Technical Note

To:	Frank Cowell Project Manager JJ Rhatigan Limited Anna House 214-218 High Road Seven Sisters London N15 4NP	**Date:**	05 September 2025
		Turnkey ref:	0112-TN003i7a_update
		Author: **Reviewed:**	Kene Onwubuya Dave Rutherford

Title: CTC, Hayes – Blocks A, B, C, D, E and F Addendum Verification Report

1 Introduction

JJ Rhatigan instructed Turnkey Regeneration Limited (Turnkey) to prepare an addendum Verification Report at their CTC Hayes site. This report is 'Issue 7', following further import of topsoil to Blocks A & D and assessment of chemical data from imported topsoil used in Blocks A, B, C, D, E & F.

This addendum report is specific for Blocks A, B, C, D, E and F and provides an update to the site-wide Verification Report referenced below:

- Turnkey Verification Report (Final). Crown Trading Centre, Hayes. Ref: 0112-R002i3. Dated: March 2025

As part of the requirements set out in the Remediation Method Statement (RMS)[1], verification of the clean cover to be placed as part of soft landscaping is required, underlain by a marker layer when at ground level. Landscaping is subject to the ground level and also at podium level in planters – the layouts, also showing block areas, is presented in Appendix A for these levels.

For clarity, all works regarding contamination-related conditions are complete for these six blocks, i.e. the whole site.

1.1 Regulatory Context

The primary objective of this addendum Verification Report is to seek partial discharge of Planning Condition 36iii and iv (Ref: Hillingdon 73955/APP/2022/3516) for the CTC Hayes development as outlined below:

> *(iii) Upon completion of the approved remedial works, this condition will not be discharged until a comprehensive verification report has been submitted to and approved by the LPA. The report shall include the details of the final remediation works and their verification to show that the works for each phase have been carried out in full and in accordance with the approved methodology.*
>
> *(iv) No contaminated soils or other materials shall be imported to the site. All imported soils for landscaping purposes shall be clean and free of contamination.*
>
> *Before any part of the development is occupied, all imported soils shall be independently tested for chemical contamination, and the results of this testing shall be submitted and approved in writing by the*

[1] Turnkey Remediation Statement (Final). Crown Trading Centre, Hayes. Ref: 0097-R002i3. Dated: May 2023

Local Planning Authority. All soils used for gardens and/or landscaping purposes shall be clean and free of contamination.

REASON

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems and the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in accordance with 'Hillingdon Local Plan: Part 2 (January 2020) Policies – DMEI 11: Protection of Ground Water Resources and DMEI 12: Development of Land Affected by Contamination'

Planning Condition 36i was discharged in 2023 and it is understood that Turnkey's recent verification report discharged Planning Condition 36ii.

1.2 Objectives

The objectives of this addendum Verification Report are summarised below:

- Partial discharge of Planning Condition 36ii, iii & iv of planning permission 73955/APP/2022/3516 (wording updated via Non Material Amendment reference: 73955/APP/2025/604).
- ensure any identified potential pollutant linkages are broken or will be broken on completion of the works across sectional areas; and
- comply with all relevant planning conditions and ensure works are carried out in a suitable manner to discharge relevant planning conditions.

The report has been completed in accordance with Land Contamination: Risk Management (issued October 2020 and updated July 2023 and June 2025).

2 Topsoil and Soft Landscaping Verification

Topsoil to be utilised within Blocks B, C, E and F as a clean cover layer comprises is supplied from two sources:

- Boughton Loam Ltd. Telford Way. Kettering. Northamptonshire NN16 8UN
- Springfield Direct Ltd. Denham. Middlesex UB9 4DF

Supplier documentation is presented in Appendix A. JJ Rhatigan also supplied Turnkey with certification from the supplier confirming that the soils complied with the chemical thresholds set in the verification criteria and those set out in BS3882 Specification for Topsoil.

The imported topsoil is to be used within plant boxes and soft landscaping areas within Blocks A, B, C, D, E and F.

To refresh on the frequency of sampling, 1 sample per 100m^3 for the first 500m^3 and then every 500m^3 for further import, should the source be consistent. The sources have proven to be consistent.

2.1 Verification Testing of Imported Soil

The following sections are reported in the chronological order that topsoil was imported.

2.1.1 Block F

Based on information provided by JJ Rhatigan, the volume of topsoil imported for use in Block F was 275m^3. An initial 6 no. samples of the topsoil so far delivered to site were collected for testing (3 no. from each source, meaning there was flexibility on where each was used and represent adequate quota to also partially represent topsoil used in Block E). The contractor deemed these to be representative of the Block F topsoil, i.e. negating the need for further sampling/testing.

The samples were analysed for the suite of contaminants listed in the RMS including heavy metals, polycyclic aromatic hydrocarbons (PAHs), speciated total petroleum hydrocarbons (TPH), other organics and asbestos.

This is with the exception of 1 no. sample (TS3-03) where a marginal exceedance of vanadium (84mg/kg vs screening criteria of 82mg/kg) was recorded. This is not considered a significant issue (see Section 2.2 for further justification). Asbestos was not identified in any of the samples analysed.

The analytical data was screened against the RMS verification criteria for imported material with no exceedances identified in majority of the samples. This is with the exception of 2 no. samples (TS2-01 and TS2-03) from the same source where very marginal exceedances of boron (3.1mg/kg vs screening criteria of 3.0mg/kg) was recorded. This is not considered to be a significant issue (see Section 2.2 for further justification). Asbestos was not identified in any of the samples analysed.

The verification screening exercise is reported in Appendix B with the laboratory certificates of analysis provided in Appendix C.

2.1.2 Block E

The maximum volume of topsoil imported for use in Block E is ~380m^3, as confirmed by JJ Rhatigan. To build on what was sampled to represent Block F, a further 3 no. samples of the material were collected that the contractor deemed to be representative of the Block E topsoil material, thus negating the requirement for further sampling/testing. In addition, some imported sand was utilised in planters at podium level and therefore 1 no. representative sample (sample ref. SS01-01) of this material was collected for record purposes[2].

A very small section of topsoiling was completed with Blocks A and D.

The samples were analysed for the suite of contaminants listed in the RMS including heavy metals, PAHs, speciated TPH, other organics and asbestos.

The analytical data was screened against the RMS verification criteria for imported material with no exceedances identified in majority of the samples.

The verification screening exercise is reported in Appendix B with the laboratory certificates of analysis provided in Appendix C.

2.1.3 Block C

The maximum volume of topsoil imported for use in Block C is ~640m^3, as confirmed by JJ Rhatigan. The topsoil areas are shown in a drawing presented in Appendix A. To build on what was sampled to represent Blocks E and F, a further 4 no. samples of the material were collected that the contractor deemed to be representative of the Block C topsoil material, thus negating the requirement for further sampling/testing.

The samples were analysed for the suite of contaminants listed in the RMS including heavy metals, PAHs, speciated TPH, other organics and asbestos.

The analytical data was screened against the RMS verification criteria for imported material with no exceedances identified in majority of the samples. This is with the exception of 2 no. samples (TS1-04 and TS1-07) from the same source where very marginal exceedances of boron (3.2mg/kg and 3.4mg/kg vs screening criteria of 3.0mg/kg) was recorded. This is not considered to be a significant issue (see Section 2.2 for further justification). Asbestos was not identified in any of the samples analysed.

The verification screening exercise is reported in Appendix B with the laboratory certificates of analysis provided in Appendix C.

2.1.4 Block B

The maximum volume of topsoil imported for use in Block B is ~310m^3, as confirmed by JJ Rhatigan. The topsoil areas are shown in a drawing presented in Appendix A. To build on what was sampled to represent Block B, a further 1 no. sample of the material was required. However, 4 no. samples were collected to enable representation of topsoil in Blocks A and D as well (which will be reported in a further update to this

[2] This material does not constitute part of the required thickness of topsoil in locations where it was used.

addendum report). These soils that were collected were deemed to be representative of the blocks' topsoil material, thus negating the requirement for further sampling/testing.

The samples were analysed for the suite of contaminants listed in the RMS including heavy metals, PAHs, speciated TPH, other organics and asbestos.

The analytical data was screened against the RMS verification criteria for imported material with no exceedances identified in majority of the samples. This is with the exception of 1 no. sample (TS1-08) where an exceedance of vanadium (98mg/kg vs screening criteria of 82mg/kg) was recorded. This is not considered a significant issue (see Section 2.2 for further justification). Asbestos was not identified in any of the samples analysed.

The verification screening exercise is reported in Appendix B with the laboratory certificates of analysis provided in Appendix C.

2.1.5 Blocks A and D

The maximum volume of topsoil imported for use in Block A and D was ~950m^3 and ~210m^3, respectively, as confirmed by JJ Rhatigan. The topsoil areas are shown in a drawing presented in Appendix A. To build on what was sampled to represent Blocks A and D, a further 3 no. samples of the material was required. However, 4 no. samples were collected to enable representation of topsoil in Block B as well (which was reported in Issue 6 of this addendum report). These soils that were collected were deemed to be representative of the blocks' topsoil material, thus negating the requirement for further sampling/testing.

The samples were analysed for the suite of contaminants listed in the RMS including heavy metals, PAHs, speciated TPH, other organics and asbestos.

The analytical data was screened against the RMS verification criteria for imported material with no exceedances identified in majority of the samples. As noted in Section 2.1.4, this is with the exception of 1 no. sample (TS1-08) where an exceedance of vanadium (98mg/kg vs screening criteria of 82mg/kg) was recorded. This is not considered a significant issue (see Section 2.2 for further justification). Asbestos was not identified in any of the samples analysed.

The verification screening exercise is reported in Appendix B with the laboratory certificates of analysis provided in Appendix C.

2.2 Justification for use of topsoil with marginal boron and vanadium exceedances

Following the marginal exceedances recorded for boron and vanadium (as indicated in Section 2.1), it is imperative to provide justification to show that these exceedances are not detrimental to human health – these points are outlined below.

2.2.1 Statistical analysis

It is possible to undertake statistical analysis under planning using the UCL95 approach in line with the CL:AIRE Statistical Guidance[3], which is a conservative approach (e.g. when compared to Part 2A, which uses LCL95). This assessment was undertaken for the two contaminants (boron and vanadium), which recorded exceedances of the RMS verification criteria for imported material. The outputs from the calculations are outlined below:

- Boron – UCL95 = 2.61mg/kg versus screening criteria of 3.0mg/kg
- Vanadium – UCL95 = 55.27mg/kg versus screening criteria of 82mg/kg

From the above, the UCL95 values are below the RMS verification criteria. This means that the topsoil is suitable for its intended use without further action.

[3] CL:AIRE (2008); Guidance on Comparing Soil Contamination Data with a Critical Concentration

Additional information on the assessment is presented in Appendix B.

2.2.2 Derivation of cover layer and import verification criteria

Under typical circumstances, in order to identify potential contaminants of concern (CoC), soil analytical data is screened against Land Quality Management Suitable 4 Use Levels (S4UL)[4,5] generic assessment criteria (GAC) for public open space – residential[6] (POSresi) and residential - with homegrown produce (Resi hgp)[7] end use.

However, in order to be conservative and reduce the potential for increasing the contaminant load on the site (via importation of material with high concentrations), some of the RMS verification criteria were derived using historic concentrations recorded at the site, i.e. lower than the S4UL GAC. This rationale is presented in Appendix C2 of the Remediation Statement. The criteria for boron and vanadium were based on "twice site-wide average" of concentrations recorded on the site.

For completeness, the topsoil concentrations have now also been screened against the S4UL GACs for both POSresi and Resihgp, with no exceedances recorded (including for the two compounds under consideration).

In addition, the mean concentrations for each compound were also calculated with the resulting concentrations below all the screening criteria, including the RMS verification criteria and the S4UL for POSresi and Resihgp.

A breakdown of the comparison for boron and vanadium is outlined in Table 2.1 below with the full screening spreadsheet provided in Appendix B.

Table 2.1: Boron and vanadium comparison against various screening criteria

Contaminant	Recorded Concentration (mg/kg)	UCL (mg/kg)	Mean Concentration (mg/kg)	Site Derived GAC (mg/kg)	S4UL GAC (POSresi)[8] mg/kg	S4UL GAC (Reshgp)[8] mg/kg
Boron	3.1	2.61	2.36	3.0	290	21,000
Vanadium	84	55.27	42.94	82	410	2000

Based on the above evidence, we can conclude that the topsoil utilised in the development is suitable for intended use with no detriment to human health.

2.3 Verification of Thickness of Clean Cover

There is a requirement to confirm that 600mm thickness of clean cover (i.e. imported topsoil) was installed within soft landscaping areas in Blocks A, B, C, D, E and F, as indicated in the RMS. Where laid on site won soils, a marker layer (e.g. terram) should be lain prior to topsoil being laid.

[4] LQM/CIEH S4Uls (2015) for Human Health Risk Assessment (Copyright Land Quality Management Limited reproduced with permission); publication number S4UL3759.

[5] Category 4 Screening Levels (C4SL) will sometimes be considered in screening contaminant concentrations but there are no C4SL values for a number of contaminants (including boron and vanadium) and therefore S4UL is generally utilised.

[6] This is the end use of the development based on conceptual site model submitted for Planning

[7] This is considered the most conservative S4UL GAC

[8] The screening criteria was developed with the following assumptions which have been changed from the CLEA default parameter set. Soil type is a sandy loam with an organic matter content of 1%. The is considered to be more conservative than the CLEA default of 6%.

The contractor has verified that the recommended 600mm thick topsoil was placed across the soft landscaping areas. Example photos are presented in Appendix D. The only exception to this is within the footprint of installed below ground utilities where a reduced thickness of topsoil has been installed (typically 300-450mm).

Site photographs showing the topsoil and marker layer placement is presented in Appendix D.

2.4 River Wall

The river wall schematic is presented in Appendix A. For completeness, it can be confirmed that the structural activity and the backfilling of site won soils has been undertaken (*these soils have already been confirmed as suitable for use as part of the main verification report – these soils results are presented in Appendix C for interest and ease*).

Site progress photos are presented in Appendix D. The hardstanding is to be installed, however the soils are suitable for use without this, thus the photos of the finished hardstanding is not considered essential to include within this report.

2.5 Closing Remark

This update of the addendum report marks the last in the series, as all topsoiling has been completed in line with the RMS. There are no further open matters related to contamination/remediation. This report, therefore, is the final piece to confirm that the site is suitable for use and should enable the discharge of any outstanding planning conditions.

