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Ref: 13-317-L2
Date: 14th July 2023

FAO Allan Craigen
1 Level Ltd

BY Email

Dear Allan,

REMEDIATION STRATEGY LETTER 27-41 ASPINALL STREET, HEYWOOD

1. BACKGROUND

E3P has been instructed by 1 Level Ltd (the client) to develop a Remediation Strategy for the proposed scheme to construct three bungalows on a parcel of land located to the west of Aspinall Street, Heywood; herein referred to as the site.

The planning application No. for the scheme is 21/01477/FUL.

This Remediation Strategy letter relates to contaminated land mitigation measures only for planning purposes and does not consider the geotechnical earthworks requirements.

1.1. OBJECTIVES AND SCOPE

The development of the remediation strategy for the subject sites includes the following tasks:

-  Identification of the relevant pollutant linkages;
-  Review of site characteristics;
-  Evaluate feasible remedial technologies and selection of appropriate remedial methodologies;
-  Define validation criteria to demonstrate the successful implementation of a site remediation
-  Ensure the safe, cost effective and regulatory compliant redevelopment of the site.



1.2. PREVIOUS WORKS

The following previous reports have been completed for the site:

-  **E3P Ltd** – *Geo-Environmental Site Investigation* (Ref: 13-317-L1), dated April 2019. The letter was prepared for 1 Level Ltd.

For the avoidance of any doubt, the above report should be read both as a precursor to and in conjunction with this document. The findings of which were used to inform this Remediation Strategy.

1.3. REDEVELOPMENT PLAN

E3P understands that 1 Level Ltd are involved with a proposed scheme to develop the site for residential use.

The development will comprise three bungalows with private gardens, driveways and adopted utility infrastructure.

The redline boundary is presented in Figure 1.1 below and the Proposed Development Scheme is presented in Appendix III.

FIGURE 1.1 REDLINE PLANNING BOUNDARY



1.4. SUMMARY OF PARTIES INVOLVED

Function / Interest	Name of Party
Local Planning Authority	Rochdale Metropolitan Borough Council
Developer	1 Level Ltd
Geoenvironmental Consultant	E3P
Main Contractor	TBC
Remediation/Enabling Works Contractor	TBC
Human Health Regulator	Rochdale Metropolitan Borough Council
Controlled Waters and Waste Regulator	Environment Agency
Highways Adoption Authority	Rochdale Metropolitan Borough Council

1.5. REGULATORY CORRESPONDENCE

1 Level Ltd are in the process of submitting a detailed planning application to the local planning authority for the proposed redevelopment of the site for low-rise residential dwellings with associated adopted infrastructure.

It is presumed that as part of the planning approval process, the planning authority will undertake consultation with the pertinent statutory consultees, which will include:

- ✳ Environmental health/contaminated land officer at the local authority (or external adviser); and
- ✳ Environment Agency planning liaison.

1.6. SITE DETAILS

Site Address	27-41 Aspinall Street, Heywood OL10 4HH
National Grid Reference	E386041, N410879
Site Area	0.087 Ha.

All acronyms used within this report are defined in the glossary presented in Appendix II.

A site location plan is presented in Appendix III as Drawing 13-317-001.



1.7. SITE SUMMARY

TABLE 1.1 SITE DESCRIPTION AND SETTING

Occupancy/Use	The subject site is currently an undeveloped parcel of land surfaced by soft standing. No structures are present within the site boundary.	
Environmental Setting	Drift Geology	Glaciofluvial Deposits – Sand & Gravel.
	Bedrock Geology	Pennie Lower Coal Measures Member – Mudstone.
	Hydrogeology	Superficial Deposits – Secondary A Aquifer; and Bedrock Geology – Secondary A Aquifer.
	Hydrology	No surface water features have been identified within 250 m of the site boundary.
	Flood Risk	The site is located within a Flood Risk Zone 1 and is therefore at very low risk from extreme flood events.
Site History	The historical maps indicate the site was formerly occupied by a row of terraced houses and an engineering works within the northern sector. This site is understood to have been cleared by 1988 and is currently an undeveloped parcel of grassed land.	
Landfill Sites and Ground Gases	No landfill sites (current or historic) are located within 150 m of the site.	
Coal Mining	The site is not located within an area deemed to be at risk from ground instability arising from historic coal mining activities.	
Radon	A UK Radon report should be obtained to confirm if protection measures are required.	

1.8. SUMMARY OF REPORTED GROUND CONDITIONS

E3P has prepared a Geoenvironmental Site Investigation Letter (Ref: 13-317-L1, dated April 2019). The summary of reported ground conditions is given in Table 1.2.

TABLE 1.2 SUMMARY OF GROUND CONDITIONS

MADE GROUND	Made Ground – 0.0 m bgl to 2.90 m bgl Made Ground was encountered a proven depth of 2.90m bgl and generally comprised a brown gravelly sand. The granular constituents included brick, ash, coal, sandstone, mudstone, and slate.
Drift	DRIFT – 0.60-2.90m bgl to 5.45 m bgl Natural drift deposits generally comprised a loose to medium dense orange gravelly fine to coarse SAND to a proven depth of 5.45m bgl.
Bedrock	SOLID No solid geology was encountered during the ground investigation. BGS records indicate the presence of bedrock at c. 15.00m bgl in the locality.
Groundwater	Groundwater strikes were recorded at depths of between 2.50-4.00m bgl during the drilling process. No groundwater monitoring was completed under the remit of the previous investigation.



2. E3P CONTAMINATION RISK ASSESSMENT

2.1. BACKGROUND

E3P has completed a Tier 1 Qualitative Contaminated Land Risk Assessment to determine the potential risk to human health.

This assessment is documented in the Ground Investigation letter and, for clarity, is summarised in the following sections of this document.

2.2. HUMAN HEALTH RISK SUMMARY

2.2.1. CONTAMINATED LAND

Elevated lead was recorded in the shallow Made Ground in WS101. For completeness, E3P attend site 4th July to collect a further five samples of the shallow Made Ground at 0.50m bgl. The results are attached in laboratory report reference 23-43515 and to confirm no further exceedances were recorded.

The deep Made Ground was likely associated with infilled basements following demolition of the former terraced housing which occupied the site.

Therefore, if the Made Ground soils are left in-situ a full cover system will be required, which is detailed in Section 3.4.

If the Made Ground soils are removed (to expose natural strata) from areas of proposed private gardens, only a shallow 300mm growing medium will be required.

Made Ground overlain by hardstand or a structure, will be capped and therefore not pose an exposure risk to future site users.

The reworked topsoil (currently at the surface) is unlikely to be suitable for re-use in the garden cover system due to the presence of anthropogenic materials.

2.2.2. GROUND GAS

A ground gas assessment was beyond the scope of the ground investigation report.

However, as a precautionary measure CS2 / Amber 1 ground gas protection measures are recommended.

2.2.3. CONTROLLED WATERS

A detailed controlled waters risk assessment was beyond the scope of the ground investigation report.

However, in the absence of a viable receptor and therefore a complete pollutant linkage, E3P do not consider the site to pose an unacceptable level of risk to controlled waters.



2.2.4. WM3 ASSESSMENT OF MADE GROUND

E3P understands the upper ~1.00m of Made Ground soils at the site will be removed for off-site disposal, to allow substructure works for proposed bungalow foundations.

A total of five samples were collected (HP101 to HP105) of which were analysed for a full suite of contaminants including heavy metals, PAH, TPH and asbestos.

No asbestos was recorded in any of the five samples analysed by E3P.

To confirm the waste classification of the Made Ground soils within these stockpiles, RJT Consulting (Specialist Waste Consultant) completed a WM3 assessment on three selected samples.

The samples were formally assessed in line with the requirements of the Environment Agency Technical Guidance WM3: Waste Classification – Guidance on the Classification & Assessment of Waste. This assessment was done through the use of the One Touch Data Ltd 'HazWaste Online' waste assessment software by suitably trained staff.

The software identifies if any of the results obtained would be classed as hazardous in nature due to their properties and concentrations.

The three sample results were inputted into the HazWaste Online software to determine whether the material samples can be classed as hazardous or non-hazardous in line with the requirements of the EA Technical Guidance WM3. This assessment is essential for the application of the correct List of Waste Code (European Waste Catalogue) for the future haulage, treatment, recovery or disposal of waste material. Based on the excavated material analysis results and ground conditions observed during the field sampling, the waste classification assessment considered whether the samples are either:

-  17 – Construction & Demolition Waste
-  17 05 – Soil (including excavated soil from contaminated sites), stones and dredging spoil
-  170503 – Soil and stone containing hazardous substances. (Mirror Hazardous)
-  170504 – Soil and stone other than those mentioned in 170503. (Mirror Non-hazardous)

On completion of the WM3 (Haz Waste Online) assessment, E3P can confirm that three samples were determined as being non-hazardous and therefore the waste code 170504 can be applied.

Based on these results, the Made Ground material within the upper 1.00m can be removed off-site as non-hazardous waste to a suitable waste facility.



3. SITE REMEDIATION WORKS

3.1. SUMMARY OF REMEDIATION OPTIONS

It is considered that the following combination of remediation technologies provides the most sustainable, viable and economic solutions that will ultimately result in the successful remediation for the site(s):

- ✚ Installation of **suitable potable water supply** infrastructure (confirmed via UKWIR assessment);
- ✚ Installation of **CS2 / Amber 1 ground gas protection measures**; and
- ✚ Installation of a **suitable cover system overlying a geotextile membrane** in all proposed private garden and landscaping to remove any potential for direct exposure to impacted soils, where Made Ground left in-situ.

3.2. OVERVIEW OF WORKS

Prior to the commencement of works on-site, the contractor must establish all necessary plant, equipment, and site welfare facilities as is necessary to complete the contract within the agreed timescales to the rationale as outlined in the following subsections.

