-2							
11		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
		006-007-00-5									
12		pH		PH		7.9 pH		7.9 pH	7.9 pH		
13		acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
			201-469-6	83-32-9							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
15	anthracene	204-371-1	120-12-7		0.08 mg/kg		0.063 mg/kg	0.0000063 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.2 mg/kg		0.157 mg/kg	0.0000157 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.14 mg/kg		0.11 mg/kg	0.000011 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.2 mg/kg		0.157 mg/kg	0.0000157 %	✓	
19	benzo[ghi]perylene	205-883-8	191-24-2		0.09 mg/kg		0.0709 mg/kg	0.00000709 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.06 mg/kg		0.0472 mg/kg	0.00000472 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.16 mg/kg		0.126 mg/kg	0.0000126 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
23	fluoranthene	205-912-4	206-44-0		0.43 mg/kg		0.339 mg/kg	0.0000339 %	✓	
24	fluorene	201-695-5	86-73-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.08 mg/kg		0.063 mg/kg	0.0000063 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	0.05 mg/kg		0.0394 mg/kg	0.00000394 %	✓	
27	phenanthrene	201-581-5	85-01-8		0.19 mg/kg		0.15 mg/kg	0.000015 %	✓	
28	pyrene	204-927-3	129-00-0		0.39 mg/kg		0.307 mg/kg	0.0000307 %	✓	
Total:								0.0828 %		

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: WS104

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

Sample details

Sample name:	LoW Code:
WS104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.1 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
26%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 26% Dry 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 }			1	27 mg/kg	1.32	28.293 mg/kg	0.00283 %	✓	
	033-003-00-0	215-481-4	1327-53-3								
2		cadmium { cadmium sulfide }			1	1 mg/kg	1.285	1.02 mg/kg	0.0000794 %	✓	
	048-010-00-4	215-147-8	1306-23-6								
3		chromium {  chromium(III) oxide (worst case) }				8.7 mg/kg	1.462	10.092 mg/kg	0.00101 %	✓	
		215-160-9	1308-38-9								
4		copper { dicopper oxide ; copper (I) oxide }				50 mg/kg	1.126	44.678 mg/kg	0.00447 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
5		lead {  lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	120 mg/kg		95.238 mg/kg	0.00952 %	✓	
	082-001-00-6										
6		mercury { mercury dichloride }				<2.5 mg/kg	1.353	<3.384 mg/kg	<0.000338 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
7		nickel { nickel dihydroxide }				24 mg/kg	1.579	30.086 mg/kg	0.00301 %	✓	
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<8 mg/kg	1.405	<11.24 mg/kg	<0.00112 %		<LOD
	034-002-00-8										
9		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				90 mg/kg	4.398	314.138 mg/kg	0.0314 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
10		phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
11		cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5										
12		pH				7.4 pH		7.4 pH	7.4 pH		
			PH								
13		acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	acenaphthylene	205-917-1	208-96-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
15	anthracene	204-371-1	120-12-7		0.04 mg/kg		0.0317 mg/kg	0.00000317 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.12 mg/kg		0.0952 mg/kg	0.00000952 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.12 mg/kg		0.0952 mg/kg	0.00000952 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.23 mg/kg		0.183 mg/kg	0.0000183 %	✓	
19	benzo[ghi]perylene	205-883-8	191-24-2		0.13 mg/kg		0.103 mg/kg	0.0000103 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.06 mg/kg		0.0476 mg/kg	0.00000476 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.12 mg/kg		0.0952 mg/kg	0.00000952 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.03 mg/kg		0.0238 mg/kg	0.00000238 %	✓	
23	fluoranthene	205-912-4	206-44-0		0.18 mg/kg		0.143 mg/kg	0.0000143 %	✓	
24	fluorene	201-695-5	86-73-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.1 mg/kg		0.0794 mg/kg	0.00000794 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	0.08 mg/kg		0.0635 mg/kg	0.00000635 %	✓	
27	phenanthrene	201-581-5	85-01-8		0.17 mg/kg		0.135 mg/kg	0.0000135 %	✓	
28	pyrene	204-927-3	129-00-0		0.19 mg/kg		0.151 mg/kg	0.0000151 %	✓	
Total:								0.0542 %		

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: WS105

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

Sample details

Sample name:	LoW Code:
WS105	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.1 m	
Moisture content:	
17%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 17% Dry 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 }				<10 mg/kg	1.32	<13.203 mg/kg		<0.00132 %		<LOD
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium sulfide }			1	0.6 mg/kg	1.285	0.659 mg/kg		0.0000513 %	✓	
	048-010-00-4	215-147-8	1306-23-6								
3	chromium { chromium(III) oxide (worst case) }				7.8 mg/kg	1.462	9.744 mg/kg		0.000974 %	✓	
		215-160-9	1308-38-9								
4	copper { dicopper oxide; copper (I) oxide }				16 mg/kg	1.126	15.397 mg/kg		0.00154 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
5	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	13 mg/kg		11.111 mg/kg		0.00111 %	✓	
	082-001-00-6										
6	mercury { mercury dichloride }				<2.5 mg/kg	1.353	<3.384 mg/kg		<0.000338 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
7	nickel { nickel dihydroxide }				19 mg/kg	1.579	25.65 mg/kg		0.00256 %	✓	
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<8 mg/kg	1.405	<11.24 mg/kg		<0.00112 %		<LOD
	034-002-00-8										
9	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				51 mg/kg	4.398	191.704 mg/kg		0.0192 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
10	phenol				<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
	006-007-00-5										
12	pH				5.9 pH		5.9 pH		5.9 pH		
			PH								
13	acenaphthene				<0.02 mg/kg		<0.02 mg/kg		<0.000002 %		<LOD
		201-469-6	83-32-9								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
14	• acenaphthylene	205-917-1	208-96-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
15	• anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
19	• benzo[ghi]perylene	205-883-8	191-24-2		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
21	chrysene	601-048-00-0	205-923-4	218-01-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
23	• fluoranthene	205-912-4	206-44-0		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
24	• fluorene	201-695-5	86-73-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	• indeno[123-cd]pyrene	205-893-2	193-39-5		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
26	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
27	• phenanthrene	201-581-5	85-01-8		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
28	• pyrene	204-927-3	129-00-0		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
Total:								0.0285 %		

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

lead compounds with the exception of those specified elsewhere in this Annex (worst case)

GB MCL index number: 082-001-00-6

Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A

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 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

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

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

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

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

Reason for additional Hazards Statement(s):

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

pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

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

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database

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

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

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

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

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

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

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

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

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

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

▪ **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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on risk phrases

cadmium {cadmium sulfide}

Worst case species based on risk phrases

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

No hexavalent chromium detected.

copper {dicopper oxide; copper (I) oxide}

Most likely common species

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

No hexavalent chromium detected.

mercury {mercury dichloride}

Worst case species based on risk phrases

nickel {nickel dihydroxide}

Worst case species based on risk phrases

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

Worst case species based on risk phrases

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

No hexavalent chromium detected.

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

Worst case species

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2024.213.6193.11387 (31 Jul 2024)

HazWasteOnline Database: 2024.213.6193.11387 (31 Jul 2024)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GB MCL List - version 1.1 of 09 June 2021

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

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

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

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