Author:

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Kene Onwubuya

Reviewer:

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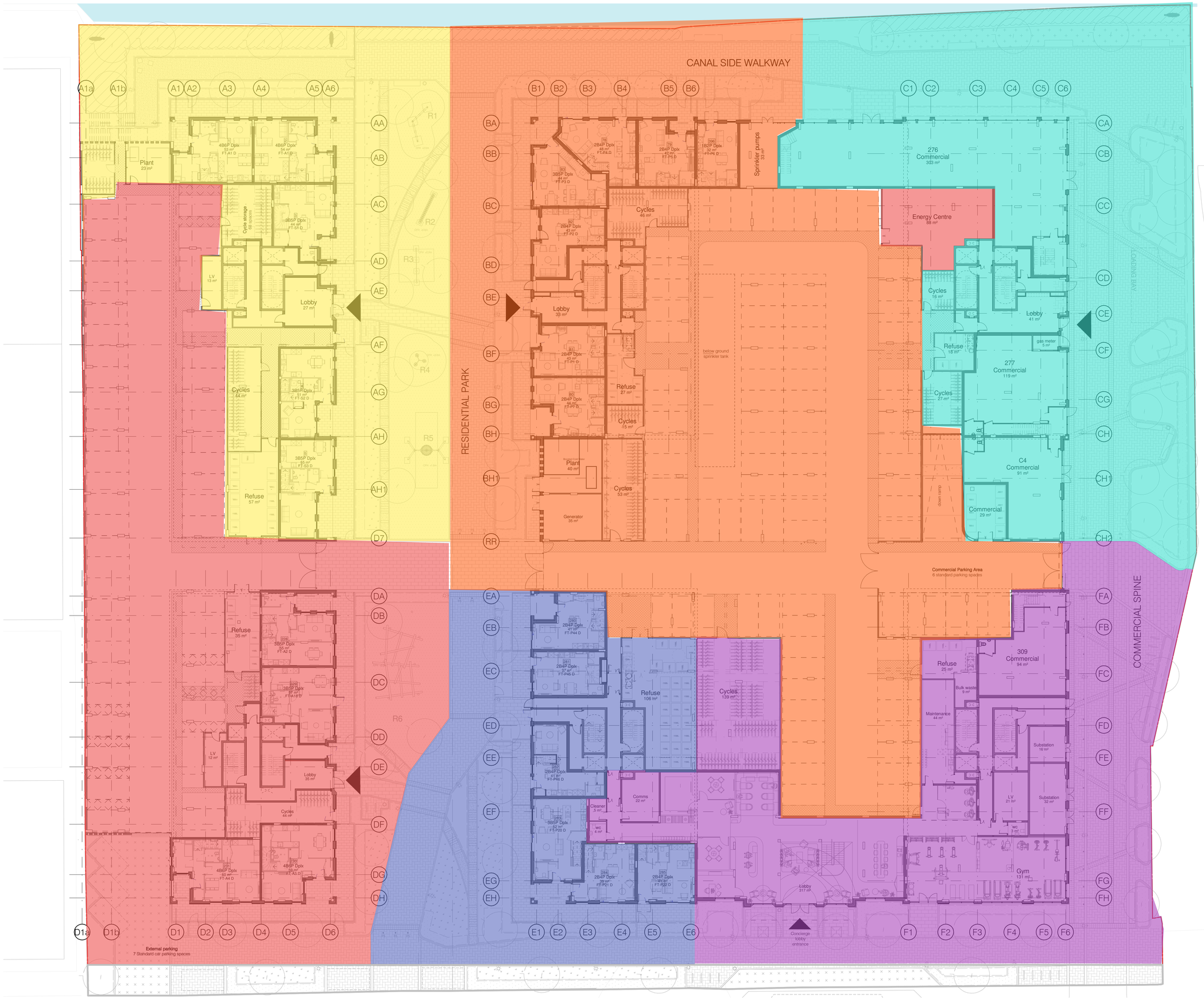
Dave Rutherford

Appendix A – Supporting Documentation



GENERAL NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS TO BE CHECKED ON SITE
3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT / CONTRACT ADMINISTRATOR

Scale 1:200

0 4 8 12m

0 12 24 36ft

Key

- Section 1 - Block F Show Flats
- Section 2 - Block F
- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A
- Section 8 - Block D & Energy Centre

Rev	Date	Description
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core

FRANK REYNOLDS ARCHITECTS
Hoxton,London N1 7LB T: +44 (0)20 7812 8454

CLIENT
Greystar

PROJECT
CTC - Stage 3B (SEP 2022)

DRAWING NAME
Stage 3B - Ground Floor - GA Plan

STATUS	DATE
TENDER	MAY 2022

DRAWN BY	CHECK BY	SCALE	SIZE
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JOB NO.	DRAWING NO.	REVISION
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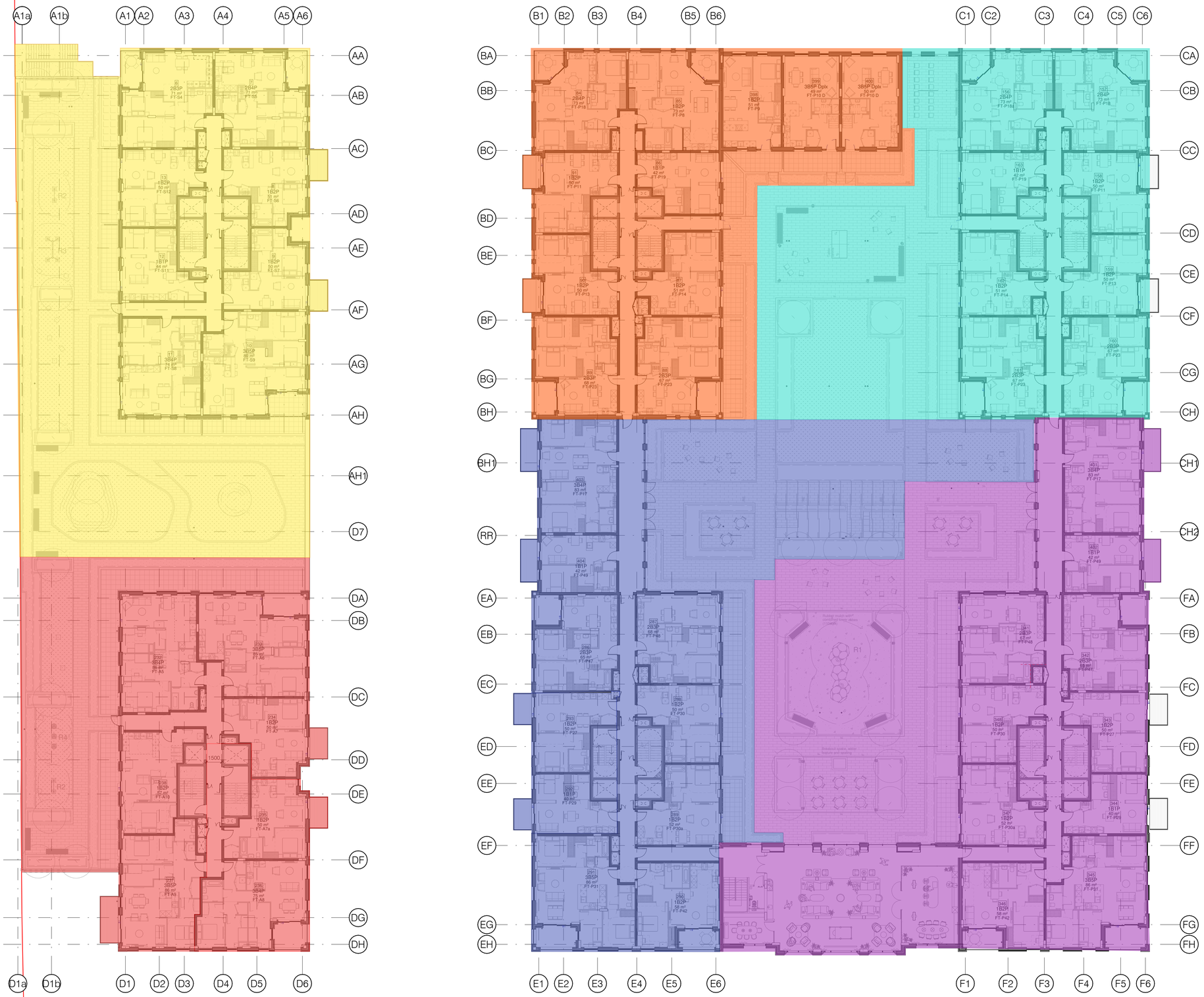
1140CTC-FRA-ZZ-00-DR-A-010101



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- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A
- Section 8 - Block D & Energy Centre

Rev	Date	Description	©
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core	

FRANK REYNOLDS ARCHITECTS

Hoxton,London N1 7LB T: +44 (0)20 7812 8454

CLIENT: Greystar

PROJECT: CTC - Stage 3B (2022)

DRAWING NAME: Stage 3B - First Floor

STATUS	DATE
TENDER	MAY 2022

DRAWN BY	CHECK BY	SCALE	SIZE
JM	AD	1 : 200	A1

JOB NO.	DRAWING NO.	REVISION
1140	010103	P01

1140CTC-FRA-ZZ-01-DR-A-010103

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Scale 1:200

0 4 8 12m

0 12 24 36ft

CANAL SIDE WALKWAY

RESIDENTIAL PARK

COMMERCIAL SPINE

LOADING BAY

14no. additional spaces will be provided with block E handover

Heras fencing

Greystar to manage bin movements

Traffic marshall controlled

Gate 1

Gate 2

Gate 3

Gate 4

Reuse hoarding from front

Refuse bin storage location on collection days

Refuse lorry parking location

Unloading area for resident move in managed by Main Contractor

Temporary footpath will be provided to all entrances.

Key

- Section 1 - Block F Show Flats
- Section 2 - Block F
- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A

Rev	Date	Description
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core

FRANK REYNOLDS ARCHITECTS
Hoxton,London N1 7LB T: +44 (0)20 7812 8454

CLIENT: Greystar

PROJECT: CTC - Stage 3B (SEP 2022)

DRAWING NAME: Stage 3B - Ground Floor - GA Plan

STATUS	DATE
TENDER	MAY 2022

DRAWN BY	CHECK BY	SCALE	SIZE
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JOB NO.	DRAWING NO.	REVISION
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1140CTC-FRA-ZZ-00-DR-A-010101

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Scale 1:200

0 4 8 12m

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Key

- Section 1 - Block F Show Flats
- Section 2 - Block F
- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A
- Section 8 - Block D & Energy Centre

Rev	Date	Description
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core

FRANK REYNOLDS ARCHITECTS
Hoxton,London N1 7LB T: +44 (0)20 7812 8454

CLIENT: Greystar

PROJECT: CTC - Stage 3B (2022)

DRAWING NAME: Stage 3B - Mezzanine Floor

STATUS	DATE
TENDER	MAY 2022

DRAWN BY	CHECK BY	SCALE	SIZE
JM	AD	1 : 200	A1

JOB NO.	DRAWING NO.	REVISION
1140	010102	P01

1140CTC-FRA-ZZ-01-DR-A-010102

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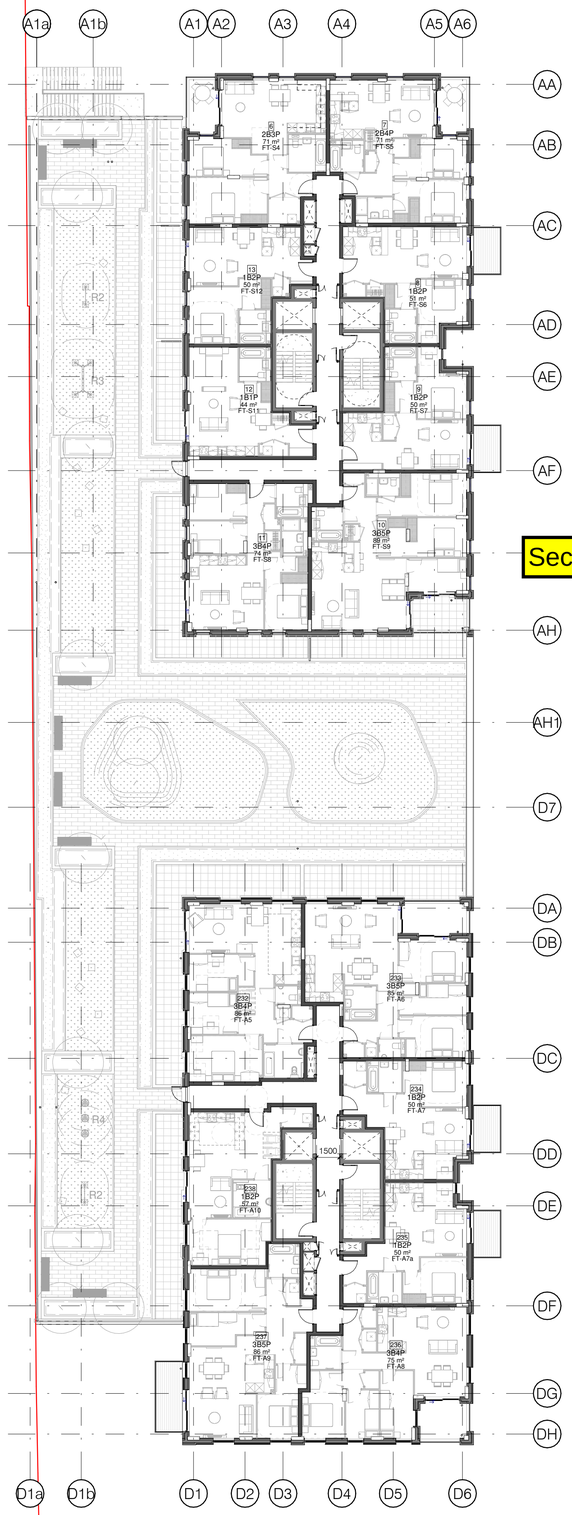

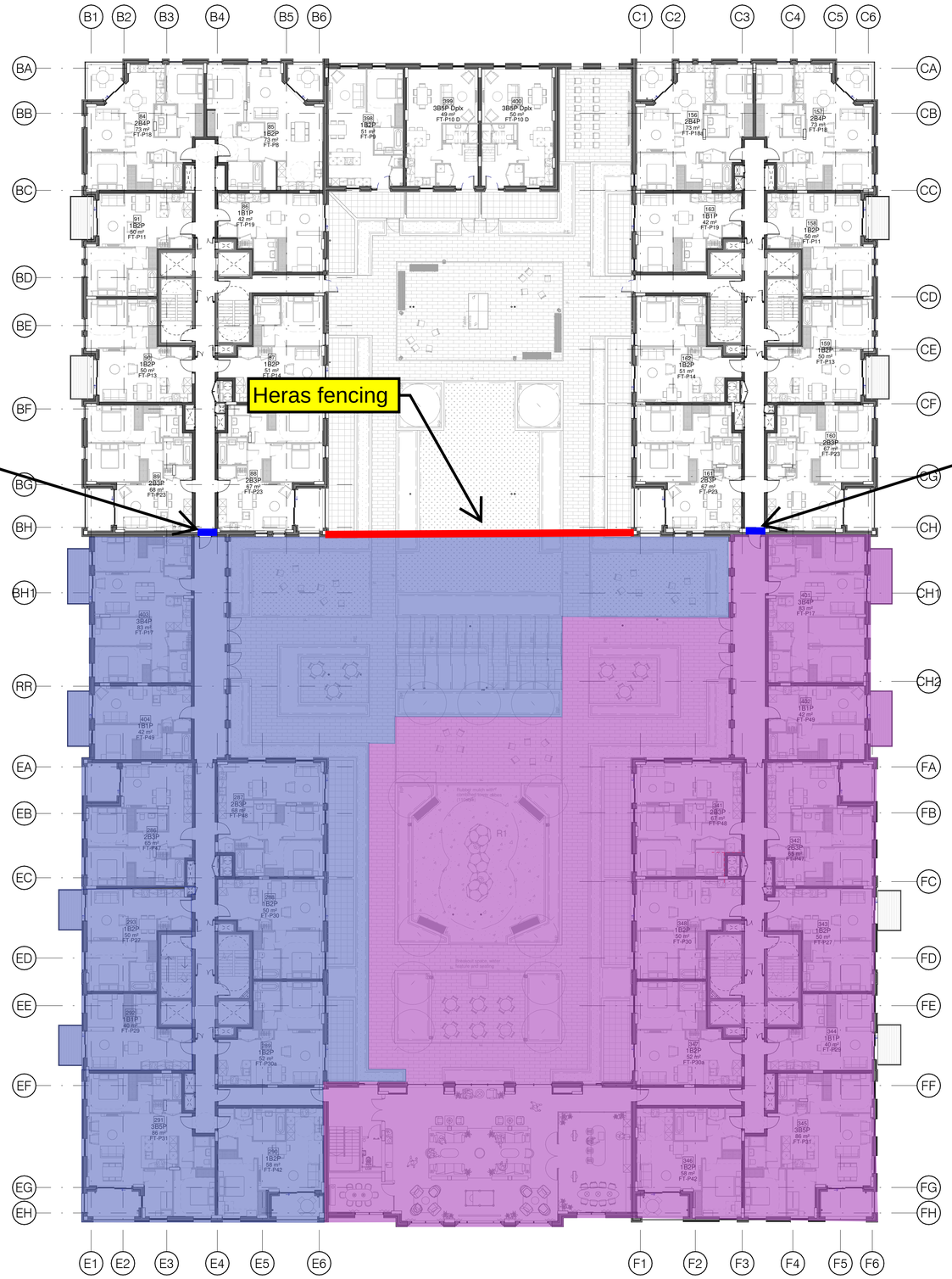

Key

- Section 1 - Block F Show Flats
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- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A
- Section 8 - Block D & Energy Centre