For the avoidance of any doubt, the proposed operations as set out herein document the required performance objectives and validation sampling protocols; however, the specific methods of work deployed to ensure the remediation objectives are achieved in a compliant manner on-site will be the responsibility of the appointed contractor.

3.3. REMOVAL OF UPPER HORIZON OF MADE GROUND

E3P understand the Made Ground soils within the upper 1.00m of the site will be removed in their entirety.

Marginally elevated heavy metals were recorded within these soils; however, this material will be removed from site and will therefore pose no risk to future site users.

The Waste Transfer Notes (WTNs) are to be provided on removal of this material from the site.

3.4. PLACEMENT OF COVER SYSTEM

The remedial works includes the provision of a chemically suitable clean material to be installed in all private garden and landscaped areas; the construction of the clean cover / placement of clean material shall consist of:

- ✚ Provision of 300mm growing medium (topsoil) in all garden plots where the full depth of Made Ground has been removed during the reduce level dig or cut / fill works;
- ✚ Provision of a 600 mm cover system (450mm subsoil and 150mm topsoil) using certified material with appropriate validation within proposed gardens where Made Ground remains; and
- ✚ Provision of a 300 mm cover system using certified material with appropriate validation within proposed areas of public open space and soft landscaping; and

In all instances, the cover system should be underlain by a geotextile membrane (break layer).



The private gardens and landscaped areas will be prepared in a manner that will facilitate the placement of the clean cover system during the development phase of the works.

In accordance with the current requirements of the regulatory authorities, validation samples will be collected from all materials that are to be imported to confirm the proposed development will pose no unacceptable risk to human health or the wider environ.

Testing requirements for topsoil and subsoil are presented in Table 3.1 below.

TABLE 3.1 SPECIFICATION FOR SOIL TESTING

MATERIAL USE	TESTING FREQUENCY	SUITE OF ANALYSIS
Subsoil Greenfield Source (450 mm Landscaping Cover)	1 Sample per 250 m ³	A/B/C/D
Subsoil Brownfield Source (450 mm Landscaping Cover)	1 Sample per 50 m ³	A/B/C/D
Topsoil Greenfield Source (150 mm Landscaping Cover)	1 Sample per 250 m ³	A/B/C/D
Topsoil Brownfield Source (150 mm Landscaping Cover)	1 Sample per 50 m ³	A/B/C/D

Notes

Suites of Analysis:

- A. Speciated PAH.
- B. Speciated TPH (C5-C35).
- C. Asbestos (ID).
- D. CLEA Inorganic Heavy Metals.

Details of the source of the subsoil and topsoil will be provided.

Sampling of topsoil and subsoil shall be in accordance with NHBC guidance but with 1 sample per 50m³ for a brownfield source of soils and 1 sample per 250m³ for a greenfield source with a minimum of three samples from any one source. Details of the source of the topsoil and subsoil will be provided.

Topsoil and subsoil are required to be confirmed as chemically suitable prior to placement. Topsoil and subsoil shall be free of any deleterious materials, such as buildings materials, timber, plastics etc and conform to the requirements of BS 3882:2015.

The placement of clean cover material will be undertaken during the build phase works of the project.

The placement of the cover system and corresponding validation will be documented within the Landscaping Validation Letters (to be issued on completion of the contractor's works).

E3P will collect photographic evidence of the placement of certified topsoil and subsoil on completion of construction works. This element will also be checked by the Building Control Officer as part of the site completion prior to issuing of a CML certificate.

The landscaping validation procedure is detailed in Table 3.2 overleaf.



TABLE 3.2 LANDSCAPING VALIDATION PROCEEDURE

PROCEDURE	METHOD
Chemical Validation	Site won subsoil and imported topsoil will need to be chemically analysed to confirm suitability for use with the proposed cover system prior to installation and completion of the garden systems and landscaped areas. E3P will issue an email to the appropriate party with an assessment of the chemical suitability of both the subsoil and topsoil. If acceptable the materials can be installed to the required depth at which time the plot or landscaping area will be deemed complete following a validation procedure by a suitability qualified E3P engineer.
Trial Holes	Trial holes are deemed necessary to validate the depth of cover system in each garden plot and landscaped areas during the build phase.
Validation	Photographic evidence will be taken by E3P of the subsoil and topsoil placement demonstrating the depth of material and practical completion of works are required for each and every plot and landscaped area.
Validation Certificate	E3P will issue a validation certificate (for each plot and landscaped parcel) to demonstrate that the required subsoil and topsoil has been placed in the required landscaped areas along with the chemical analysis.
Completion Report	Upon completion of all garden plots and landscaped areas within the development, a Completion Report will be issued providing the confirmation that all remediation requirements have been achieved.



Plate 1 provides an example of validation photographs that will be required for each area of landscaping.

PLATE 1 EXAMPLE COVER SYSTEM VALIDATION

Plot No: 4 (Car Park Landscaping)

Depth of Strata (m bgl)

0.00-0.30

Validated TOPSOIL

Depth of Cover System Materials

Depth of Cover System Materials



Depth of Cover System at Ground Level and in Relation to Unit / Structure



3.5. POTABLE WATER SUPPLY – CONTAMINANT ASSESSMENT CRITERIA

Table 3.3 provides a summary of the threshold concentrations that must not be exceeded within remediated ground at pipeline depth in order to PE pipe works to be acceptable for the proposed development.

TABLE 3.3 PIPELINE SELECTION PE THRESHOLD CONCENTRATIONS

Contaminant Group	PE-threshold
Total VOC	0.5
Total BTEX And MTBE	0.1
Total SVOCs (Excluding PAH and those substances marked with an *)	2
EC5-EC10 Aliphatic and Aromatic Hydrocarbons	2
EC10-EC16- Aliphatic and Aromatic Hydrocarbons	10
EC16-EC40 Aliphatic and Aromatic Hydrocarbons	500
Phenols (From SVOC Analysis)*	2
Cresols and Chlorinated Phenols (From SVOC Analysis)	2
Ethers*	0.5
Nitrobenzene*	0.5
Ketones*	0.5
Aldehydes*	0.5
Amines	Fail

Based on the current assessment of ground conditions, it is likely that standard PE pipe will be suitable for the proposed development.

However, this will need to be confirmed with a UKWIR risk assessment.



3.6. WASTE SOILS SURPLUS TO REQUIREMENTS

In the event that a surplus of excavation material is present on site, this in most cases, will be deemed to be a waste in accordance with the Waste Framework Directive (Article 3(1) Waste Framework Directive 2008/98/EE). The waste producer – but ultimately, the landowner – is responsible for the compliant disposal of such materials.

For any materials not already classified (the upper 1.00m of Made Ground), a formal waste classification assessment must be undertaken, irrespective of any future options or considerations for those materials that will be removed from site. Waste classification should only be made following the Environment Agency *Technical Guidance WM3 – Guidance on the Classification and Assessment of Waste*.

To remove the surplus material from site it will either need to be sent to a disposal site (landfill), to a permitted treatment facility or, dependent on the waste classification assessment, it may be suitable for use on a permitted land improvement or restoration operation.

The preferred alternative approach would be to locate a site in the locality that requires soils to achieve required development levels. Subject to suitability, these soils can be transferred to the receiving site, subject to an approved permit or materials management plan following guidance in the CL:AIRE *Definition of Waste: Code of Practice*.

3.7. REMEDIATION CONTRACTORS SITE MANAGEMENT AND RESPONSIBILITY

The appointed remediation contractor will take full and overarching responsibility for all methods of work required to complete the site remediation and enabling operations to ensure the delivery of the site and the completion of the objectives in a safe, legislatively compliant manner that ensures no pollution to the subject site or the wider environs.

For individual remediation operations as set out within this performance specification, the contractor will provide site-specific methods of work for individual operations pertaining to the removal and treatment of contaminated liquids and soils. For each and every operation as set out herein, the contractor will provide a written methodology of works to be supplied to the supervising geo-environmental engineer prior to the instigation of operations on-site.

The site manager will be responsible for documentation of each day's activities with a full recorded schedule of works completed and corresponding site-specific method statements that have been utilised to ensure the completion of the task to the required standard.

4. PREVIOUSLY UNIDENTIFIED CONTAMINANTS

Should significantly impacted material be encountered during the development, then it will be excavated and stockpiled on an impermeable material and sampled and tested for an appropriate range of determinants.

Once the laboratory analysis of the material is available, an assessment will be undertaken to determine whether it can be retained on-site as part of the material management plan or whether it should be disposed of off-site.

Depending on the nature of any such impact, it may be necessary to undertake validation testing of the excavation faces in order to demonstrate that no such materials are left in situ.



5. RECORD-KEEPING

During the course of the remediation and site enabling works, the Site Manager and E3P consultant will undertake the following record-keeping protocols:

- ✿ Detailed site diary including material movements;
- ✿ Sampling register, testing results, photographs, details of consignment notes of any material that is required to be disposed of off-site; and
- ✿ The contractors will provide detailed surveys for volumes exported and imported.

Record-keeping on-site, in particular movements and analysis of specific material types, will be in the form of site diaries and a remediation excavation record. This record will remain on-site and will be completed by the E3P on-site engineer during the course of the remediation and site enabling works.

6. VERIFICATION COMPLETION REPORT

It is therefore concluded that the site will be suitable for the proposed residential end use subject to the completion of the aforementioned remedial items:

- ✿ Installation of ground gas protection measures in line with CS2 / Amber 1 in accordance with BS 8485:2015+A1:2019;
- ✿ Construction of a clean cover system in all private garden and areas of landscaping; and
- ✿ Use of potable water supply infrastructure that will be compliant with United Kingdom Water Infrastructure Risk (UKWIR) assessment criteria.

Following the completion of the remediation works, a report will be compiled by the environmental consultant detailing all site enabling works undertaken, waste consignment notes, and all site investigations, laboratory test certificates and validation testing undertaken.