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P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core	

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CLIENT: Greystar

PROJECT: CTC - Stage 3B (2022)

DRAWING NAME: Stage 3B - First Floor

STATUS	DATE
TENDER	MAY 2022

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JM	AD	1 : 200	A1

JOB NO.	DRAWING NO.	REVISION
1140	010103	P01

1140CTC-FRA-ZZ-01-DR-A-010103

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Scale 1:200

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Key

- Section 1 - Block F Show Flats
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- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A
- Section 8 - Block D & Energy Centre

Rev	Date	Description
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core

FRANK REYNOLDS ARCHITECTS
Hoxton,London N1 7LB T: +44 (0)20 7812 8454

CLIENT: Greystar

PROJECT: CTC - Stage 3B (2022)

DRAWING NAME: Stage 3B - Second Floor

STATUS	DATE
TENDER	MAY 2022

DRAWN BY	CHECK BY	SCALE	SIZE
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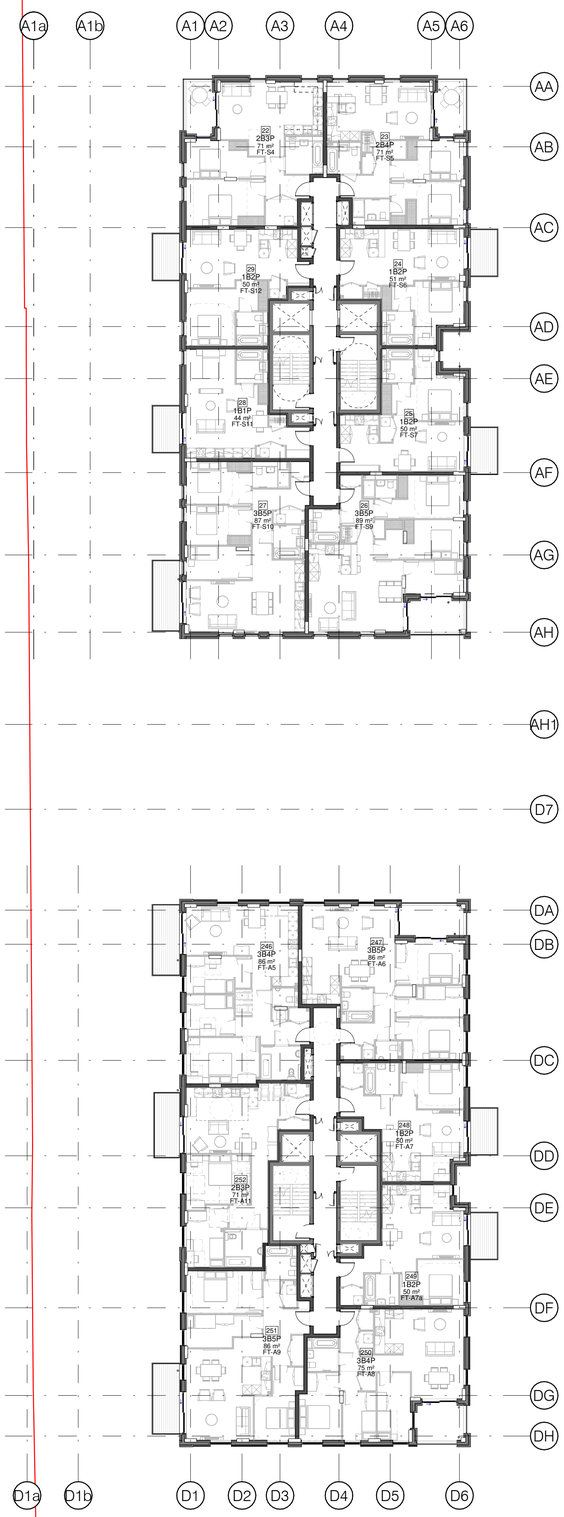

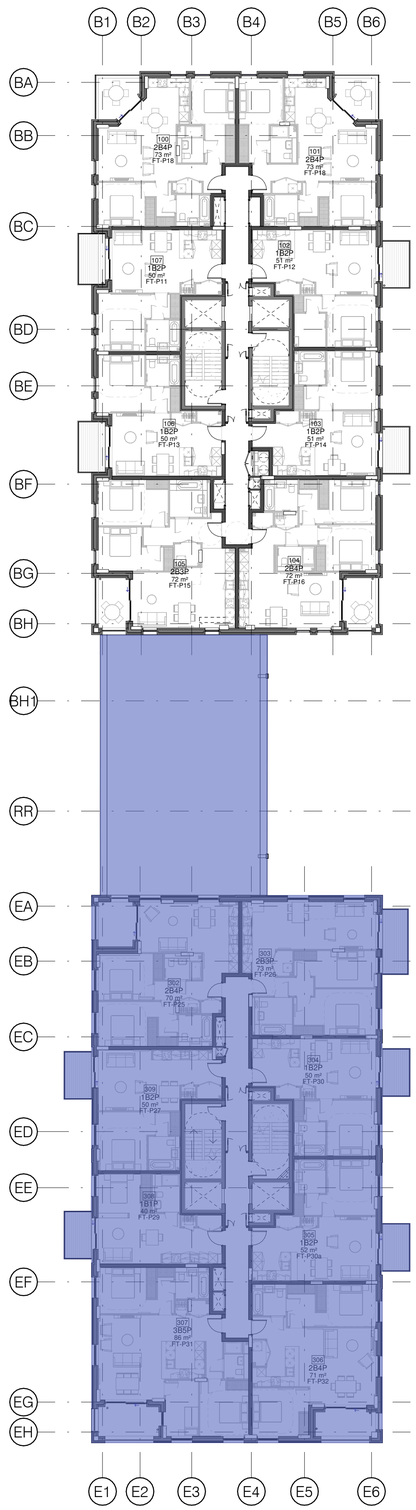

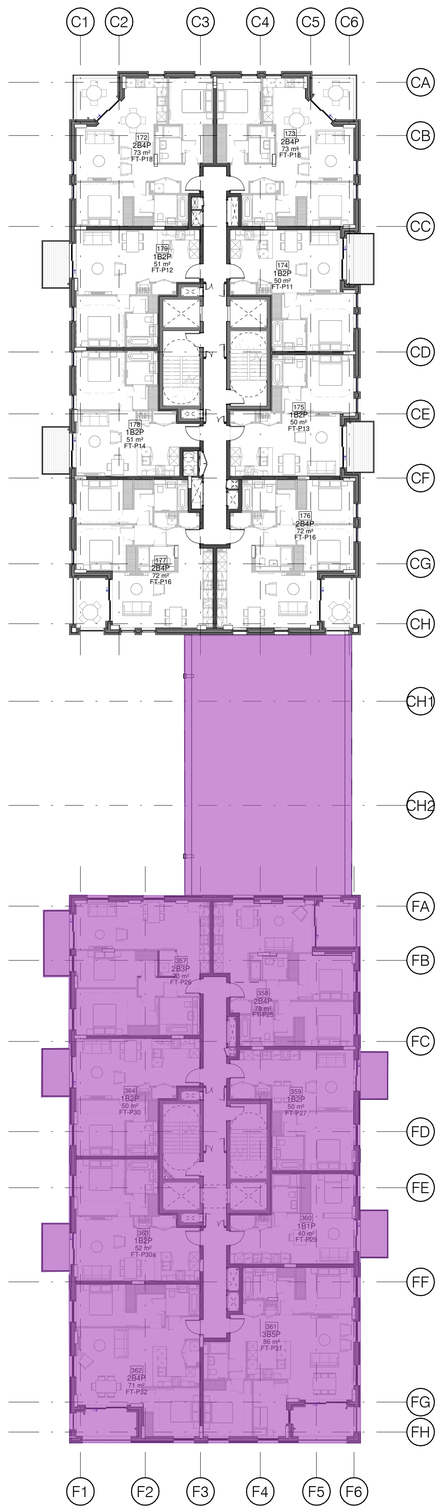

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0 4 8 12m

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- Section 3 - Block E
- Section 4 - Block C
- Section 5 - Block A Show Flats
- Section 6 - Block B
- Section 7 - Block A
- Section 8 - Block D & Energy Centre

Rev	Date	Description	©
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core	

FRANK REYNOLDS ARCHITECTS
Hoxton,London N1 7LB T: +44 (0)20 7812 8454

CLIENT: Greystar

PROJECT: CTC - Stage 3B (2022)

DRAWING NAME: Stage 3B - Third Floor

STATUS	DATE
TENDER	MAY 2022

DRAWN BY	CHECK BY	SCALE	SIZE
JM	AD	1 : 200	A1

JOB NO.	DRAWING NO.	REVISION
1140	010105	P01

1140CTC-FRA-ZZ-03-DR-A-010105

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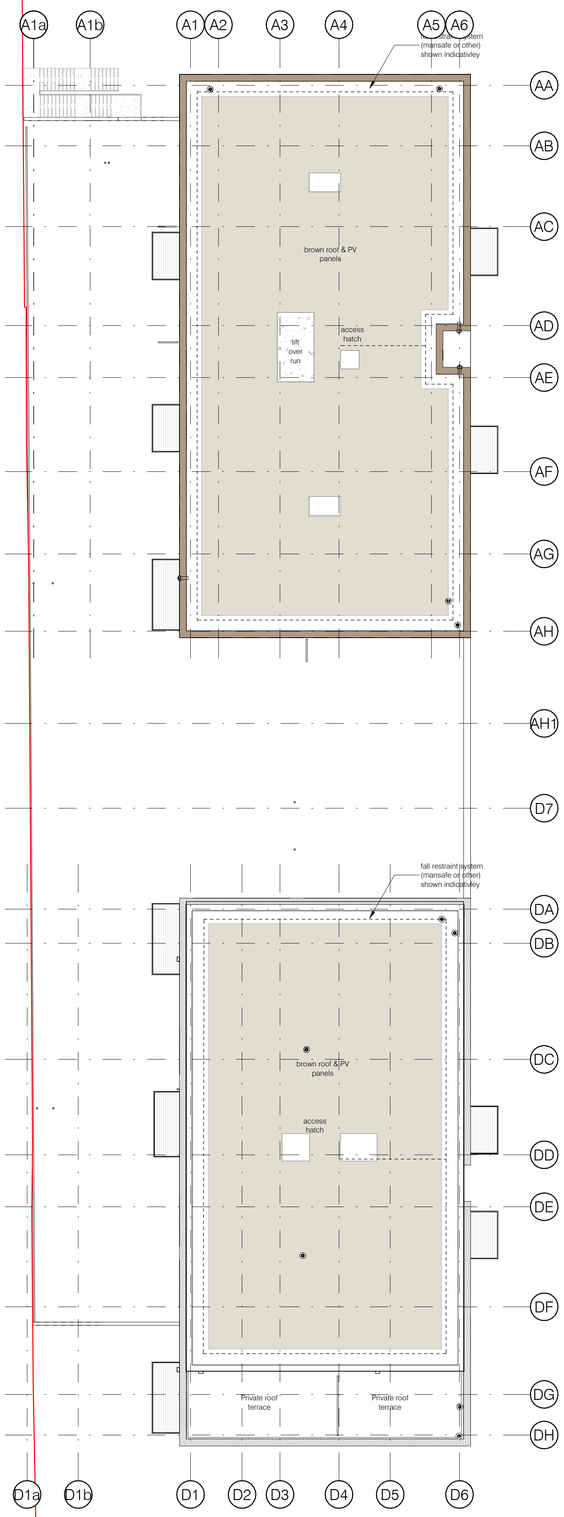

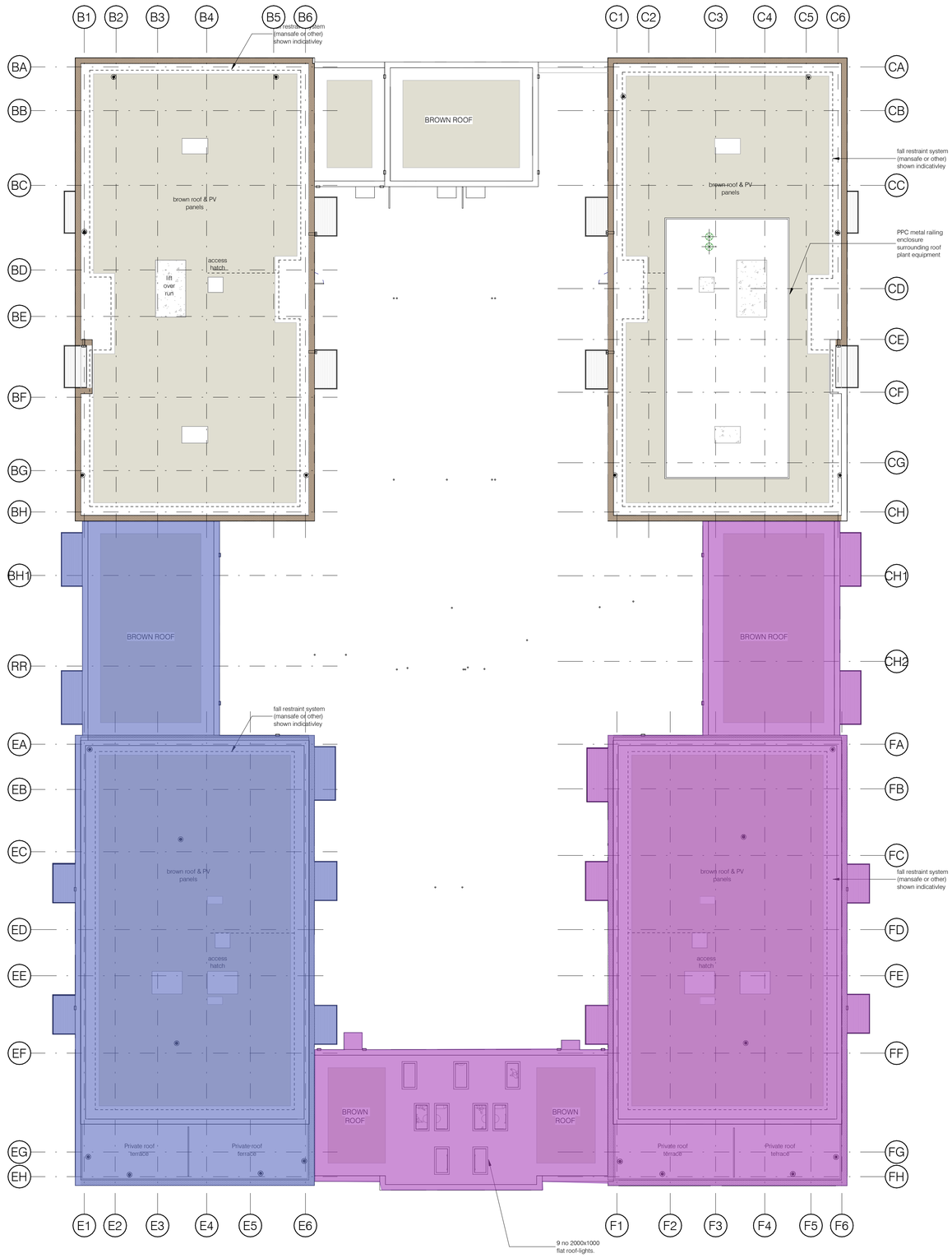

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Rev	Date	Description
P01	09.09.2022	Stage 3B Issue - Scheme adjusted to 2 stairs per core

FRANK REYNOLDS ARCHITECTS
Hoxton,London N1 7LB
T: +44 (0)20 7812 8454

CLIENT: Greystar

PROJECT: CTC - Stage 3B (2022)

DRAWING NAME: Stage 3B - Roof Plan

STATUS	DATE
TENDER	MAY 2022

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JM	AD	1 : 200	A1

JOB NO.	DRAWING NO.	REVISION
1140	010112	P01

1140CTC-FRA-ZZ-RF-DR-A-010112

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	25-02435-2		
Initial Date of Issue:	10-Feb-2025	**Date of Re-Issue:**	10-Feb-2025
Re-Issue Details:	This report has been revised and directly supersedes 25-02435-1 in its entirety		
Client	Springbridge Direct Ltd		
Client Address:	Oxford Road Denham Middlesex UB9 4DF		
Contact(s):	Tom Hawkins		
Project	Springbridge Yard		
Quotation No.:	Q25-37158	**Date Received:**	24-Jan-2025
Order No.:		**Date Instructed:**	24-Jan-2025
No. of Samples:	2		
Turnaround (Wkdays):	10	**Results Due:**	06-Feb-2025
Date Approved:	07-Feb-2025	**Subcon Results Due:**	06-Feb-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: Springbridge Yard

Client: Springbridge Direct Ltd			**Chemtest Job No.:**			25-02435
Quotation No.: Q25-37158			**Chemtest Sample ID.:**			1922378
Order No.:			Client Sample Ref.:			Topsoil
			Client Sample ID.:			Top
			Sample Type:			SOIL
			Date Sampled:			22-Jan-2025
			Time Sampled:			11:26
			Asbestos Lab:			DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type		U	2192		N/A	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected
Moisture		N	2030	%	0.020	17
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	Stones
Soil Texture		N	2040		N/A	Sand
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	1.1
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	1.4
Cadmium		M	2455	mg/kg	0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	3.2
Copper		M	2455	mg/kg	0.50	3.2
Mercury		M	2455	mg/kg	0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	2.0
Lead		M	2455	mg/kg	0.50	6.0
Selenium		M	2455	mg/kg	0.25	< 0.25
Zinc		M	2455	mg/kg	0.50	14
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50

Results - Soil

Project: Springbridge Yard

Client: Springbridge Direct Ltd				**Chemtest Job No.:**		25-02435
Quotation No.: Q25-37158				**Chemtest Sample ID.:**		1922378
Order No.:				Client Sample Ref.:		Topsoil
				Client Sample ID.:		Top
				Sample Type:		SOIL
				Date Sampled:		22-Jan-2025
				Time Sampled:		11:26
				Asbestos Lab:		DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	< 1.0
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	3.5
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	25
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	17
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	30
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	47
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0

Results - Soil

Project: Springbridge Yard

Client: Springbridge Direct Ltd				**Chemtest Job No.:**		25-02435
Quotation No.: Q25-37158				**Chemtest Sample ID.:**		1922378
Order No.:				Client Sample Ref.:		Topsoil
				Client Sample ID.:		Top
				Sample Type:		SOIL
				Date Sampled:		22-Jan-2025
				Time Sampled:		11:26
				Asbestos Lab:		DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	11
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	6.0
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	31
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	17
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	48
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	47
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	95
Benzene		M	2760	µg/kg	1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0
Nitrogen (Total)		SN	2790	%	0.10	0.23
Naphthalene		M	2800	mg/kg	0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10

Results - Soil

Project: Springbridge Yard

Client: Springbridge Direct Ltd				**Chemtest Job No.:**		25-02435
Quotation No.: Q25-37158				**Chemtest Sample ID.:**		1922378
Order No.:				Client Sample Ref.:		Topsoil
				Client Sample ID.:		Top
				Sample Type:		SOIL
				Date Sampled:		22-Jan-2025
				Time Sampled:		11:26
				Asbestos Lab:		DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Fluorene		M	2800	mg/kg	0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10
Anthracene		M	2800	mg/kg	0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	< 0.10
Pyrene		M	2800	mg/kg	0.10	< 0.10
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10

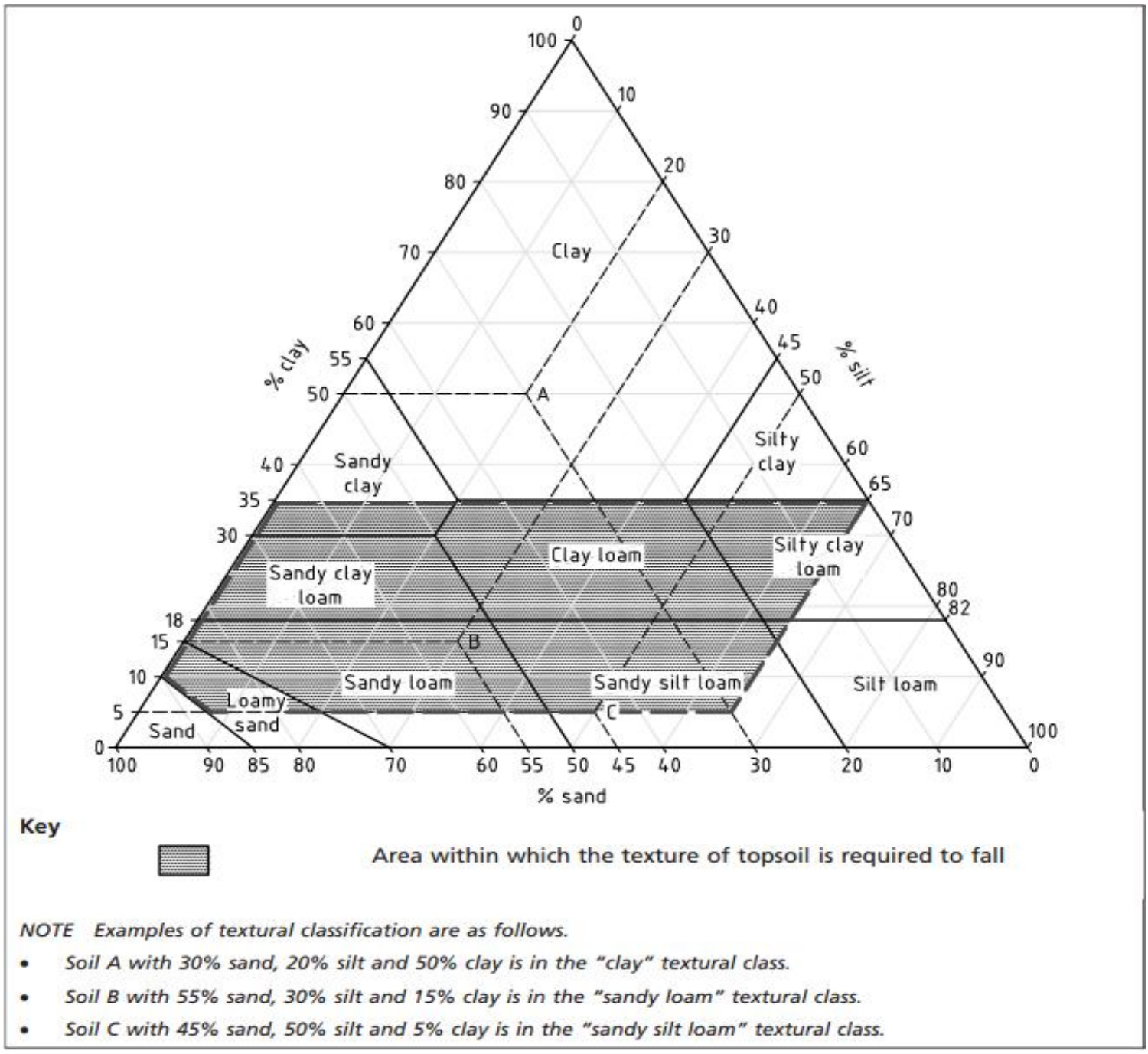
Results - Topsoil Report

BS3882:2015

Chemtest Job No.: 25-02435
Chemtest Sample ID.: 1922378
Client Sample Ref.: Topsoil
Sample Location:
Client Sample ID.: Top
Top Depth (m):
Bottom Depth (m):
Date Sampled: 22-Jan-2025
Time Sampled:

Parameter	Units	Multipurpose Range			Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)		
Texture							**Acid**	**Low F**	**Calc.**
Clay content (Sub Contracted)	%				6.0				
Silt content (Sub Contracted)	%				11.0				
Sand content (Sub Contracted)	%				84				
Soil texture class		See Attached Chart			Loamy Sand	YES			
Mass Loss on Ignition									
Clay 5-20%		3.0-20			3.1	YES	YES	YES	YES
Clay 20-35%		5.0-20							
Stone Content	**% m/m**								
>2mm (Sub Contracted)		0-30			4.2	YES			
>20mm (Sub Contracted)		0-10			0.70	YES			
>50mm (Sub Contracted)		0			< 0.10	YES			
Soil pH value		5.5-8.5			8.2	YES	NO	YES	YES
Carbonate (Calcareous only)	%				1.2				YES
Electrical Conductivity	µS/cm	If >3300 do ESP			3200	YES			
Available Nutrient Content									
Nitrogen %		>0.15			0.23	YES	YES		YES
Extractable phosphorus	mg/l	16-140			110	YES	YES	NO	YES
Extractable potassium	mg/l	121-1500			1400	YES	YES		YES
Extractable magnesium	mg/l	51-600			220	YES	YES		YES
Carbon : Nitrogen Ratio		<20:1			7.4/1	YES	YES	YES	YES
Exchangeable sodium	**%**	<15			4.2				
Available Calcium	mg/l				1700				
Available Sodium	mg/l				160				
Phytotoxic Contaminants (by soil pH)		**< 6.0**	**6.0-7.0**	**> 7.0**					
Zinc (Nitric Acid extract)	mg/kg	<200	<200	<300	38	YES			
Copper (Nitric Acid extract)	mg/kg	<100	<135	<200	8.6	YES			
Nickel (Nitric Acid extract)	mg/kg	<60	<75	<110	5.4	YES			
Visible Contaminants	**% mm**								
>2mm		<0.5			0.000	YES			
….. of which plastics		<0.25			0.000	YES			
….. man-made sharps		zero in 1kg			0.000	YES			

Topsoil: BS3882:2015
Texture Classification Chart



Key

Area within which the texture of topsoil is required to fall

NOTE Examples of textural classification are as follows.

- *Soil A with 30% sand, 20% silt and 50% clay is in the "clay" textural class.*
- *Soil B with 55% sand, 30% silt and 15% clay is in the "sandy loam" textural class.*
- *Soil C with 45% sand, 50% silt and 5% clay is in the "sandy silt loam" textural class.*

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2020	Electrical Conductivity	Electrical conductivity (EC) of aqueous extract or calcium sulphate solution for topsoil	Measurement of the electrical resistance of a 2:1 water/soil extract.	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2115	Total Nitrogen in Soils	Nitrogen	Determination by elemental analyser	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2260	Carbonate	Carbonate	Titration	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2400	Cations	Cations	ICP-MS	
2420	Phosphate	Phosphate	Spectrophotometry - Discrete analyser	
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2620	LOI 440	LOI 440 Trommel Fines	Determination of the proportion by mass that is lost from a soil by ignition at 440°C.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

Report Information

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Jason Lock
Boughton Loam Ltd
Telford Way Industrial Estate
Telford Way
Kettering
Northamptonshire NN16 8UN

15th January 2025
Our Ref: TOHA/25/1658/1/SS
Your Ref: PO 9765

Dear Sirs

Topsoil Analysis Report: Intensive Roof Garden Substrate

We have completed the analysis of the soil sample recently submitted, referenced *IN1 Green Roof Substrate,* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the material for use as an intensive lightweight substrate in a rooftop or podium garden environment.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the Boughton Loam Ltd site.

SAMPLE EXAMINATION

The sample was described as a dark brown (Munsell Colour 10YR 3/3), dry, friable to non-plastic, slightly calcareous SAND with a single grain structure. The sample was free of stone-sized material, with the exception of frequent lightweight expanded clay aggregates (leca) particles. The sample contained a moderate proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Plate 1: IN1 Green Roof Substrate Sample

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- saturated hydraulic conductivity;
- bulk density (as received, saturated @ field capacity);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The less than 2mm fraction fell into the *sand* texture class, with a predominance of medium sand (0.25-0.50mm). This indicates a narrow overall particle size distribution, which is beneficial for roof garden environments as good porosity levels are usually maintained in a consolidated state and the risk of particle interpacking is minimised.

The 'stone' sized fraction (>2mm) of the sample was very low (by mass), and comprised entirely of lightweight expanded clay aggregate (leca) up to 20mm in diameter. The proportion of stone sized particles recorded would be considered acceptable for an intensive roof garden substrate.

Saturated Hydraulic Conductivity and Bulk Density

The saturated hydraulic conductivity of the sample was high (143 mm/hour) and the soil would be described as 'free-draining'. This indicates that the substrate is sufficiently permeable and should demonstrate adequate drainage performance for use in rooftop or podium garden environments. Soils used in these environments need to have satisfactory drainage performance to avoid stagnation (and therefore excess weight) and to enable efficient conveyance of water into the drainage system. The soil is free-draining and may therefore benefit from additional irrigation input in dry periods, depending on the nature of the recipient scheme.

The sample displayed a bulk density at Field Capacity of 1.55 Mg/m^3, which is reasonably low compared to that of standard topsoil. The suitability of the bulk density result should be confirmed by the project engineer for the recipient site.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.3). This pH value would be considered suitable for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderately high; however, the exchangeable sodium percentage was low, indicating low sodium risk. The source of the elevated soluble salts in this instance is likely to be from soluble potassium (see comments below).

The electrical conductivity value by $CaSO_4$ extract (3833 µS/cm) exceeded our maximum recommended value (3300 µS/cm).

Organic Matter and Fertility Status

The sample was adequate to well supplied with organic matter and major plant nutrients. The sample contained a high level of extractable potassium (2158 mg/l) that exceed our recommended value (1500 mg/l).

High potassium levels such as that found in this sample can also have an antagonistic effect on other soil nutrients, particularly magnesium. This can reduce nutrient uptake, leading to plant stress, particularly for establishing specimens.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels* (C4SLs) *for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the material for use as an intensive lightweight substrate in a roof garden or podium landscape environment.

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, saline, slightly calcareous sand with a weakly developed structure and frequent 'leca' particles. The sample was found to be free draining. The sample was adequately to well supplied with organic matter and major plant nutrients, with a high level of extractable potassium. Of the potential contaminants determined, none exceeded their respective guideline values.