E3P considers that with the adoption of the above best practices the site can be safely redeveloped.

We trust this information is satisfactory to your requirements, and should I be able to be of any further assistance, please do not hesitate to contact me.

Yours sincerely,

For and on behalf of E3P Ltd

Wirtten by:
Alex Smith *BSc (Hons), FGS, MEnvSc, CEnv*
Associate Director

Enclosed

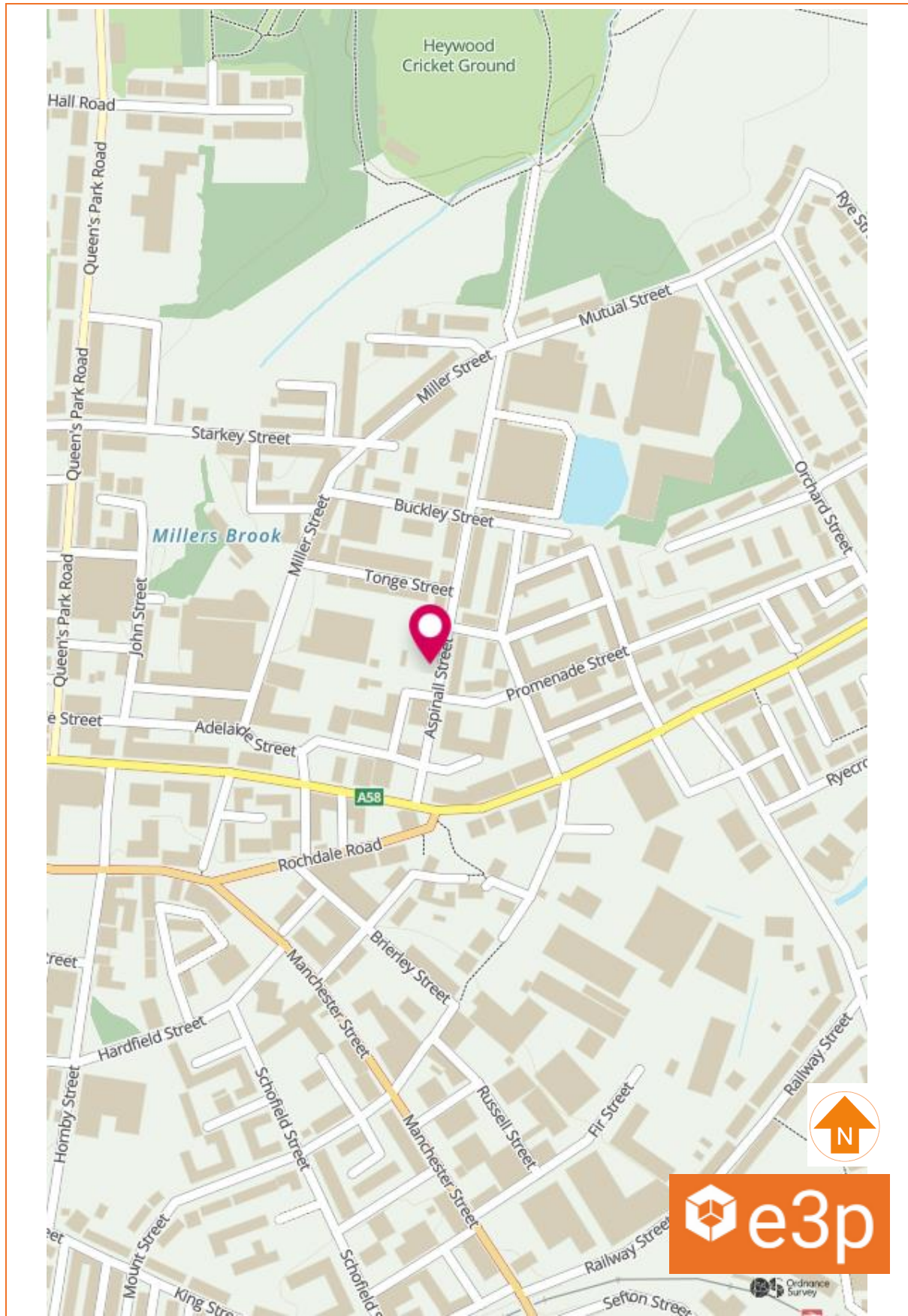
- Appendix I Drawings
13-317-001 – Site Location Plan
Proposed Development Scheme
- Appendix II Chemical Analysis (July 2023)
- Appendix III E3P Remediation / Validation Criteria
- Appendix III WM3 Waste Assessment