Based on our findings, the substrate represented by this sample appears to be a little rich on account of its high potassium content and slightly elevated electrical conductivity. The source of the elevated potassium content could be associated with the proportion and/or the type of compost in the blend. Potassium is highly soluble, and the level is likely to fall when the material is wetted by rain or irrigation water. However, in this instance we recommend reviewing the quality and quantity of compost that has been used.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully

H.MacRae

A.Cross

Harriet MacRae
BSc MSc
Soil Scientist

Aaron Cross
BSc MSc MISoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	**Boughton Loam Ltd**
Project:	**Intensive Roof Garden Substrate**
Job:	**Topsoil Analysis**
Date:	**15/01/2025**
Job Ref No:	**TOHA/25/1658/1/SS**

Sample Reference			**IN1 Green Roof Substrate**
		Accreditation	
Clay (<0.002mm)	%	UKAS	4
Silt (0.002-0.063mm)	%	UKAS	7
Very Fine Sand (0.05-0.15mm)	%	UKAS	7
Fine Sand (0.15-0.25mm)	%	UKAS	20
Medium Sand (0.25-0.50mm)	%	UKAS	45
Coarse Sand (0.50-1.0mm)	%	UKAS	15
Very Coarse Sand (1.0-2.0mm)	%	UKAS	2
Total Sand (0.05-2.0mm)	%	UKAS	89
Texture Class (UK Classification)	--	UKAS	S
Stones (2-20mm)	% DW	GLP	0
Stones (20-50mm)	% DW	GLP	0
Stones (>50mm)	% DW	GLP	0
Saturated Hydraulic Conductivity (m)	mm/hr	A2LA	143
Bulk Density (as Received)	Mg/m^3	UKAS	1.29
Bulk Density (Saturated @ Field Capacity)	Mg/m^3	UKAS	1.55
pH Value (1:2.5 water extract)	units	UKAS	8.3
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	1576
Electrical Conductivity (1:2 $CaSO_4$ extract)	uS/cm	UKAS	3833
Exchangeable Sodium Percentage	%	UKAS	3.2
Organic Matter (LOI)	%	UKAS	5.4
Total Nitrogen (Dumas)	%	UKAS	0.20
C : N Ratio	ratio	UKAS	16
Extractable Phosphorus	mg/l	UKAS	93
Extractable Potassium	mg/l	UKAS	2158
Extractable Magnesium	mg/l	UKAS	143
Total Arsenic (As)	mg/kg	MCERTS	22
Total Cadmium (Cd)	mg/kg	MCERTS	< 0.2
Total Chromium (Cr)	mg/kg	MCERTS	33
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	< 1.8
Total Copper (Cu)	mg/kg	MCERTS	5
Total Lead (Pb)	mg/kg	MCERTS	7
Total Mercury (Hg)	mg/kg	MCERTS	< 0.3
Total Nickel (Ni)	mg/kg	MCERTS	12
Total Selenium (Se)	mg/kg	MCERTS	< 1.0
Total Zinc (Zn)	mg/kg	MCERTS	38
Water Soluble Boron (B)	mg/kg	MCERTS	3.3
Total Cyanide (CN)	mg/kg	MCERTS	< 1.0
Total (mono) Phenols	mg/kg	MCERTS	< 1.0
Naphthalene	mg/kg	MCERTS	< 0.05
Acenaphthylene	mg/kg	MCERTS	< 0.05
Acenaphthene	mg/kg	MCERTS	< 0.05
Fluorene	mg/kg	MCERTS	< 0.05
Phenanthrene	mg/kg	MCERTS	< 0.05
Anthracene	mg/kg	MCERTS	< 0.05
Fluoranthene	mg/kg	MCERTS	0.06
Pyrene	mg/kg	MCERTS	0.05
Benz(a)anthracene	mg/kg	MCERTS	< 0.05
Chrysene	mg/kg	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	< 0.05
Dibenzo(a,h)anthracene	mg/kg	MCERTS	< 0.05
Benzo(g,h,i)perylene	mg/kg	MCERTS	< 0.05
Total PAHs (sum USEPA16)	mg/kg	MCERTS	< 0.80
Aliphatic TPH >C5 - C6	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	< 0.010
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	< 8.0
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	< 8.0
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Aromatic TPH >C5 - C7	mg/kg	MCERTS	< 0.010
Aromatic TPH >C7 - C8	mg/kg	MCERTS	< 0.010
Aromatic TPH >C8 - C10	mg/kg	MCERTS	< 0.020
Aromatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aromatic TPH >C12 - C16	mg/kg	MCERTS	5
Aromatic TPH >C16 - C21	mg/kg	MCERTS	11
Aromatic TPH >C21 - C35	mg/kg	MCERTS	< 10
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	16
Benzene	mg/kg	MCERTS	< 0.005
Toluene	mg/kg	MCERTS	< 0.005
Ethylbenzene	mg/kg	MCERTS	< 0.005
p & m-xylene	mg/kg	MCERTS	< 0.008
o-xylene	mg/kg	MCERTS	< 0.005
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	< 0.005

S = SAND

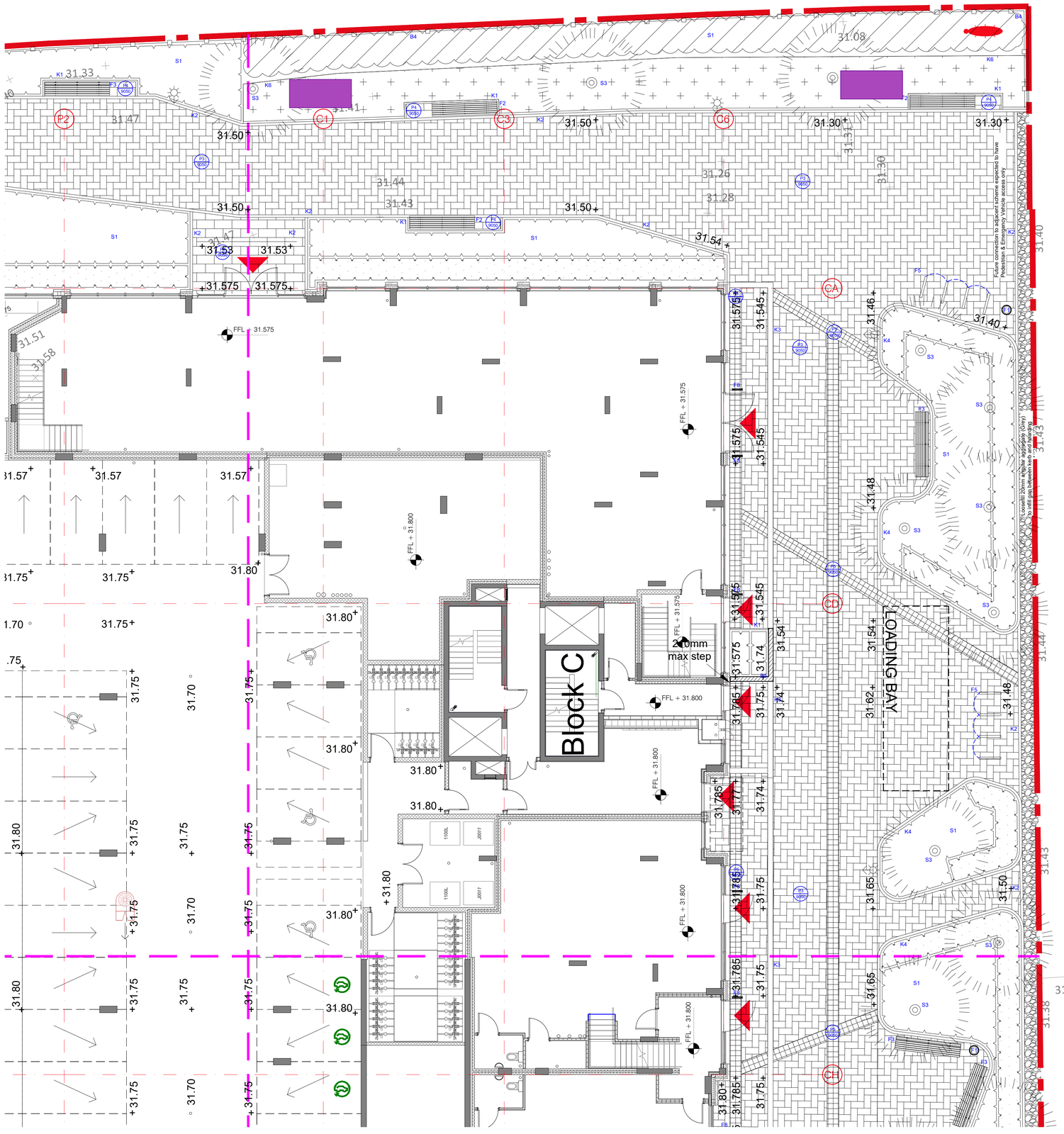
Visual Examination

The sample was described as a dark brown (Munsell Colour 10YR 3/3), dry, friable to non-plastic, slightly calcareous SAND with a single grain structure. The sample was free of stone-sized material, with the exception of frequent lightweight expanded clay aggregates (leca) particles. The sample contained a moderate proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

H.MacRae

Harriet MacRae
BSc MSc
Soil Scientist

Results of analysis should be read in conjunction with the report they were issued with



KEY

Site Boundary

Adoptable Highway Boundary

Proposed tree (with paving - filled tree grille)
(Refer to Planting Plans for spec.)
Extent of below-ground geogrid root-crate system and vents indicated for hard landscaped areas

Proposed tree in soft landscape
(Refer to Planting Plans for spec.)

Proposed hedge planting with mulch layer

Proposed shrub planting with mulch layer

Proposed turf to Courtyard / Open Space

Proposed Wildflower Meadow

Hard Landscape *(For paving details below refer to CTC-LDA-XX-XX-DR-L-09050 / 09051)*

P1 - Vehicular carriageway.
Ref: Proposed Black DBM to Adoptable Standards.

P2 - Pedestrian carriageway.
Ref: Proposed Black DBM to Adoptable Standards.

P3 - PCC aggregate block for vehicle & pedestrian areas (permeable) -
Ref: Hydropave Fusion; Size: 200×100×80mm; 90° Herringbone
Colour: Silver (50%), Mid Grey (50%)

P4 - PCC aggregate block for vehicle thoroughfares & focal entrance areas (permeable) -
Ref: Hydropave Fusion; Size: 200×100×80mm; 90° Herringbone; Colour: Graphite

P5 - PCC Textured Sett to Decorative Banding with mortar bed & joints -
Ref: Hydropave Fusion; Size: 200×100×80mm; Staggered 50/50;
Colour: Silver (border), Mid Grey (middle)

P6 - PCC aggregate pavers to private frontages (non-permeable) -
Ref: Fusion Size: 600×300×60mm; Staggered stretcher 50/50
Colour: Silver (50%), Mid Grey (50%)

P7 - Resin bound gravel to railway 'aggregate' element
Ref: Addaset; Colour: 'Midnight Grey 6mm'

P8- Rubber mulch play surface to Central Play Courtyard
Ref: Rhino Mulch; Colour: 'Earth Tone'

P9 - Resin bound gravel to railway 'sleeper' element
Ref: Addaset; Colour: 'XXX 6mm'

Kerbs *(For all details below refer to CTC-LDA-XX-XX-DR-L-09052)*

K1 - PCC textured kerb - 75mm - (flush - transitions soft/hard, hard/hard)
K2 - PCC textured kerb - 125mm - (flush - transitions soft/hard, hard/hard)
K3 - PCC textured kerb - 255mm - (flush - transitions along vehicular routes)
K4 - PCC textured kerb - 125mm - (125mm upstand for planters)
K5 - PCC textured kerb - 255mm - (25mm upstand along car park access routes)
K6 - Timber edge to soft planting and grassed area
K7 - Bespoke Corten faux rail edge to railway feature.
PCC textured kerb colour to be silver, black specked

Boundary treatments *(For all details below refer to CTC-LDA-XX-XX-DR-L-09053)*

B1 - Metal railing to private frontages (1.2m high)
B2 - Secure railing & gate to semi-private space north of block A (2.1m high)
B3 - Metal gate to private frontages (1.2m high)
B4 - Timber post and 3 rail fence to canal edge (1.2m high)
B5 - Brick retaining wall (max. 450mm)

Street Furniture *(For all details below refer to CTC-LDA-XX-XX-DR-L-09054)*

F1 - Litter Bin: Powercoated galvanised steel (80ø) *(Ref. S45 TA Litter Bin by OMOS)*
F2 - Timber bench to communal seating area (10no), 3m wide *(Ref. QUAY by Factory Furniture)*
F3 - Timber seat to communal seating area (12no), 3m wide *(Ref. QUAY by Factory Furniture)*
F4 - Timber cube bollard (informal seat) *(Ref. Timber cube by Woodscape)*
F5 - Sheffield style cycle hoop (21no) *(Ref. Sheffield stand by Broxap, PCC RAL 9004)*
F6 - Removable bollard (12no) *(Ref. Autopa, Removable Bollard 101mm)*
F7 - Static bollard (15no) *(Ref. Autopa, Fixed Bollard 114mm)*
F8 - Door guard (16no) *(Ref. Root fixed, PCC RAL 9004)*

Indicative Lighting (To be designed by Specialist Lighting Consultant)

Lighting columns (4m post)

Play Items *(For all details below refer to CTC-LDA-XX-XX-DR-L-09057 / 09058)*

R1 - Obstacle Course Climbing Wall by HAGS
R2 - Equilibra Natural by HAGS
R3 - Somersault Volta by HAGS
R4 - Inclusive Roundabout Spinnee by HAGS
R5 - Swing Goro by HAGS
R6 - Clamber Stack 3 by HAGS

Ecological Enhancements at ground level
(Refer to Middlemarch Environmental Ltd Preliminary Ecological Appraisal - RT-MME-129768-01)

Partially buried, upstanding logs in a cluster for deadwood habitat for the benefit of invertebrates (3nos)

Note.
Site levels to Infrastructure Design Ltd design (Jan 2025)
Ref: CTC-ISS-XX-XX-DR-C-923051 C02

Levels shown alongside Clayton Road as per approved 5278 drawing by LTP (July 2023)
Ref: LTP 3770 C2 01 01 REV E 11 07 23 Setting Out

CDM Regulations 2015

ALL current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environmental Assessment Record.

notes

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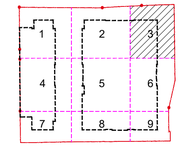
- Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.
- Do not scale drawing. Figured dimensions to be worked to in all cases.

4 3 2 1 0 2 4 6m



FINAL	FINAL CONSTRUCTION ISSUE	16.05.25
C02	UPDATED ARCHITECT PLAN & HIGHWAYS PLAN RECEIVED	21.02.25
C01	ISSUED FOR CONSTRUCTION	14.02.25
P01	ISSUED FOR TEAM COORDINATION	15.12.23
REV	AMENDMENT	DATE

Client:
GREYSTAR™
The Global Leader in Rental Housing

Project:
CROWN TRADING CENTRE,
HAYES, LONDON

Title:
GENERAL ARRANGEMENT 03

Scale:
1 : 100 | A1

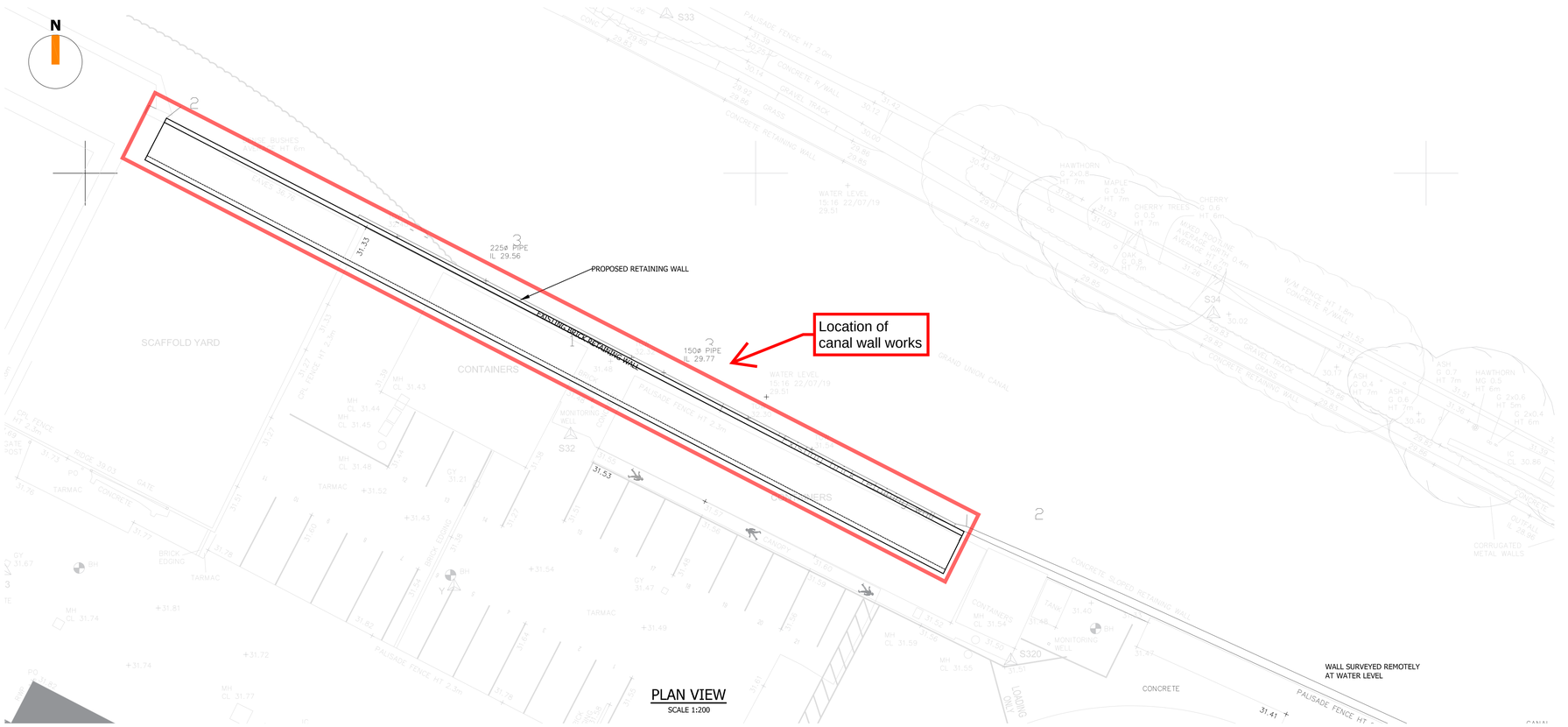
Date SEPT 2023
Drawn DT
Checked PW

L.D.A
LANDSCAPE DESIGN ARCHITECTURE
17a Cannon Hill Rd
Coventry
CV4 7AZ
Tel: 02476 696866 Mob: 07977 483787
info@landscapedesignarchitecture.co.uk