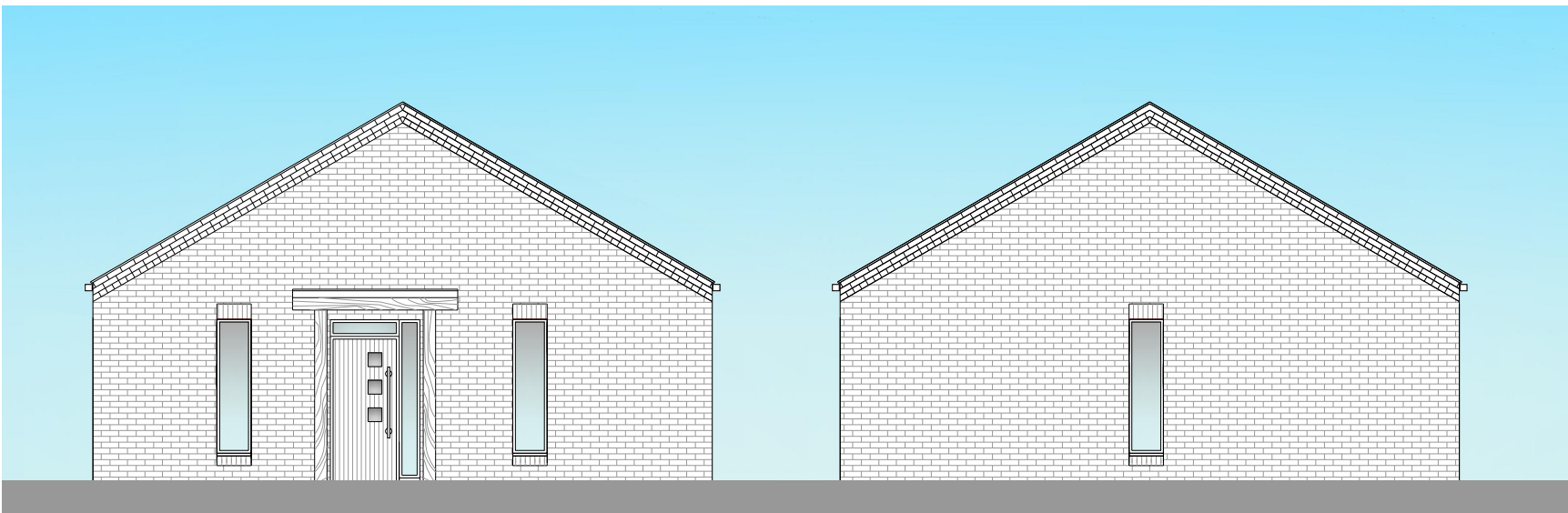
APPENDIX I

DRAWINGS

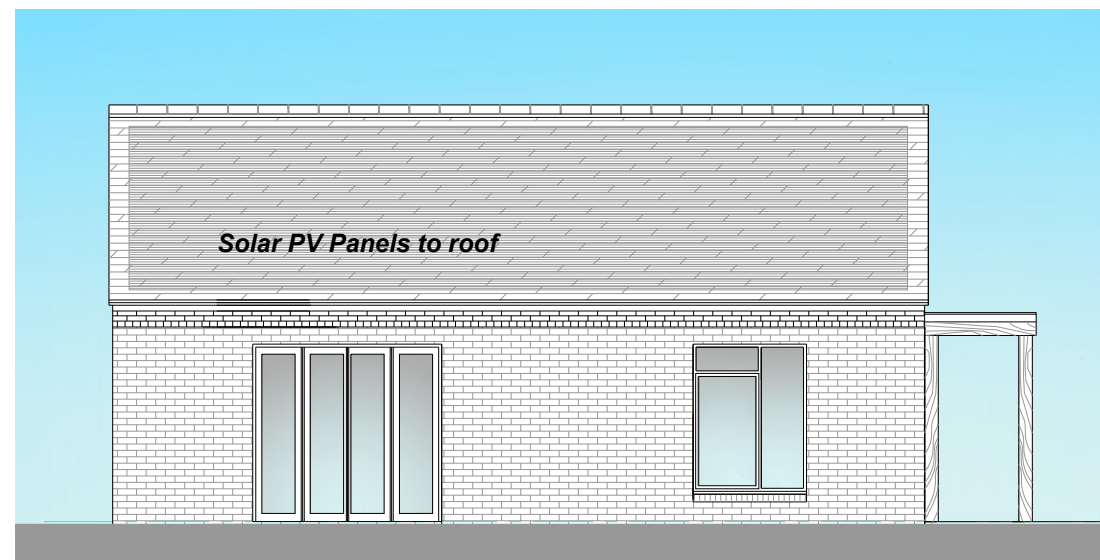
DRAWING 13-317-001 – SITE LOCATION PLAN



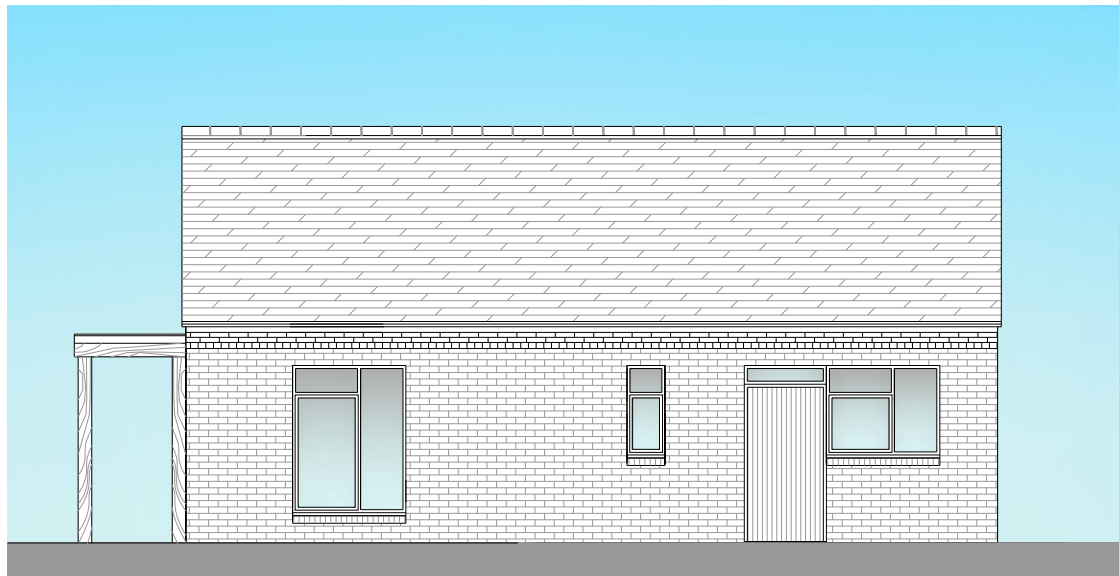
PLOT 1



Side elevations



Rear elevation



Front elevation

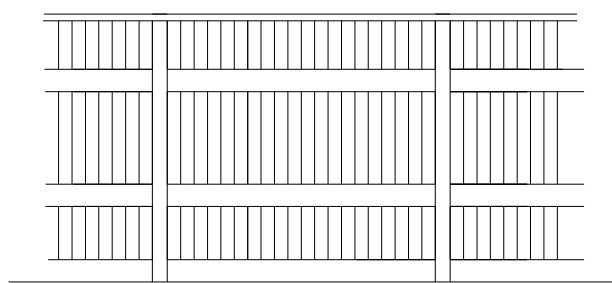
General Notes;	
•	Facing brickwork to outer walls to comprise Forterra LBC Golden Buff.
•	Brickwork detailing to eaves, verge and openings formed in Butterley Carbon Black smooth facing bricks.
•	Concrete interlocking tiles to roof to L.A. approval.
•	Black finish UPVC double glazed windows.
•	Black finish aluminum entrance doors with double glazed panels - aluminum bifold doors - all with level thresholds.
•	Green oak framed open porches to entrance doors with glass fibre flat roof covering to LA approval
•	Seamless aluminum gutters and matching downpipes finished in black.



Eaves brick corbel detail -Butterley carbon black smooth



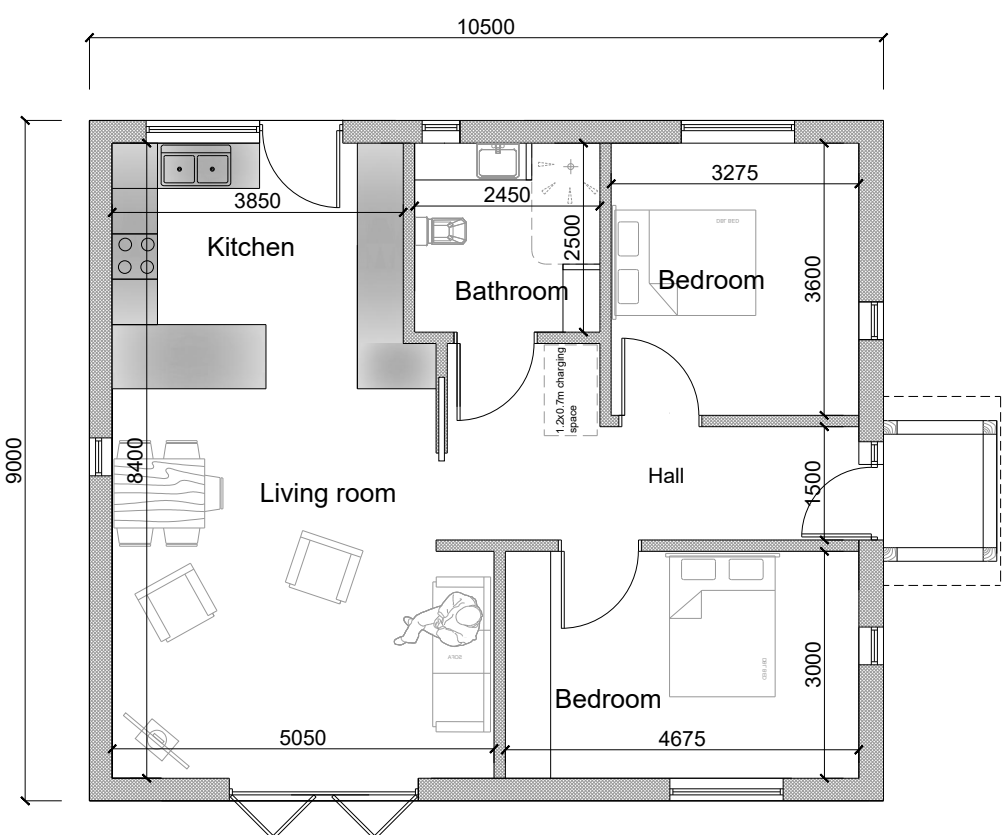
Verge brick corbel detail - Butterley carbon black smooth



ELEVATION

BOUNDARY DETAIL A

Boundary detail A- 1.8m high close boarded timber screen fence



Floor plan - plot 1

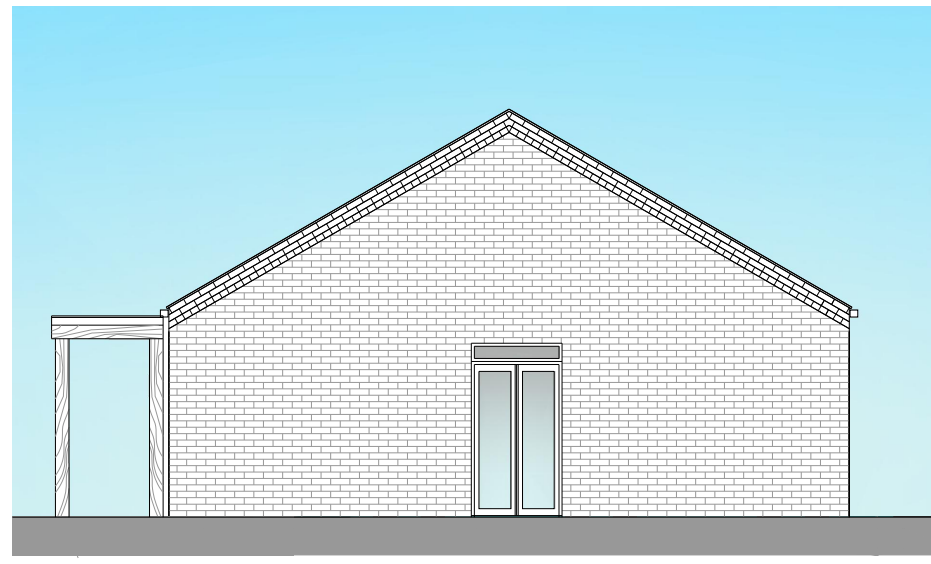


Proposed facing brick - Forterra LBC -Golden Buff

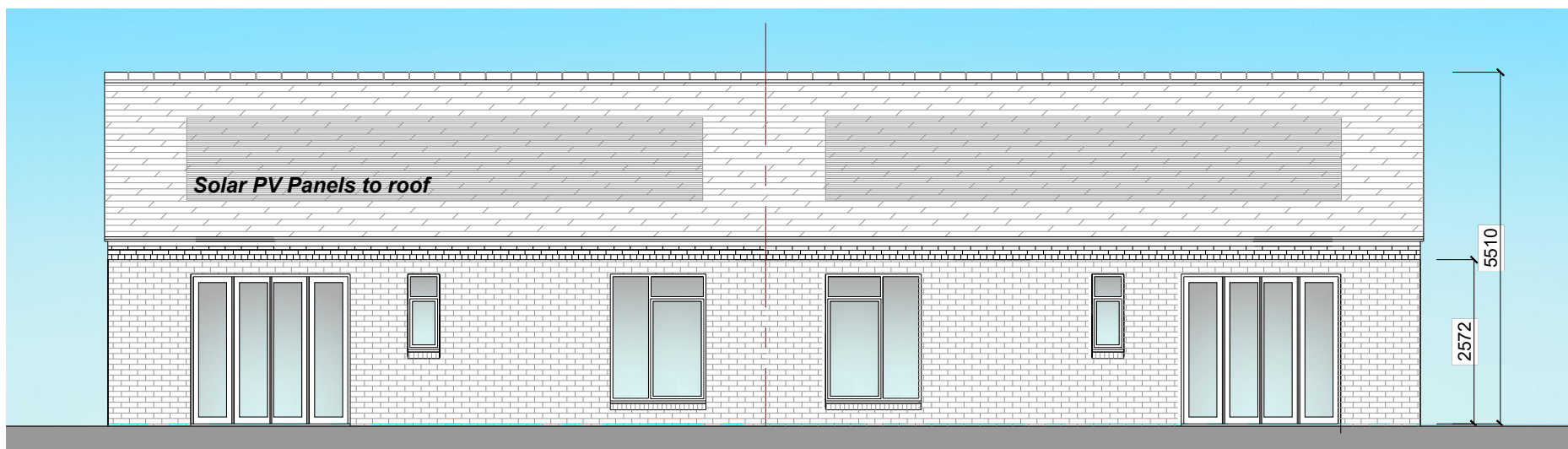


Proposed detailing brick - Butterley Carbon Black smooth.