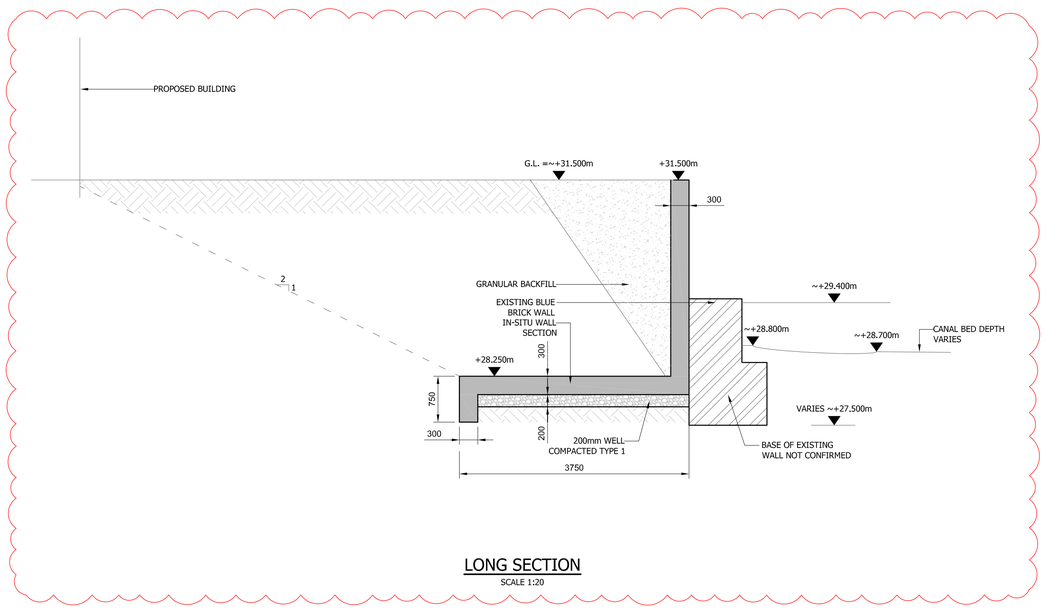
Drawing no.
CTC-LDA-XX-XX-DR-L-09013

LDA Job no. L1115

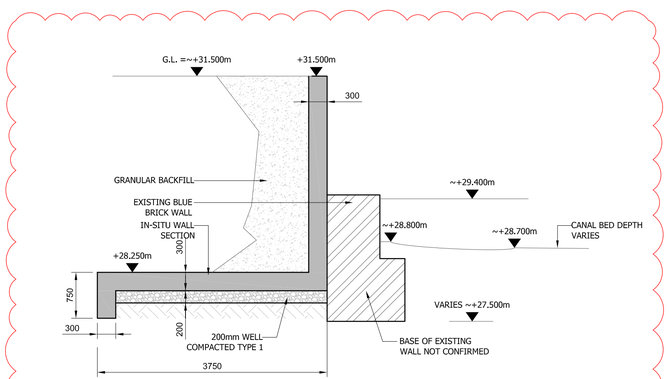
Revision. FINAL



PLAN VIEW
SCALE 1:200



LONG SECTION
SCALE 1:20



WALL SECTION
SCALE 1:20

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm). ALL LEVELS ARE IN METRES.
2. DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS, THE SPECIFICATION AND THE CONTRACT DOCUMENTS.
4. ALL WORK IS TO COMPLY WITH THE RELEVANT EUROCODES, CODES OF PRACTICE AND THE BUILDING REGULATIONS.
5. ALL DIMENSIONS ARE TO BE VERIFIED BY CONTRACTOR ON SITE. ALL DISCREPANCIES SHOULD BE REPORTED TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORKS.
6. ALL CONCRETE TO BE GRADE C40/50 UNLESS NOTED OTHERWISE. ALL COLUMNS TO BE C50/60 U.N.O.
7. NO CHASING OF CONCRETE WILL BE PERMITTED.
8. CONTRACTOR TO ALLOW FOR CO-ORDINATION OF BUILDERSWORK REQUIREMENTS FOR SERVICES SO THAT HOLES, SLEEVES ETC. CAN BE CAST INTO ALL NEW CONCRETE WORK. NO POST DRILLING OF CONCRETE FOR SERVICE HOLES GREATER THAN 20mm WILL BE PERMITTED.
9. FOR GENERAL NOTES REFER TO DRAWING: JR006098-ISS-XX-ZZ-SP-S-7000

REV	DATE	DRAWN/CHK	REVISION INFO
T01	27.03.23	RMA/AW	PRELIMINARY ISSUE.
P01	24.08.22	RMA/AW	PRELIMINARY ISSUE.

STATUS:
TENDER

CLIENT:
GRAYSTAR

PROJECT:
CROWN TRADING CENTER
UB3 1DU
HAYES

DRAWING TITLE:
NEW CANAL WALL.
GENERAL ARRANGEMENT
AND SECTIONS

JOB NUMBER:	SCALE AT A1:	REV. STATUS:
SE1560	AS SHOWN	S2

DRAWING NUMBER:	REVISION:
JR006090-ISS-CW-ZZ-DR-S-1001	T01

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BRISTOL 89-95 REDCLIFFE STREET | BRISTOL | BS1 6LU | UK T: +44 (0)117 922 7039
MANCHESTER COMMERCIAL WHARF | 6 COMMERCIAL STREET MANCHESTER, M15 4PZ | UK T: +44 (0)845 643 2741
www.iesisgroup.com

Planning Boundary

Proposed tree
(with or without tree grille option)

Proposed shrub planting

Proposed hedge planting

Proposed native scrub planting

Proposed wildflower meadow

P1 - Vehicular carriageway:
Ref: Proposed Black DBM to Adoptable Standards.

P2 - PCC Permeable Block paver to vehicle & pedestrian areas
Ref: Hardscape Kellen. Colour: Tagenta E (50%) &
Nerosso Argento (50%);Random Stretcher; 400 x 400 x 80mm.

P3 - PCC Permeable Block paver to vehicle thoroughfares & focal entrance areas *Ref: Hardscape Kellen. Colour: Tagenta D;*
Random stretcher; 200 x 200 x 80.

P4 - Banding - Tumble Granite Sett
Size: 100 x 100 x 100mm, band edges to be 200 x 100 x 100; Colour: Silver Grey; Pattern: Stack bond, mortar jointed on mortar bed.

P5 - PCC paving with natural aggregate finish to private frontages
Ref: Hardscape Kellen. Colour: Bianco (50%) &
Tagenta B (50%); 50/50 Stretcher; 600 x 150 x 80;

P6 - Resin bound gravel to rail feature & path
Ref: Sureset - Stirling Midnight

P7 - Rubber mulch play surface to Central Play Courtyard

P8 & P9 - Faux railway play paving feature

Terram T1500 Geotextile to be installed as per Engineers specification

Kerbs and Edgings (Sheet 2057)

K1 - Flush kerb (80mm wide)
K2 - Flush kerb (120mm wide)
K3 - Flush kerb (280mm wide)
K4 - Kerb upstand 125mm (120mm wide)
K5 - Kerb upstand 25mm (280mm wide)

Boundary Treatments (Sheet 2054)

B1 - Private residential terrace boundary
Ref: 1.2m high metal railing with gate (self-closing - see B3) with rubber softener
B2 - Communal garden boundary adjacent to Grand union Canal
Ref: 2.1m high metal railing with double vehicle gate (fob access)

B3 - Timber Post and 3 Rail fence to canal edge (1.2m high)

Recreation and Play (Sheet 2004)

R1 - Climbing Wall with 2 elements
R2 - Balance Blocks
R3 - Horizontal Bars
R4 - Bell Climbing Poles
R5 - Cradle Nest Special 7
R6 - Climbing Structure 08

Lighting *(Indicative scheme produced for tender)*

Lighting column (4m)
Ref: White Mono LED Strips on benches (1m strips - 3per bench) with aluminum support frame for length.
Spec: Vaio 2.0 Eco Monocolour Warm-White 3.5w/m LEDs, 30mm height, diffused. (137 Lumens/m, 39 Lumens/W)

Street Furniture (Sheet 2055)

Litter Bin	(8nos)
Bench	(21nos)
Seat with backrest	(3nos)
Cycle hoops	(21nos)
Drop down bollards	(14nos)
Static bollards	(13nos)
Granite cube seats	(3nos)
Insect hotel	(3nos)

CDM Regulations 2015

ALL current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environmental Assessment Record.

CDM 2015

notes

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- Do not scale drawing. Figured dimensions to be worked to in all cases.

5 4 3 2 1 0 5 10 15m

REV	AMENDMENT	DATE
P1	ISSUED FOR PLANNING	27.05.22

Client:
GREYSTAR

GREYSTAR™
The Global Leader in Rental Housing

Project:
CROWN TRADING CENTRE,
HAYES, LONDON

Title:
SITE - LANDSCAPE MASTERPLAN

Scale:
1 : 250 | A1

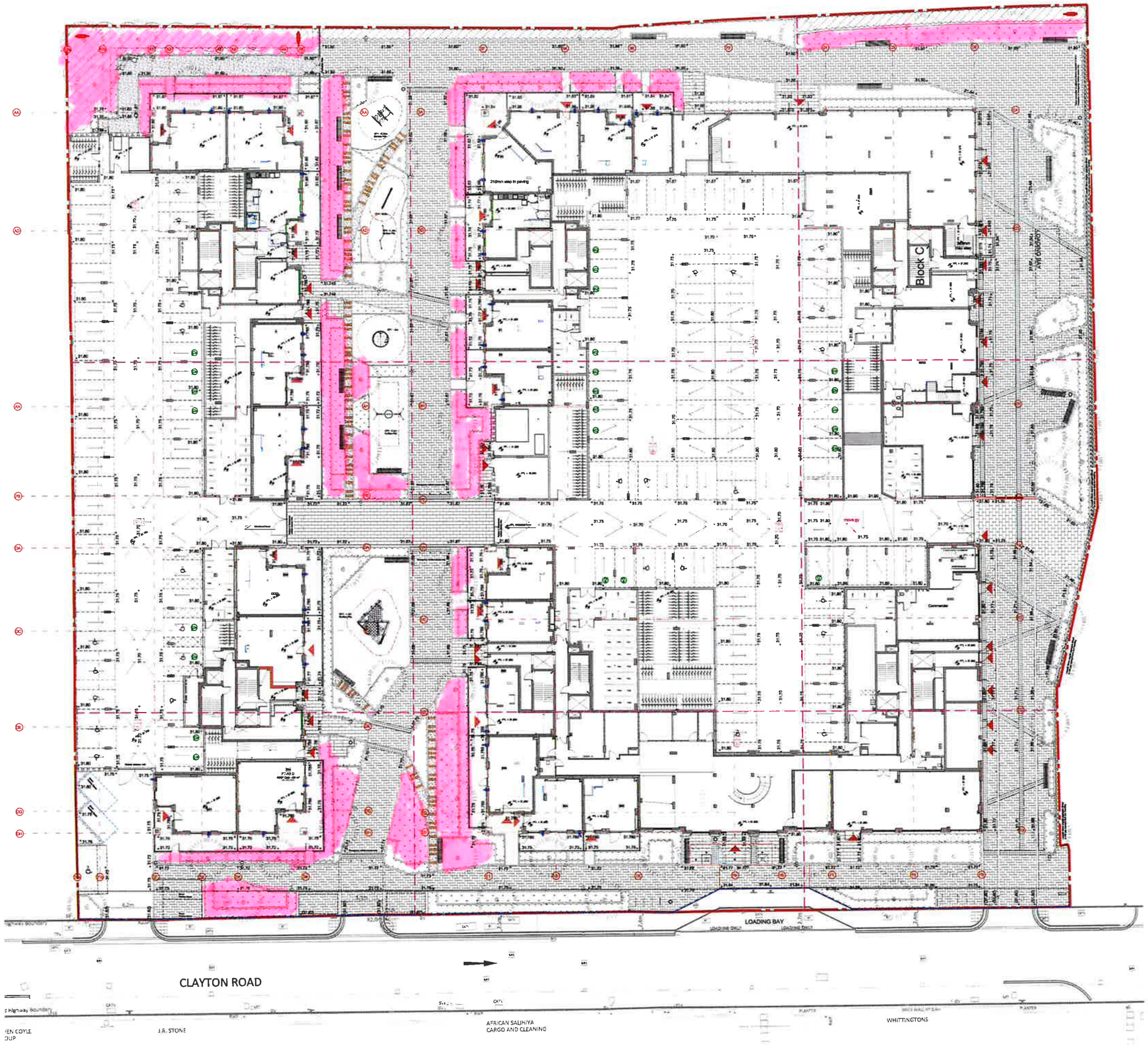
Date APR 21
Drawn DS
Checked PW

L.D.A
LANDSCAPE DESIGN ARCHITECTURE
17a Cannon Hill Rd
Coventry
CV4 7AZ
Tel: 02476 696866 Mob: 07977 483787
info@landscapedesignarchitecture.co.uk

Drawing no. L1115 - 2.1 - 2000

Job no. L1115

Revision. P2



CDM Regulations 2015

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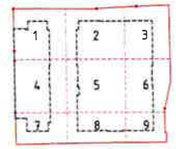
CDM 2015

notes

- The contractor is responsible for checking dimensions, tolerances and references.
- Any discrepancy to be verified with the Architect before proceeding with the works.
- Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.
- Do not scale drawing. Figured dimensions to be worked to in all cases.

0 1 2 3 4 5 10m



General Arrangement Sheets

KEY

Site Boundary

Adoptable Highway Boundary

Proposed tree (with paving - filled tree grille)
(Refer to Planting Plans for spec.)
Extent of below-ground geogrid root-crate system and vents indicated for hard landscaped areas

Proposed tree in soft landscape
(Refer to Planting Plans for spec.)

Proposed hedge planting with mulch layer

Proposed shrub planting with mulch layer

Proposed turf to Courtyard / Open Space

Proposed Wildflower Meadow

Hard Landscape *(For paving details below refer to CTC-LDA-XX-XX-DR-L-09050 / 09051)*

P1 - Vehicular carriageway:
Ref: Proposed Black DBM to Adoptable Standards.

P2 - Pedestrian carriageway:
Ref: Proposed Black DBM to Adoptable Standards.