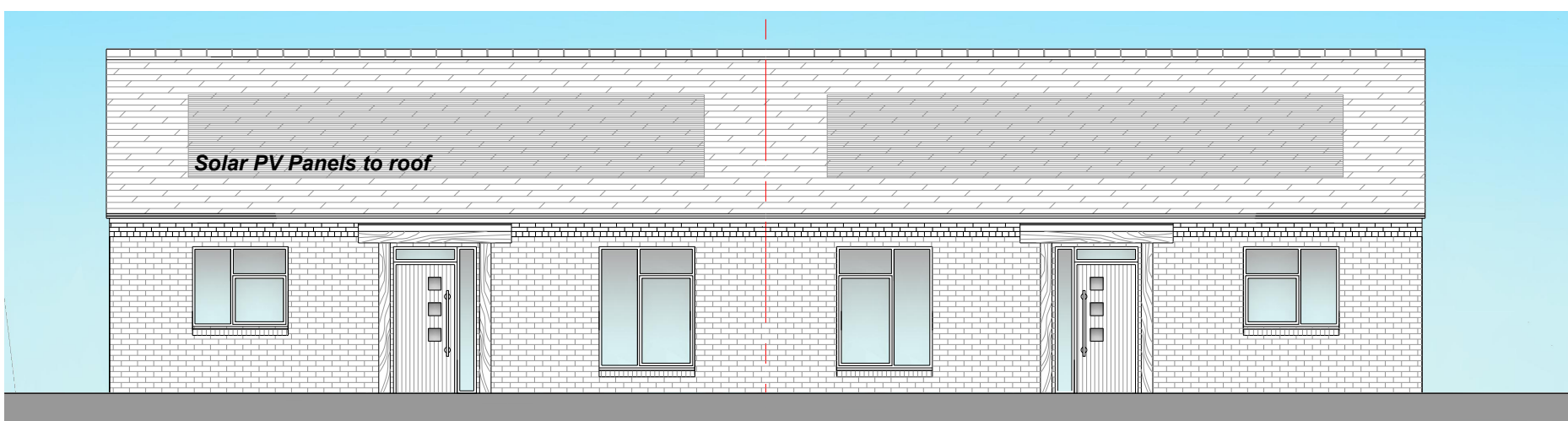
PLOTS 2 & 3



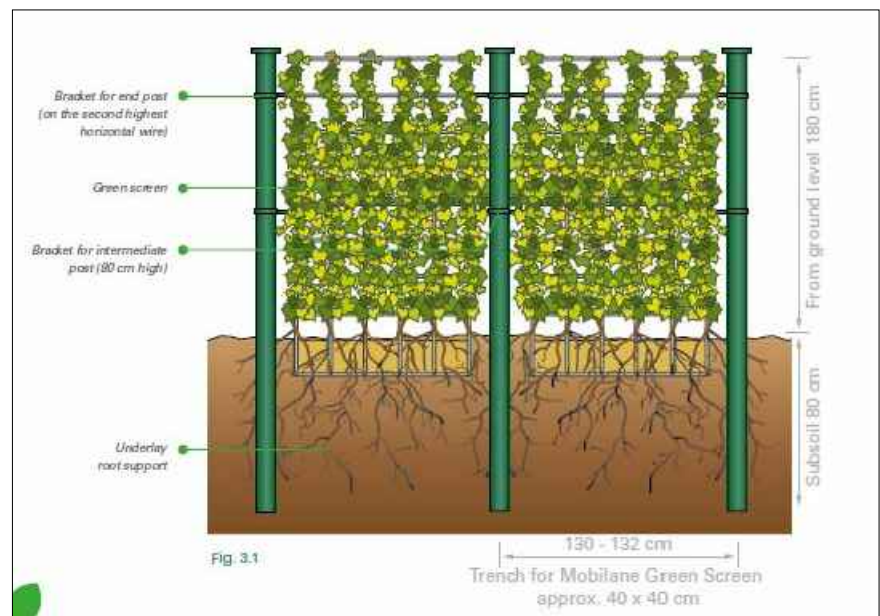
Side elevation



Rear elevation

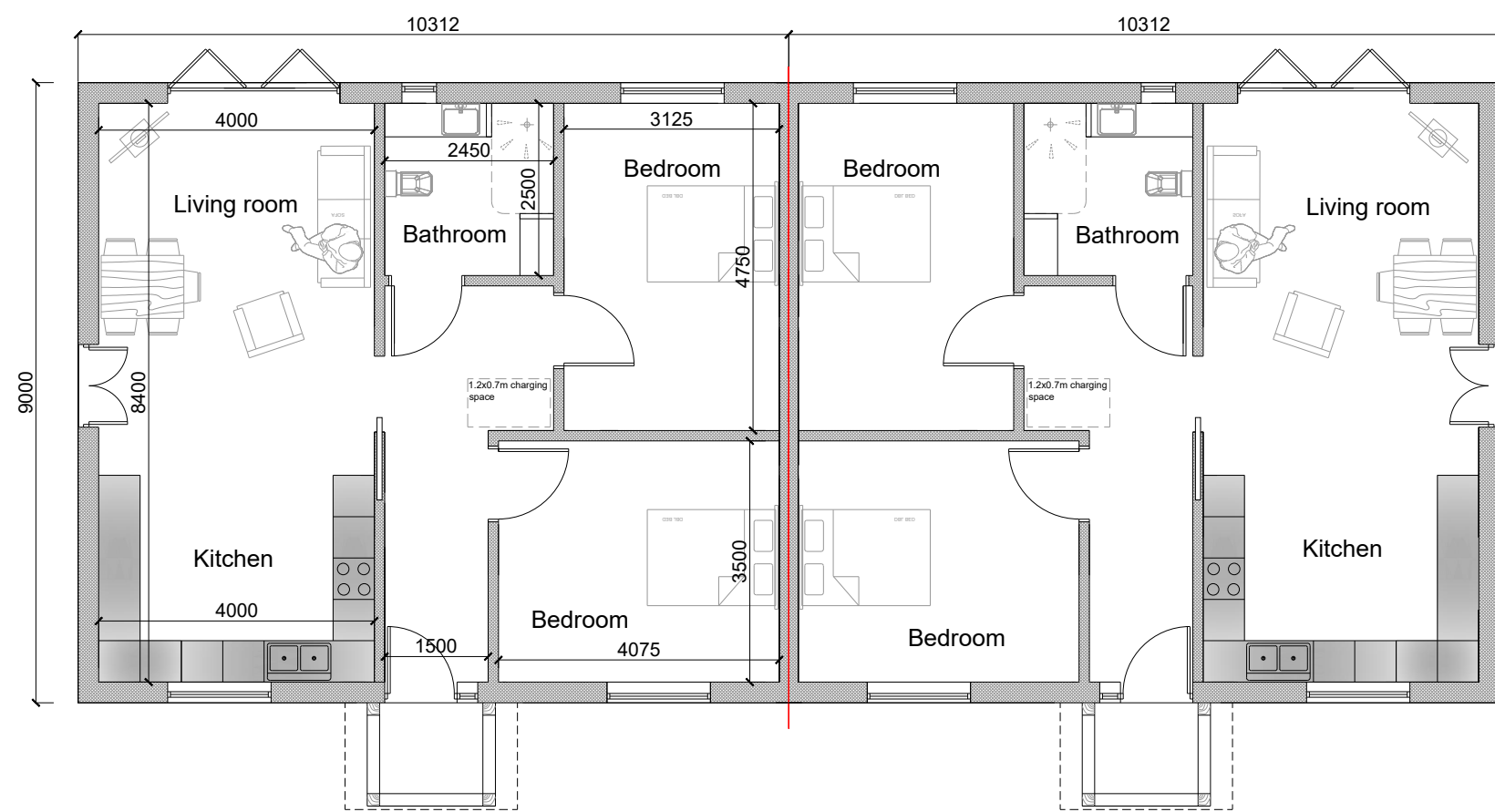


Front elevation

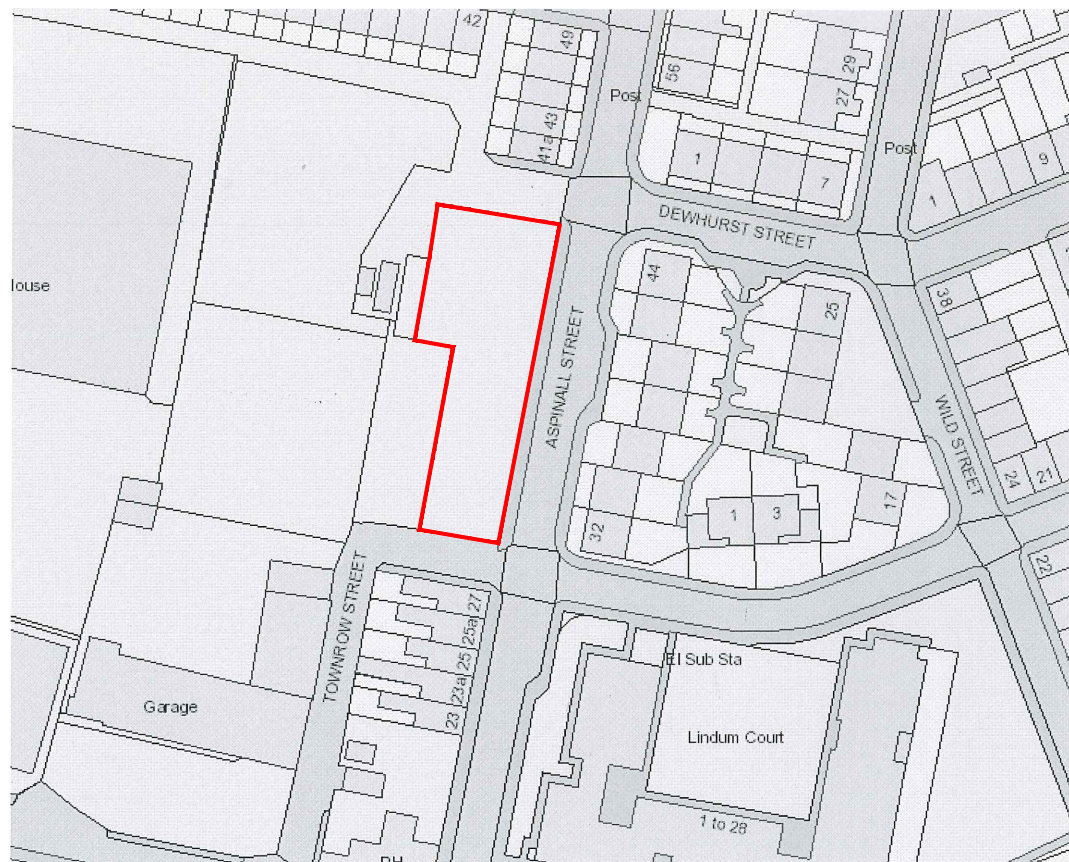


Boundary detail B -

Boundary detail B- Mobilane Green Screen ready made green screen system - 1.2m wide panels x 2.2m high planted with Hedra helix 'Woerner'.



Floor plans - plots 2&3



Location plan - 1:1250



BOUNDARY DETAIL C

Boundary detail C- 1.0m high overall - 600mm masonry topped with 400mm high galvanized steel railings with black paint finish

SITE LAYOUT

1:200

LANDSCAPING SCHEDULE

Topsoil
Imported top soil to comply with BS3882:1994. Imported top soil shall be spread to a depth of 0.3m.

Planting.

All stock shall comply with BS: 3936. All site preparation, planting and post planting aftercare shall comply with "Handling and Establishment of Landscape Plants" 1996 All trees of a height greater than 1.5 metres shall be supported using a wooden stake of a top diameter not less than 50mm. The tree stake shall be driven to a depth of not less than 0.5m. The height of the stake above the ground level shall be equal to 1/3rd the height of the tree. All staked trees shall be attached to the top of the stake with a single proprietary tree tie.

Shrub planting;

All planted ornamental stock shall be mulched with a course grade of part-composted wood-chip or bark mulch. The mulch shall be spread to a depth of 50mm to a radius of 300mm around all shrubs

Mixed Shrub planting;

Gaultheria procumbens (Partridge Berry)

Hebe Heartbreaker

Sarcococca hookeriana humilis (Christmas Box)

Trees;

Species;

Q - Quercus robur "Fastigiata"

P - Pyrus calleryana Chanticleer (Callery Pear)

rev.	date:	description
F	19-5-23	Client revisions
D	5-4-23	Client revisions
M	25-11-21	Revised following Planning officer comments
C	21-9-21	Revised following previous planning submission
C	9-6-21	Client revisions
A	4-6-21	Revised following planning refusal



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www.ajcockerassociates.co.uk
mail@ajcockerassociates.co.uk



Project:
Proposed development at
Aspinall Street, Heywood
Proposals

Client: Mr. A.Craigen

scale: 1:100/1:200

date: FEB 2021

drawn: AJC

Dwg. Nr. C393-001/F

APPENDIX II

CHEMICAL ANALYSIS

RESULTS (JULY 2023)

Alex Smith
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Urmston
Manchester
M41 7JQ

e: asmith@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-43515

Project / Site name:	27-41 Aspinall Street, Heywood	Samples received on:	05/07/2023
Your job number:	13-317	Samples instructed on/ Analysis started on:	06/07/2023
Your order number:	005430	Analysis completed by:	12/07/2023
Report Issue Number:	1	Report issued on:	12/07/2023
Samples Analysed:	5 soil samples		



Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-43515
Project / Site name: 27-41 Aspinall Street, Heywood
Your Order No: 005430

Lab Sample Number				2738837	2738838	2738839	2738840	2738841
Sample Reference				HP101	HP102	HP103	HP104	HP105
Sample Number				MG	MG	MG	MG	MG
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				04/07/2023	04/07/2023	04/07/2023	04/07/2023	04/07/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	20	28	26	12	39
Moisture Content	%	0.01	NONE	7.3	6.5	6.5	6.7	6
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3	0.3	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO	MLO	MLO	MLO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.1	8.6	8.2	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	670	650	730	480	560
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.031	0.0089	0.035	0.0066	0.011
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	61	18	70	13	22
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	30.6	8.9	35.1	6.6	10.9
Sulphide	mg/kg	1	MCERTS	2.5	3.5	2.2	1	1.7
Total Sulphur	mg/kg	50	MCERTS	390	360	370	340	290
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.8	1.7	1.8	2	1.8

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	2.1	0.22	0.1	0.29	0.16
Anthracene	mg/kg	0.05	MCERTS	0.53	< 0.05	< 0.05	0.06	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.5	0.25	0.17	0.33	0.28
Pyrene	mg/kg	0.05	MCERTS	1.5	0.26	0.18	0.35	0.29
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.79	0.14	0.12	0.18	0.15
Chrysene	mg/kg	0.05	MCERTS	0.83	0.18	0.13	0.23	0.16
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.62	0.17	0.14	0.23	0.18
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.26	0.06	0.05	0.08	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.59	0.15	0.11	0.19	0.13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.2	0.07	< 0.05	0.09	0.07
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.25	0.08	0.07	0.12	0.08

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	9.9	1.58	1.07	2.15	1.58
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Analytical Report Number: 23-43515
 Project / Site name: 27-41 Aspinall Street, Heywood
 Your Order No: 005430

Lab Sample Number	2738837	2738838	2738839	2738840	2738841
Sample Reference	HP101	HP102	HP103	HP104	HP105
Sample Number	MG	MG	MG	MG	MG
Depth (m)	0.50	0.50	0.50	0.50	0.50
Date Sampled	04/07/2023	04/07/2023	04/07/2023	04/07/2023	04/07/2023
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	13	12	12	10
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	0.5	0.5	0.5
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	11	12	9.5	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	43	34	31	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	46	47	45	46	37
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	16	17	15	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	67	66	68	70	65

Petroleum Hydrocarbons

TPH (C5 - C6) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_ID_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_ID_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH (C21 - C35) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	11	< 10	< 10	< 10	< 10
TPH (C35 - C40) EH_CU_ID_TOTAL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	24	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-43515

Project / Site name: 27-41 Aspinall Street, Heywood

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2738837	HP101	MG	0.5	Brown loam and sand with vegetation and stones.
2738838	HP102	MG	0.5	Brown loam and sand with vegetation and stones.
2738839	HP103	MG	0.5	Brown loam and sand with vegetation and stones.
2738840	HP104	MG	0.5	Brown loam and sand with vegetation and stones.
2738841	HP105	MG	0.5	Brown loam and sand with vegetation and stones.

Analytical Report Number : 23-43515

Project / Site name: 27-41 Aspinall Street, Heywood

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 23-43515
Project / Site name: 27-41 Aspinall Street, Heywood