P3 - PCC aggregate block (or vehicle & pedestrian areas (permeable) -
Ref: Hydropave Fusion, Size: 200x100x80mm, 90° Herringbone
Colour: Silver (50%), Mid Grey (50%)

P4 - PCC aggregate block (or vehicle thoroughfares & focal entrance areas (permeable) -
Ref: Hydropave Fusion; Size: 200x100x80mm, 90° Herringbone, Colour: Graphite

P5 - PCC Textured Setts to Decorative Banding with mortar bed & joints -
Ref: Hydropave Fusion; Size: 200x100x80mm, Staggered 50/50;
Colour: Silver (border), Mid Grey (middle)

P6 - PCC aggregate pavers to private frontages (non-permeable) -
Ref: Fusion Size: 600x300x60mm, Staggered stretcher 50/50
Colour: Silver (50%), Mid Grey (50%)

P7 - Resin bound gravel to railway 'aggregate' element
Ref: Addaset; Colour: 'Midnight Grey 6mm'

P8- Rubber mulch play surface to Central Play Courtyard
Ref: Rhino Mulch; Colour: 'Earth Tone'

P9 - Resin bound gravel to railway 'sleeper' element
Ref: Addaset; Colour: 'XXX 6mm'

Kerbs *(For all details below refer to CTC-LDA-XX-XX-DR-L-09052)*

K1 - PCC textured kerb - 75mm - (flush - transitions soft/hard, hard/hard)
K2 - PCC textured kerb - 125mm - (flush - transitions soft/hard, hard/hard)
K3 - PCC textured kerb - 255mm - (flush - transitions along vehicular routes)
K4 - PCC textured kerb - 125mm - (125mm upstand for planters)
K5 - PCC textured kerb - 255mm - (125mm upstand along car park access routes)
K6 - Timber edge to soft planting and grassed area
K7 - Bespoke Corten face rail edge to railway feature.
PCC textured kerb colour to be silver, black speckled

Boundary treatments *(For all details below refer to CTC-LDA-XX-XX-DR-L-09053)*

B1 - Metal railing to private frontages (1.2m high)
B2 - Secure railing & gate to semi-private space north of block A (2.1m high)
B3 - Metal gate to private frontages (1.2m high)
B4 - Timber post and 3 rail fence to canal edge (1.2m high)
B5 - Brick retaining wall (max. 450mm)

Street Furniture *(For all details below refer to CTC-LDA-XX-XX-DR-L-09054)*

F1 - Litter Bin Powercoated galvanised steel (80ne) *(Ref. 545 TA Litter Bin by OMBS)*
F2 - Timber bench to communal seating area (10no), 3m wide *(Ref. QUAY by Factory Furniture)*
F3 - Timber seat to communal seating area (12no), 1.8m wide *(Ref. QUAY by Factory Furniture)*
F4 - Timber cube bollard (informal seat) *(Ref. Timber cube by Woodscape)*
F5 - Sheffield style cycle hoop (12no) *(Ref. Sheffield stand by Broxap, PCC RAL 9004)*
F6 - Removable bollard (12no) *(Ref. Autopa, Removable Bollard 193mm)*
F7 - Static bollard (15no) *(Ref. Autopa, Fixed Bollard 114mm)*
F8 - Door guard (16no) *(Ref. Roof fixed, PCC RAL 9004)*

Indicative Lighting (To be designed by Specialist Lighting Consultant)

Lighting columns (4m post)

Play Items *(For all details below refer to CTC-LDA-XX-XX-DR-L-09057 / 09058)*

R1 - Obstacle Course Climbing Wall by HAGS
R2 - Equilibra Natural by HAGS
R3 - Somersault Volta by HAGS
R4 - Inclusive Roundabout Spinnee by HAGS
R5 - Swing Gora by HAGS
R6 - Clamber Stack 3 by HAGS

Ecological Enhancements at ground level
(Refer to Middlearch Environmental Ltd Preliminary Ecological Appraisal - RT-MME-129168-01)

Partially buried, upstanding logs in a cluster for deadwood habitat for the benefit of invertebrates (5nos)

Note.
Site levels to Infrastructure Design Ltd design (Jan 2025)
Ref: CTC-ISS-XX-XX-DR-C-923051 C02

Levels shown alongside Clayton Road as per approved S278 drawing by LTP (July 2023)
Ref: LTP 3770 C2 01 01 REV E 17 07 23 Setting Out

Soft Landscaping

REV	AMENDMENT	DATE
FINAL	FINAL CONSTRUCTION ISSUE	16.05.25
C02	UPDATED ARCHITECT PLAN & HIGHWAYS PLAN RECEIVED	21.02.25
C01	ISSUED FOR CONSTRUCTION	14.02.25
P03	ISSUED FOR LIGHTING COORDINATION	22.07.24
P02	ISSUED FOR TEAM COORDINATION	15.12.23
P01	ISSUED FOR TEAM COORDINATION	29.09.23

Client: GREYSTAR™ The Global Leader in Rental Housing

Project:
CROWN TRADING CENTRE,
HAYES, LONDON

Title:
SITE - LANDSCAPE MASTERPLAN

Scale: 1 : 250 | A1

Date SEPT 2023
Drawn DT
Checked PW

L.D.A
LANDSCAPE DESIGN ARCHITECTURE
17a Cannon Hill Rd
Coventry
CV4 7AZ
Tel: 024 76 694986 Mobile: 07977 483787
info@landscapedesignarchitecture.co.uk

Drawing no.
CTC-LDA-XX-XX-DR-L-09000

LDA Job no. L1115

Revision. FINAL

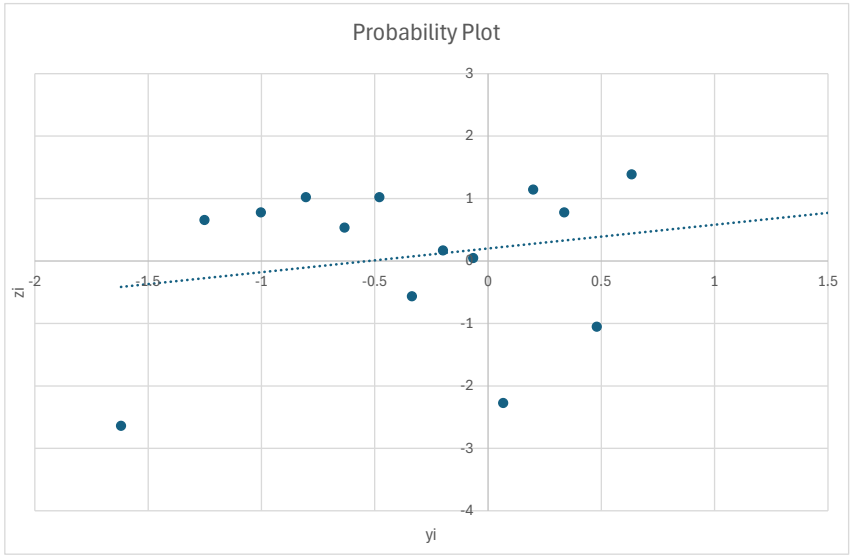
Appendix B – Topsoil Verification Screening and Statistical Analysis

CTC HAYES - BLKS C, E, F

BORON UCL 95

Average	2.261111
SD	0.818994
Sample size	18
Confidence Coff	1.96
Margin of error	0.378356
Upper Bound	2.639467
Lower Bound	1.882755
Max	3.4
Min	0.4
Range	3
Square root of N	4.242641

Xi	Yi = Xi - Mean/S	Qi	Zi
2	-2.638737728	0.052632	-1.61986
2.8	0.657988585	0.105263	-1.25212
2.9	0.78008956	0.157895	-1.00315
3.1	1.024291509	0.210526	-0.8046
2.7	0.535887611	0.263158	-0.63364
3.1	1.024291509	0.315789	-0.47951
1.8	-0.563021161	0.368421	-0.33604
2.4	0.169584687	0.421053	-0.1992
2.3	0.047483712	0.473684	-0.06601
0.4	-2.272434804	0.526316	0.066012
3.2	1.146392483	0.578947	0.199201
2.9	0.78008956	0.631579	0.336038
1.4	-1.051425059	0.684211	0.479506
3.4	1.390594433	0.736842	0.63364
1.3	-1.173526033	0.789474	0.804596
1.8	-0.563021161	0.842105	1.003148
1.6	-0.80722311	0.894737	1.25212
1.6	-0.80722311	0.947368	1.619856



$$UCL_{0.95} = \overline{x} + \left(t_{(n-1,\,0.95)} \times \frac{s}{\sqrt{n}} \right)$$

t-test

2.614951

$t_{(n-1,0.95)}$ = 1.833 from one-sample t-test theorem (CLAIRE)

Project / Site name: CTC Hayes

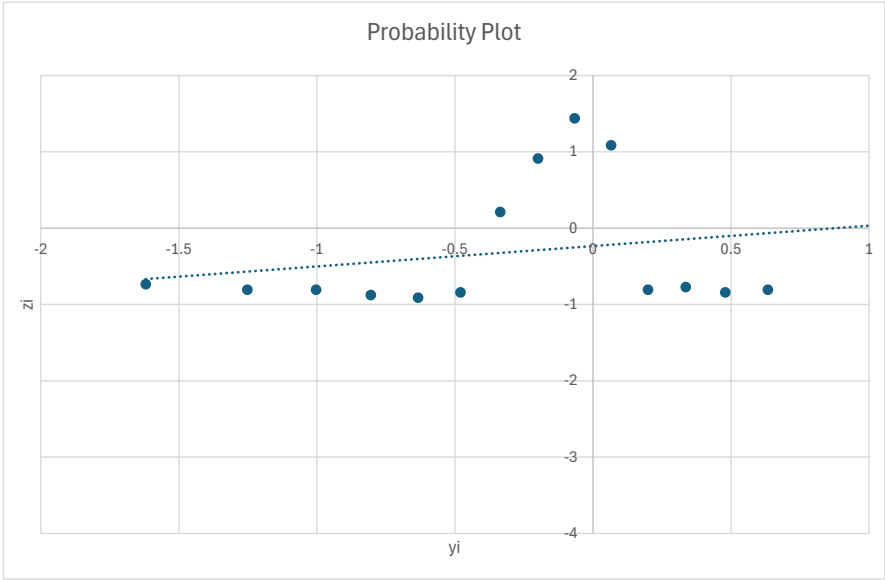
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	UCL 95	Mean Concentration	S4UL - Public Open Space - residential mg/kg	S4UL - residential with produce mg/kg	Import Screening Criteria - extracted from Appendix C2 of Turnkey RMS																	
Lab Sample Number									484897	484898	484899	484900	484901	484902	514941	514942	514943	514944	526438	526439	526440	526441	610382	610383	610384	610385
Sample Reference									TS1-01	TS1-02	TS1-03	TS2-01	TS2-02	TS2-03	TS3-01	TS3-02	TS3-03	SS01-01	TS1-04	TS1-05	TS1-06	TS1-07	TS1-08	TS1-09	TS1-10	TS1-11
Sample Number									None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix									N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Depth (m)									None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	0.10-0.30	0.10-0.30	0.10-0.30	0.60-0.80	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled									18/03/2025	18/03/2025	18/03/2025	18/03/2025	18/03/2025	18/03/2025	13/04/2025	13/04/2025	13/04/2025	13/04/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025	09/07/2025	09/07/2025	09/07/2025	09/07/2025
Time Taken									1300	1300	1300	1315	1315	1315	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Stone Content	%	0.1	NONE	-	-		-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	15	15.8	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	-	-		-	-	15	15	14	11	11	12	4.2	1.1	5.8	2.5	6.3	9.7	10	7.8	0.35	0.28	0.33	0.23
Total mass of sample received	kg	0.1	NONE	-	-		-	-	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.7	1.5	1.5	1.4	1.3	0.9	0.8	0.9	1.1
Asbestos																										
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-				Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	-	Non-detect	Non-detect	Non-detect	MJN	MJN	MJN	MJN	MJN	MJN	SCA	SCA	SCA	SCA	DKI	DKI	DKI	DKI	KSZ	KSZ	KSZ	KSZ
Analysis completed	N/A	N/A	N/A	-	-				21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	18/04/2025	18/04/2025	18/04/2025	18/04/2025	02/05/2025	02/05/2025	02/025/2025	02/05/2025	16/07/2025	16/07/2025	16/07/2025	16/07/2025
General Inorganics																										
Total Cyanide	mg/kg	1	MCERTS	-	-	N/A	N/A	<MDL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	-	-	N/A	N/A	<MDL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	-	-	N/A	N/A	<MDL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols																										
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	<1.0	760	750	<MDL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs																										
Naphthalene	mg/kg	0.05	MCERTS	-	0.17	4900	2.3	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	0.13	0.19	0.26	0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	<0.05	15000	170	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	0.09	15000	210	210	0.05	0.16	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	<0.05	<0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	0.15	9900	170	170	< 0.05	0.15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	<0.05	<0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	0.43	3100	95	15	0.32	1.2	0.38	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.66	0.46	0.21	0.49	< 0.05	0.06	0.07	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	0.15	74000	2400	4	0.07	0.29	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.18	0.11	0.07	0.13	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	0.50	3100	280	26	0.66	1.7	0.7	0.08	0.07	0.14	< 0.05	< 0.05	0.1	< 0.05	0.83	0.91	0.73	0.87	0.05	0.07	0.09	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	0.42	7400	620	21	0.59	1.4	0.61	0.07	0.07	0.13	< 0.05	< 0.05	0.08	< 0.05	0.66	0.75	0.65	0.74	< 0.05	0.05	0.07	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.33	29	7.2	9	0.28	0.62	0.26	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	0.3	0.37	0.36	0.35	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	0.27	57	15	15	0.3	0.62	0.27	0.06	< 0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	0.33	0.35	0.37	0.36	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	0.41	7.1	2.6	7.1	0.42	0.82	0.38	0.11	< 0.05	0.17	< 0.05	< 0.05	< 0.05	< 0.05	0.37	0.43	0.48	0.47	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	0.17	190	77	77	0.15	0.28	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.14	0.17	0.18	0.17	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.41	5.70	2.2	5.7	0.34	0.62	0.28	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.27	0.33	0.37	0.36	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.18	82	27	27	0.18	0.3	0.15	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	0.16	0.19	0.19	0.2	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	<0.05	0.57	0.24	0.57	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.21	640	320	320	0.2	0.33	0.16	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	0.19	0.23	0.21	0.25	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH																										
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	4.64	-	-	114	3.58	8.52	3.49	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80	4.28	4.29	3.83	4.5	< 0.80	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids																										
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	13	79	37	37	7.9	7.9	8.8	6.6	7.6	6.6	13	20	28	18	7.5	8	6.7	8	23	21	23	17
Boron (water soluble)	mg/kg	0.2	MCERTS	2.61	2.26	21000	290	3	2	2.8	2.9	3.1	2.7	3.1	1.8	2.4	2.3	0.4	3.2	2.9	1.4	3.4	1.3	1.8	1.6	1.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.30	120	11	11	0.3	0.3	0.4	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.3	0.3	0.3	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	<1.8	7.70	6	6	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	<1.8	<1.8	<1.8	<1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	-	18	1500	910	43	14	12	13	12	11	13	15	23	29	21	13	14	13	14	31	22	25	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	18.00	1500	910	43	14	13	14	13	11	14	16	24	30	21	14	15	13	14	31	22	25	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	18	1200	2400	153	25	25	27	28	19	22	13	10	12	7.2	22	22	22	23	8.7	11	9.3	9.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	26	630	200	630	60	41	38	19	14	16	8.3	11	14	5.1	32	38	33	36	12	11	12	9.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	<0.3	120	40	2.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	11.6	230	180	61	9.5	9.3	8.6	10	8.9	10	10	13	19	15	8.9	9.1	8.6	9	16	15	16	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	<1.0	1100	250	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	1	1.1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	55.27	42.94	2000	410	82	22	20	20	18	17	19	49	69	84	74	20	21	19	20	98	62	77	64
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	56.28	81000	3700	328	75	76	72	68	47	51	30	40	61	28	64	71	70	73	47	52	50	38
Petroleum Hydrocarbons																										
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	-	<0.01	570000	42	42	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	-	<0.01	600000	100	100	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	-	<0.01	13000	27	27	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	<1.0	13000	130	130	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	3.6	13000	1100	36	3	4.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	3.2	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	<8.0	250000	65000	500	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	<8.0	<8.0	<8.0	<8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	27	250000	65000	1000	38	29	28	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	34	21	19	43	< 8.0	15	24	17
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	-	14.34	250000	65000	1000	11	8.7	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	<8.4	16	<8.4	26	< 8.4	< 8.4	10	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	27.90	-	-	1000	41	34	28	< 10	< 10	< 10	< 10	< 10	< 10	< 10	34	21	19	46	< 10	15	24	17
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	35.00	-	-	1000	51	42	28	< 10	< 10	< 10	< 10	< 10	< 10	< 10	34	38	19	72	< 10	15	34	17
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	-	<0.01	56000	70	70	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	-	<0.01	56000	130	130	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	-	<0.02	5000	34	34	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	<0.020	<0.020	<0.020	<0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	1.5	5000	74	74	< 1.0	1.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	6.2	5100	140	20	< 2.0	6.2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	<2.0	<2.0	<2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	<10	3800	260	500	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	<10	<10	<10	<10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	23.86	3800	1100	1000	34	36	28	< 10	< 10	< 10	< 10	< 10	< 10	< 10	27	13	17	12	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	-	42.33	3800	1100	1000	61	37	29	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4	<8.4	<8.4	<8.4	<8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	24.86	-	-	1000	34	43	28	< 10	< 10	< 10	< 10	< 10	< 10	< 10	27	13	17	12	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	42.86	-	-	1000	94	80	57	< 10	< 10	< 10	< 10	< 10	< 10	< 10	27	13	17	12	< 10	< 10	< 10	< 10
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	60.09	-	-	1000	120	110	84	< 10	< 10	< 10	< 10	< 10	< 10	< 10	79	46	40	80	12	23	42	25
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	-	<1.0	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	60.09	-	-	-	120	110	84	< 10	< 10	< 10	< 10	< 10	< 10	< 10	79	46	40	80	12	23	42	25
VOCs																										
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	<5.0	-	-	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	-	<5.0	72	87	6000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	-	<5.0	56000	130000	6000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	<5.0	24000	47000	6000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	-	<8.0	41000	56000	6000	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	<8.0	<8.0	<8.0	<8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	-	<5.0	4100	56000	6000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	<5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0