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

APPENDIX III

E3P REMEDIATION/ VALIDATION CRITERIA

HUMAN HEALTH REMEDIATION TARGETS – LOW-RISE RESIDENTIAL END USE

DETERMINAND	UNITS	WITHIN 600 MM COVER SYSTEM (GARDEN)	HARDSTANDING AND >600 MM OF COVER	PUBLIC OPEN SPACE 300 MM COVER	PATHWAY
Arsenic	mg/kg	37 ⁽ⁱ⁾	40 ⁽ⁱⁱ⁾	79 ⁽ⁱⁱⁱ⁾	1
Cadmium	mg/kg	11 ⁽ⁱ⁾	85 ⁽ⁱⁱ⁾	120 ⁽ⁱⁱⁱ⁾	1
Chromium (Hexavalent)	mg/kg	6 ⁽ⁱ⁾	6 ⁽ⁱⁱ⁾	7.7 ⁽ⁱⁱⁱ⁾	1
Lead	mg/kg	210 ^(vi)	330 ^(vii)	760 ^(viii)	1
Elemental Mercury	mg/kg	1.2 ⁽ⁱ⁾	1.2 ⁽ⁱⁱ⁾	16 ⁽ⁱⁱⁱ⁾	2
Nickel	mg/kg	180 ⁽ⁱ⁾	180 ⁽ⁱⁱ⁾	230 ⁽ⁱⁱⁱ⁾	1
Selenium	mg/kg	250 ⁽ⁱ⁾	430 ⁽ⁱⁱ⁾	1100 ⁽ⁱⁱⁱ⁾	1
Copper	mg/kg	2400 ⁽ⁱ⁾	7100 ⁽ⁱⁱ⁾	12,000 ⁽ⁱⁱⁱ⁾	1
Zinc	mg/kg	3700 ⁽ⁱ⁾	40,000 ⁽ⁱⁱ⁾	81,000 ⁽ⁱⁱⁱ⁾	1
Phenol	mg/kg	280 ^{(i)(xi)}	280 ^{(xiv)(xi)}	760 ^{(iii)(xi)}	2
Naphthalene	mg/kg	2.3 ^{(i)(xi)}	2.3 ^{(xiv)(xi)}	1200 ^{(iv)(xi)}	2
Acenaphthylene	mg/kg	170 ^{(i)(xi)}	500 ^(v)	15,000 ^{(iii)(xi)}	3
Acenaphthene	mg/kg	210 ^{(i)(xi)}	500 ^(v)	15,000 ^{(iii)(xi)}	1
Fluorene	mg/kg	170 ^{(i)(xi)}	500 ^(v)	9900 ^{(iii)(xi)}	1
Phenanthrene	mg/kg	95 ^{(i)(xi)}	500 ^(v)	3100 ^{(iii)(xi)}	3
Anthracene	mg/kg	500 ^{(i)(xi)}	500 ^(v)	74,000 ^{(iii)(xi)}	3
Fluoranthene	mg/kg	280 ^{(i)(xi)}	500 ^(v)	3100 ^{(iii)(xi)}	3
Pyrene	mg/kg	500 ^{(i)(xi)}	500 ^(v)	7400 ^{(iii)(xi)}	3
Benzo(a)Anthracene	mg/kg	7.2 ^{(i)(xi)}	11 ^{(ii)(xi)}	29 ^{(iii)(xi)}	3
Chrysene	mg/kg	15 ^{(i)(xi)}	30 ^{(ii)(xi)}	57 ^{(iii)(xi)}	3
Benzo(b)Fluoranthene	mg/kg	2.6 ^{(i)(xi)}	3.9 ^{(ii)(xi)}	7.1 ^{(iii)(xi)}	3
Benzo(k)Fluoranthene	mg/kg	77 ^{(i)(xi)}	110 ^{(ii)(xi)}	190 ^{(iii)(xi)}	3
Benzo(a)Pyrene	mg/kg	2.2 ^{(i)(xi)}	3.2 ^{(ii)(xi)}	5.7 ^{(iii)(xi)}	3
Indeno(123-cd)Pyrene	mg/kg	27 ^{(i)(xi)}	45 ^{(ii)(xi)}	82 ^{(iii)(xi)}	3
Dibenzo(a,h)Anthracene	mg/kg	0.24 ^{(i)(xi)}	0.31 ^{(ii)(xi)}	0.57 ^{(iii)(xi)}	3
Benzo(ghi)Perylene	mg/kg	320 ^{(i)(xi)}	360 ^{(ii)(xi)}	640 ^{(iii)(xi)}	3
TPH C ₅ -C ₆ (aliphatic)	mg/kg	42 ^{(i)(xi)}	42 ^{(ii)(xi)}	42 ^{(ii)(xi)}	2
TPH C ₆ -C ₈ (aliphatic)	mg/kg	100 ^{(i)(xi)}	100 ^{(ii)(xi)}	100 ^{(ii)(xi)}	2
TPH C ₈ -C ₁₀ (aliphatic)	mg/kg	27 ^{(i)(xi)}	27 ^{(ii)(xi)}	27 ^{(ii)(xi)}	2
TPH C ₁₀ -C ₁₂ (aliphatic)	mg/kg	130 ^{(i)(xi)}	130 ^{(ii)(xi)}	130 ^{(ii)(xi)}	2
TPH C ₁₂ -C ₁₆ (aliphatic)	mg/kg	1000 ^{(xiv)(xi)}	1000 ^{(xiv)(xi)}	1000 ^{(xiv)(xi)}	1
TPH C ₁₆ -C ₂₁ (aliphatic)	mg/kg	1000 ^{(xiv)(xi)}	1000 ^{(xiv)(xi)}	1000 ^{(xiv)(xi)}	1
TPH C ₂₁ -C ₃₅ (aliphatic)	mg/kg				1
TPH C ₅ -C ₇ (aromatic)	mg/kg	70 ^{(i)(xi)}	370 ^{(ii)(xi)}	370 ^{(ii)(xi)}	2
TPH C ₇ -C ₈ (aromatic)	mg/kg	130 ^{(i)(xi)}	860 ^{(ii)(xi)}	860 ^{(ii)(xi)}	2



TPH C ₈ -C ₁₀ (aromatic)	mg/kg	34 ^{(i)(xi)}	47 ^{(ii)(xi)}	47 ^{(ii)(xi)}	2
TPH C ₁₀ -C ₁₂ (aromatic)	mg/kg	74 ^{(i)(xi)}	250 ^{(ii)(xi)}	250 ^{(ii)(xi)}	2
TPH C ₁₂ -C ₁₆ (aromatic)	mg/kg	140 ^{(i)(xi)}	1800 ^{(ii)(xi)}	1800 ^{(ii)(xi)}	1
TPH C ₁₆ -C ₂₁ (aromatic)	mg/kg	260 ^{(i)(xi)}	1900 ^{(ii)(xi)}	1900 ^{(ii)(xi)}	1
TPH C ₂₁ -C ₃₅ (aromatic)	mg/kg	1000 ^{(xiv)(xi)}	1900 ^{(ii)(xi)}	1900 ^{(ii)(xi)}	1
Asbestos	Fibres Volume Weight (%)	NFD	0.001%	NFD	4

Notes 1

NFD = No Fibres Detected

Asbestos will be screened visually on site by a qualified environmental consultant and where potential ACM is identified, representative samples will be subject to quantitative analysis of % volume by weight.

Should any ACM be identified within the soil matrices, further detailed % assessment would be required when the reported laboratory result exceeds the limit of detection for the analytical method at 0.01% by volume (weight).

Notes 2

Excludes matrices where free product is observed.

Residential Tier 1 GAC modelled to assume no exposure pathway.

No viable exposure pathway beneath hardstanding and cover system.

Notes 3

Main Exposure Pathways:

- 1 = Soil Ingestion
- 2 = Vapour Inhalation (Indoor)
- 3 = Dermal Contact And Ingestion
- 4 = Dust Inhalation.

Abbreviations:

GAC = General Assessment Criteria,
 N = Number of Samples,
 MC = Maximum Concentration,
 N/A = Not Applicable (No Exceedance of Assessment Criteria),
 Loc Of MC = Location of Exceedances.



Remediation Strategy Letter

27-41 Aspinall Street, Heywood

July 2023

- i. Value derived from LQM Sutable 4 Use Levels (S4ULs) for residential end use with plant uptake.
- ii. Value derived from LQM Sutable 4 Use Levels (S4ULs) for residential end use without plant uptake – these levels used below 600 mm cover system within residential gardens as soils will be present within a residential setting yet soils will not be disturbed and garden plants will not reach these soils.
- iii. Value derived from LQM Sutable 4 Use Levels (S4ULs) for public open space (POS) residential.
- iv. Value derived from LQM Sutable 4 Use Levels (S4ULs) for public open space (POS) park – these levels used below 300 mm POS cover system as soils will not be disturbed by any future site users and exposure to these soils will be similar to a park end use.
- v. Value derived from LQM Sutable 4 Use Levels (S4ULs) alongside assessment with WM3 to ensure that materials remaining on site do not exceed the WM3 toxicity criteria for hazardous waste.
- vi. Value derived from Category 4 Screening Levels (C4SL) for residential land use with homegrown produce.
- vii. Value derived from Category 4 Screening Levels (C4SL) for residential land use without homegrown produce.
- viii. Value derived from Category 4 Screening Levels (C4SL) for public open space (POS) residential.
- ix. Value derived from Category 4 Screening Levels (C4SL) for public open space (POS) park.
- x. Mercury – based on elemental mercury.
- xi. PAH and TPH levels used are for 1% SOM.
- xii. Xylenes based on p-xylene (o-xylene 2600 mg/kg, m-xylene 3500 mg/kg) and is capped by its solubility.
- xiii. Value derived from LQM Sutable 4 Use Levels (S4ULs) for residential end use with plant uptake due to the volatilisation risk.
- xiv. BTEX is not SOM-related due to inhalation pathway.



APPENDIX IV WM3 WASTE ASSESSMENT

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)



GFVQI-6XMD5-91083

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

Job name

13-317 - Aspinall Street, Heywood (23-43515)

Description/Comments

This Waste Classification is based on the analytical results provided by E3P on the Chemtest Analytical Ltd 'Analytical Report' Number 23-43515. Soil Samples Only. During the assessment we have considered the 'worst or most reasonable case' metals compounds as laboratory reports only provide total concentrations of a metal e.g. Cu but not which compound(s) (species) of the metal present within the respective soil samples e.g. CuSO4. If the assessment is non-hazardous based on these worst-case species no further 'species' consideration is required. With TPH, WM3 (EA) require assessment of the potential presence of an unknown 'oil' by assessing the TPH range C6 – C40. In the case of 23-43515, TPH C5-40 has been analysed, meaning the full TPH range required by WM3 has been assessed. Where the concentration of TPH is >0.1% (1000mg/kg) the 'soil' will be classed as HP 7 Carcinogenic and HP 11 Mutagenic, unless the concentration of the marker benzo(a)pyrene is <0.01% of the TPH concentration and confirmation is received that the TPH result has not arisen from petrol or diesel sources. Note that samples consider moisture content correction factors. In the case of any samples exceeding the 1000mg/kg TPH value and also the marker benzo(a)pyrene at <0.01% of the TPH concentration, the moisture correction factor could make it 'non-hazardous'. It is the responsibility of the geo-environmental consultant to target the laboratory analysis suite and testing to appropriately reflect the nature of the site, its activities and its impact on surrounding soils. WM3 states that the assessment of asbestos containing waste considers both the presence of asbestos as a) fibres that are free and dispersed, and b) identifiable pieces of asbestos containing material. If the waste contains fibres that are free and dispersed then the waste will be hazardous if the waste as a whole contains 0.1% or more asbestos. Where the waste contains identifiable pieces of asbestos containing material (i.e. any size that can be identified as potentially being asbestos by a competent person by the naked eye) it is deemed hazardous.

Project

Waste classification

Site

Aspinall Street, Heywood

Classified by

Name: Alicia Vermeulen
Date: 13 Jul 2023 13:09 GMT
Telephone: 01617060402
Company: RJT Consulting Partnerships Ltd
E3P Building, Taylor Road
Trafford Park
Manchester
M41 7JQ

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.

HazardWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

09 Dec 2021

Next 3 year Refresher due by Dec 2024

Purpose of classification

2 - Material Characterisation

Address of the waste

27-41 Aspinall Street, Heywood

Post Code OL10 4HH

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

Redevelopment of former residential terraces. They have been demolished and the site has been cleared.

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

Waste classification required as material will be removed to foundation level to allow development of three new residential plots.

Description of the waste

Made Ground

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	HP101	0.50	Non Hazardous		4
2	HP102	0.50	Non Hazardous		6
3	HP104	0.50	Non Hazardous		8

Related documents

#	Name	Description
1	E3P Characterisation 4 (V4.0)	waste stream template used to create this Job

Report

Created by: Alicia Vermeulen

Created date: 13 Jul 2023 13:09 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	10
Appendix B: Rationale for selection of metal species	11
Appendix C: Version	12

Classification of sample: HP101

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

Sample details

Sample name:	LoW Code:
HP101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
7.3%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 7.3% 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	pH		PH		8.2 pH		8.2 pH	8.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
4	naphthalene				0.21 mg/kg		0.196 mg/kg	0.0000196 %	✓	
	601-052-00-2	202-049-5	91-20-3							
5	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
6	acenaphthene				0.29 mg/kg		0.27 mg/kg	0.000027 %	✓	
		201-469-6	83-32-9							
7	fluorene				0.23 mg/kg		0.214 mg/kg	0.0000214 %	✓	
		201-695-5	86-73-7							
8	phenanthrene				2.1 mg/kg		1.957 mg/kg	0.000196 %	✓	
		201-581-5	85-01-8							
9	anthracene				0.53 mg/kg		0.494 mg/kg	0.0000494 %	✓	
		204-371-1	120-12-7							
10	fluoranthene				1.5 mg/kg		1.398 mg/kg	0.00014 %	✓	
		205-912-4	206-44-0							
11	pyrene				1.5 mg/kg		1.398 mg/kg	0.00014 %	✓	
		204-927-3	129-00-0							
12	benzo[a]anthracene				0.79 mg/kg		0.736 mg/kg	0.0000736 %	✓	
	601-033-00-9	200-280-6	56-55-3							
13	chrysene				0.83 mg/kg		0.774 mg/kg	0.0000774 %	✓	
	601-048-00-0	205-923-4	218-01-9							
14	benzo[b]fluoranthene				0.62 mg/kg		0.578 mg/kg	0.0000578 %	✓	
	601-034-00-4	205-911-9	205-99-2							
15	benzo[k]fluoranthene				0.26 mg/kg		0.242 mg/kg	0.0000242 %	✓	
	601-036-00-5	205-916-6	207-08-9							

#	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							
16	benzo[a]pyrene; benzo[def]chrysene				0.59 mg/kg		0.55 mg/kg	0.000055 %	✓	
	601-032-00-3	200-028-5	50-32-8							
17	indeno[123-cd]pyrene				0.2 mg/kg		0.186 mg/kg	0.0000186 %	✓	
		205-893-2	193-39-5							
18	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
19	benzo[ghi]perylene				0.25 mg/kg		0.233 mg/kg	0.0000233 %	✓	
		205-883-8	191-24-2							
20	arsenic { arsenic trioxide }				13 mg/kg	1.32	15.996 mg/kg	0.0016 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
21	cadmium { cadmium oxide }				0.6 mg/kg	1.142	0.639 mg/kg	0.0000639 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
22	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
23	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11 mg/kg	1.462	14.983 mg/kg	0.0015 %	✓	
		215-160-9	1308-38-9							
24	copper { dicopper oxide; copper (I) oxide }				37 mg/kg	1.126	38.824 mg/kg	0.00388 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
25	lead { lead chromate }			1	46 mg/kg	1.56	66.87 mg/kg	0.00429 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
26	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
27	nickel { nickel chromate }				16 mg/kg	2.976	44.38 mg/kg	0.00444 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
28	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
	034-002-00-8									
29	zinc { zinc chromate }				67 mg/kg	2.774	173.223 mg/kg	0.0173 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
30	TPH (C6 to C40) petroleum group				24 mg/kg		22.367 mg/kg	0.00224 %	✓	
			TPH							
Total:								0.0371 %		

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 because HP3(i) relates to liquids. All samples covered as part of this report were completed on solid soil samples. Therefore, the hazardous threshold has been increased to account for this.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00224%)

Classification of sample: HP102

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

Sample details

Sample name:	LoW Code:
HP102	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)
0.50 m	
Moisture content:	
6.5%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.5% 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	pH		PH		8.1 pH		8.1 pH	8.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
4	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
5	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
6	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
7	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
8	phenanthrene				0.22 mg/kg		0.207 mg/kg	0.0000207 %	✓	
		201-581-5	85-01-8							
9	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
10	fluoranthene				0.25 mg/kg		0.235 mg/kg	0.0000235 %	✓	
		205-912-4	206-44-0							
11	pyrene				0.26 mg/kg		0.244 mg/kg	0.0000244 %	✓	
		204-927-3	129-00-0							
12	benzo[a]anthracene				0.14 mg/kg		0.131 mg/kg	0.0000131 %	✓	
	601-033-00-9	200-280-6	56-55-3							
13	chrysene				0.18 mg/kg		0.169 mg/kg	0.0000169 %	✓	
	601-048-00-0	205-923-4	218-01-9							
14	benzo[b]fluoranthene				0.17 mg/kg		0.16 mg/kg	0.000016 %	✓	
	601-034-00-4	205-911-9	205-99-2							
15	benzo[k]fluoranthene				0.06 mg/kg		0.0563 mg/kg	0.00000563 %	✓	
	601-036-00-5	205-916-6	207-08-9							

#	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							
16	benzo[a]pyrene; benzo[def]chrysene				0.15 mg/kg		0.141 mg/kg	0.0000141 %	✓	
	601-032-00-3	200-028-5	50-32-8							
17	indeno[123-cd]pyrene				0.07 mg/kg		0.0657 mg/kg	0.00000657 %	✓	
		205-893-2	193-39-5							
18	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
19	benzo[ghi]perylene				0.08 mg/kg		0.0751 mg/kg	0.00000751 %	✓	
		205-883-8	191-24-2							
20	arsenic { arsenic trioxide }				13 mg/kg	1.32	16.117 mg/kg	0.00161 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
21	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
22	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
23	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11 mg/kg	1.462	15.096 mg/kg	0.00151 %	✓	
		215-160-9	1308-38-9							
24	copper { dicopper oxide; copper (I) oxide }				43 mg/kg	1.126	45.458 mg/kg	0.00455 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
25	lead { lead chromate }			1	47 mg/kg	1.56	68.837 mg/kg	0.00441 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
26	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
27	nickel { nickel chromate }				16 mg/kg	2.976	44.714 mg/kg	0.00447 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
28	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
	034-002-00-8									
29	zinc { zinc chromate }				66 mg/kg	2.774	171.919 mg/kg	0.0172 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0358 %		

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: HP104

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

Sample details

Sample name:	LoW Code:
HP104	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)
0.50 m	
Moisture content:	
7.2%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 7.2% 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	pH		PH		8.2 pH		8.2 pH	8.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
4	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
5	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
6	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
7	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
8	phenanthrene				0.29 mg/kg		0.271 mg/kg	0.0000271 %	✓	
		201-581-5	85-01-8							
9	anthracene				0.06 mg/kg		0.056 mg/kg	0.0000056 %	✓	
		204-371-1	120-12-7							
10	fluoranthene				0.33 mg/kg		0.308 mg/kg	0.0000308 %	✓	
		205-912-4	206-44-0							
11	pyrene				0.35 mg/kg		0.326 mg/kg	0.0000326 %	✓	
		204-927-3	129-00-0							
12	benzo[a]anthracene				0.18 mg/kg		0.168 mg/kg	0.0000168 %	✓	
	601-033-00-9	200-280-6	56-55-3							
13	chrysene				0.23 mg/kg		0.215 mg/kg	0.0000215 %	✓	
	601-048-00-0	205-923-4	218-01-9							
14	benzo[b]fluoranthene				0.23 mg/kg		0.215 mg/kg	0.0000215 %	✓	
	601-034-00-4	205-911-9	205-99-2							
15	benzo[k]fluoranthene				0.08 mg/kg		0.0746 mg/kg	0.00000746 %	✓	
	601-036-00-5	205-916-6	207-08-9							

#	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							
16	benzo[a]pyrene; benzo[def]chrysene				0.19 mg/kg		0.177 mg/kg	0.0000177 %	✓	
	601-032-00-3	200-028-5	50-32-8							
17	indeno[123-cd]pyrene				0.09 mg/kg		0.084 mg/kg	0.0000084 %	✓	
		205-893-2	193-39-5							
18	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
19	benzo[ghi]perylene				0.12 mg/kg		0.112 mg/kg	0.0000112 %	✓	
		205-883-8	191-24-2							
20	arsenic { arsenic trioxide }				12 mg/kg	1.32	14.78 mg/kg	0.00148 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
21	cadmium { cadmium oxide }				0.5 mg/kg	1.142	0.533 mg/kg	0.0000533 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
22	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
23	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				9.5 mg/kg	1.462	12.952 mg/kg	0.0013 %	✓	
		215-160-9	1308-38-9							
24	copper { dicopper oxide; copper (I) oxide }				31 mg/kg	1.126	32.558 mg/kg	0.00326 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
25	lead { lead chromate }			1	46 mg/kg	1.56	66.932 mg/kg	0.00429 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
26	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
27	nickel { nickel chromate }				15 mg/kg	2.976	41.645 mg/kg	0.00416 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
28	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
	034-002-00-8									
29	zinc { zinc chromate }				70 mg/kg	2.774	181.148 mg/kg	0.0181 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
30	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
Total:								0.0347 %		

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

■ pH (CAS Number: PH)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

▪ **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

▪ **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

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

arsenic {arsenic trioxide}

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

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history

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

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

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

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

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

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

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

Appendix C: Version

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

HazWasteOnline Classification Engine Version: 2023.193.5680.10456 (12 Jul 2023)

HazWasteOnline Database: 2023.193.5680.10456 (12 Jul 2023)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GB MCL List - version 1.1 of 09 June 2021