CTC HAYES - BLKS C, E, F

VANADIUM UCL 95

Average	42.94444
SD	28.52341
Sample size	18
Confidence Coff	1.96
Margin of error	13.17714
Upper Bound	56.12159
Lower Bound	29.7673
Max	98
Min	17
Range	81
Square root of N	4.242641

Xi	Yi = Xi - Mean/S	Qi	Zi
22	-0.734289617	0.052632	-1.61986
20	-0.804407459	0.105263	-1.25212
20	-0.804407459	0.157895	-1.00315
18	-0.8745253	0.210526	-0.8046
17	-0.909584221	0.263158	-0.63364
19	-0.839466379	0.315789	-0.47951
49	0.212301242	0.368421	-0.33604
69	0.913479656	0.421053	-0.1992
84	1.439363467	0.473684	-0.06601
74	1.08877426	0.526316	0.066012
20	-0.804407459	0.578947	0.199201
21	-0.769348538	0.631579	0.336038
19	-0.839466379	0.684211	0.479506
20	-0.804407459	0.736842	0.63364
98	1.930188357	0.789474	0.804596
62	0.668067211	0.842105	1.003148
77	1.193951022	0.894737	1.25212
64	0.738185053	0.947368	1.619856



$$UCL_{0.95} = \bar{x} + \left(t_{(n-1,\,0.95)} \times \frac{s}{\sqrt{n}} \right)$$

t-test

55.26776

$t_{(n-1,0.95)}$ = 1.833 from one-sample t-test theorem (CLAIRE)

Appendix C – Laboratory Certificates

Turnkey Regeneration Ltd
2 Caffyn Place
Broadbridge Heath
Horsham
West Sussex
RH123XH

e: dave.rutherford@turnkeyregeneration.com

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 : 25-013442

Project / Site name:	CTC	**Samples received on:**	18/03/2025
Your job number:	0112	**Samples instructed on/ Analysis started on:**	18/03/2025
Your order number:	0112	**Analysis completed by:**	24/03/2025
Report Issue Number:	1	**Report issued on:**	24/03/2025
Samples Analysed:	6 soil samples		

Signed:

Joanna Wawrzeczko
Senior 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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-013442
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				484897	484898	484899	484900	484901
Sample Reference				TS1-01	TS1-02	TS1-03	TS2-01	TS2-02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				18/03/2025	18/03/2025	18/03/2025	18/03/2025	18/03/2025
Time Taken				1300	1300	1300	1315	1315
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	15	14	11	11
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.7	0.7	0.7
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN	MJN	MJN
Analysis completed	N/A	N/A	N/A	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
General Inorganics								
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 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	0.05	0.16	0.07	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.15	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.32	1.2	0.38	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.07	0.29	0.09	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.66	1.7	0.7	0.08	0.07
Pyrene	mg/kg	0.05	MCERTS	0.59	1.4	0.61	0.07	0.07
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.28	0.62	0.26	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.3	0.62	0.27	0.06	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.42	0.82	0.38	0.11	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.15	0.28	0.13	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.34	0.62	0.28	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.18	0.3	0.15	< 0.05	< 0.05
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	0.2	0.33	0.16	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3.58	8.52	3.49	< 0.80	< 0.80

Analytical Report Number: 25-013442
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				484897	484898	484899	484900	484901
Sample Reference				TS1-01	TS1-02	TS1-03	TS2-01	TS2-02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				18/03/2025	18/03/2025	18/03/2025	18/03/2025	18/03/2025
Time Taken				1300	1300	1300	1315	1315
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.9	7.9	8.8	6.6	7.6
Boron (water soluble)	mg/kg	0.2	MCERTS	2	2.8	2.9	3.1	2.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.3	0.4	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	14	12	13	12	11
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	13	14	13	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	25	27	28	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	41	38	19	14
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	9.5	9.3	8.6	10	8.9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	20	20	18	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	75	76	72	68	47
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	3	4.6	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	38	29	28	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	11	8.7	< 8.4	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	41	34	28	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	51	42	28	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	1.5	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	6.2	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	34	36	28	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	61	37	29	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	34	43	28	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	94	80	57	< 10	< 10
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	120	110	84	< 10	< 10
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	120	110	84	< 10	< 10

Analytical Report Number: 25-013442
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				484897	484898	484899	484900	484901
Sample Reference				TS1-01	TS1-02	TS1-03	TS2-01	TS2-02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				18/03/2025	18/03/2025	18/03/2025	18/03/2025	18/03/2025
Time Taken				1300	1300	1300	1315	1315
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number: 25-013442
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				484902
Sample Reference				TS2-03
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				18/03/2025
Time Taken				1315
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	12
Total mass of sample received	kg	0.1	NONE	0.7
Asbestos				
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN
Analysis completed	N/A	N/A	N/A	21/03/2025
General Inorganics				
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Phenols				
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.14
Pyrene	mg/kg	0.05	MCERTS	0.13
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.08
Chrysene	mg/kg	0.05	MCERTS	0.09
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.17
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.07
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80

Analytical Report Number: 25-013442
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				484902
Sample Reference				TS2-03
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				18/03/2025
Time Taken				1315
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.6
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51
Petroleum Hydrocarbons				
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	< 10
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10

Analytical Report Number: 25-013442
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				484902
Sample Reference				TS2-03
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				18/03/2025
Time Taken				1315
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
VOCs				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

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

Analytical Report Number : 25-013442
Project / Site name: CTC

* 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 *
484897	TS1-01	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
484898	TS1-02	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
484899	TS1-03	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
484900	TS2-01	None Supplied	None Supplied	Brown sand with gravel
484901	TS2-02	None Supplied	None Supplied	Brown sand with gravel
484902	TS2-03	None Supplied	None Supplied	Brown sand with gravel

Analytical Report Number : 25-013442
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
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	L080-PL	W	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	L080-PL	W	MCERTS

Analytical Report Number : 25-013442
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC-MS	In-house method	L129-PL	W	ISO 17025

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 25-019276

Project / Site name:	CTC	**Samples received on:**	15/04/2025
Your job number:	0112	**Samples instructed on/ Analysis started on:**	15/04/2025
Your order number:	0112	**Analysis completed by:**	23/04/2025
Report Issue Number:	1	**Report issued on:**	23/04/2025
Samples Analysed:	4 soil samples		

Signed:

Rafał Szczepańczyk
Technical Reviewer
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
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-019276
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				514941	514942	514943	514944
Sample Reference				TS3-01	TS3-02	TS3-03	SS01-01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.10-0.30	0.10-0.30	0.10-0.30	0.60-0.80
Date Sampled				13/04/2025	13/04/2025	13/04/2025	13/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	4.2	1.1	5.8	2.5
Total mass of sample received	kg	0.1	NONE	0.6	0.6	0.5	0.7
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA	SCA
Analysis completed	N/A	N/A	N/A	18/04/2025	18/04/2025	18/04/2025	18/04/2025
General Inorganics							
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.1	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80

Analytical Report Number: 25-019276
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				514941	514942	514943	514944
Sample Reference				TS3-01	TS3-02	TS3-03	SS01-01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.10-0.30	0.10-0.30	0.10-0.30	0.60-0.80
Date Sampled				13/04/2025	13/04/2025	13/04/2025	13/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	20	28	18
Boron (water soluble)	mg/kg	0.2	MCERTS	1.8	2.4	2.3	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	23	29	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	24	30	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	10	12	7.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.3	11	14	5.1
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	13	19	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	69	84	74
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	30	40	61	28
Petroleum Hydrocarbons							
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
VOCs							
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 25-019276
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				514941	514942	514943	514944
Sample Reference				TS3-01	TS3-02	TS3-03	SS01-01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.10-0.30	0.10-0.30	0.10-0.30	0.60-0.80
Date Sampled				13/04/2025	13/04/2025	13/04/2025	13/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				

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

Analytical Report Number : 25-019276
Project / Site name: CTC

* 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 *
514941	TS3-01	None Supplied	0.10-0.30	Brown loam and sand with gravel and vegetation
514942	TS3-02	None Supplied	0.10-0.30	Brown loam and sand with gravel and vegetation
514943	TS3-03	None Supplied	0.10-0.30	Brown loam and sand with gravel and vegetation
514944	SS01-01	None Supplied	0.60-0.80	Brown sand with gravel

Analytical Report Number : 25-019276
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
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	L080-PL	W	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	L080-PL	W	MCERTS

Analytical Report Number : 25-019276
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC-MS	In-house method	L129-PL	W	ISO 17025
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 25-021322

Project / Site name:	CTC	**Samples received on:**	28/04/2025
Your job number:	0112	**Samples instructed on/ Analysis started on:**	28/04/2025
Your order number:	0112	**Analysis completed by:**	02/05/2025
Report Issue Number:	1	**Report issued on:**	02/05/2025
Samples Analysed:	4 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-021322
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				526438	526439	526440	526441
Sample Reference				TS1-04	TS1-05	TS1-06	TS1-07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
Stone Content	%	0.1	NONE	15	15.8	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.3	9.7	10	7.8
Total mass of sample received	kg	0.1	NONE	1.5	1.5	1.4	1.3
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DKI	DKI	DKI	DKI
Analysis completed	N/A	N/A	N/A	02/05/2025	02/05/2025	02/05/2025	02/05/2025
General Inorganics							
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	0.06
Phenanthrene	mg/kg	0.05	MCERTS	0.66	0.46	0.21	0.49
Anthracene	mg/kg	0.05	MCERTS	0.18	0.11	0.07	0.13
Fluoranthene	mg/kg	0.05	MCERTS	0.83	0.91	0.73	0.87
Pyrene	mg/kg	0.05	MCERTS	0.66	0.75	0.65	0.74
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.3	0.37	0.36	0.35
Chrysene	mg/kg	0.05	MCERTS	0.33	0.35	0.37	0.36
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.37	0.43	0.48	0.47
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.14	0.17	0.18	0.17
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.27	0.33	0.37	0.36
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.16	0.19	0.19	0.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.19	0.23	0.21	0.25
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.28	4.29	3.83	4.5

Analytical Report Number: 25-021322
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				526438	526439	526440	526441
Sample Reference				TS1-04	TS1-05	TS1-06	TS1-07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.5	8	6.7	8
Boron (water soluble)	mg/kg	0.2	MCERTS	3.2	2.9	1.4	3.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.3	0.3	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	13	14	13	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	15	13	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	22	22	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	32	38	33	36
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.9	9.1	8.6	9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	21	19	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	71	70	73
Petroleum Hydrocarbons							
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	3.2
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	34	21	19	43
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	16	< 8.4	26
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	34	21	19	46
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	34	38	19	72
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	27	13	17	12
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	27	13	17	12
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	27	13	17	12
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	79	46	40	80
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	79	46	40	80
VOCs							
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 25-021322
Project / Site name: CTC
Your Order No: 0112

Lab Sample Number				526438	526439	526440	526441
Sample Reference				TS1-04	TS1-05	TS1-06	TS1-07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status				

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

Analytical Report Number : 25-021322
Project / Site name: CTC

* 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 *
526438	TS1-04	None Supplied	None Supplied	Brown loam and sand with vegetation and stones
526439	TS1-05	None Supplied	None Supplied	Brown loam and sand with vegetation and stones
526440	TS1-06	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
526441	TS1-07	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation

Analytical Report Number : 25-021322
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
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	L080-PL	W	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	L080-PL	W	MCERTS

Analytical Report Number : 25-021322
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC-MS	In-house method	L129-PL	W	ISO 17025
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Analytical Report Number : 25-021322
Project / Site name: CTC

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TS1-04	N/A	S	526438	c	BTEX and/or Volatile organic compounds in soil	L073B	c
TS1-04	N/A	S	526438	c	Chromium III in soil	L080-PL/L130B	c
TS1-04	N/A	S	526438	c	Complex Cyanide in soil	L080-PL	c
TS1-04	N/A	S	526438	c	Free cyanide in soil	L080-PL	c
TS1-04	N/A	S	526438	c	Hexavalent chromium in soil	L080-PL	c
TS1-04	N/A	S	526438	c	Metals in soil by ICP-OES	L038B	c
TS1-04	N/A	S	526438	c	Monohydric phenols in soil	L080-PL	c
TS1-04	N/A	S	526438	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TS1-04	N/A	S	526438	c	Total cyanide in soil	L080-PL	c
TS1-04	N/A	S	526438	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-04	N/A	S	526438	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L129-PL	c
TS1-04	N/A	S	526438	c	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-05	N/A	S	526439	c	BTEX and/or Volatile organic compounds in soil	L073B	c
TS1-05	N/A	S	526439	c	Chromium III in soil	L080-PL/L130B	c
TS1-05	N/A	S	526439	c	Complex Cyanide in soil	L080-PL	c
TS1-05	N/A	S	526439	c	Free cyanide in soil	L080-PL	c
TS1-05	N/A	S	526439	c	Hexavalent chromium in soil	L080-PL	c
TS1-05	N/A	S	526439	c	Metals in soil by ICP-OES	L038B	c
TS1-05	N/A	S	526439	c	Monohydric phenols in soil	L080-PL	c
TS1-05	N/A	S	526439	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TS1-05	N/A	S	526439	c	Total cyanide in soil	L080-PL	c
TS1-05	N/A	S	526439	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-05	N/A	S	526439	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L129-PL	c
TS1-05	N/A	S	526439	c	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-06	N/A	S	526440	c	BTEX and/or Volatile organic compounds in soil	L073B	c
TS1-06	N/A	S	526440	c	Chromium III in soil	L080-PL/L130B	c
TS1-06	N/A	S	526440	c	Complex Cyanide in soil	L080-PL	c
TS1-06	N/A	S	526440	c	Free cyanide in soil	L080-PL	c
TS1-06	N/A	S	526440	c	Hexavalent chromium in soil	L080-PL	c
TS1-06	N/A	S	526440	c	Metals in soil by ICP-OES	L038B	c
TS1-06	N/A	S	526440	c	Monohydric phenols in soil	L080-PL	c
TS1-06	N/A	S	526440	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TS1-06	N/A	S	526440	c	Total cyanide in soil	L080-PL	c
TS1-06	N/A	S	526440	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-06	N/A	S	526440	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L129-PL	c
TS1-06	N/A	S	526440	c	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-07	N/A	S	526441	c	BTEX and/or Volatile organic compounds in soil	L073B	c
TS1-07	N/A	S	526441	c	Chromium III in soil	L080-PL/L130B	c
TS1-07	N/A	S	526441	c	Complex Cyanide in soil	L080-PL	c
TS1-07	N/A	S	526441	c	Free cyanide in soil	L080-PL	c
TS1-07	N/A	S	526441	c	Hexavalent chromium in soil	L080-PL	c
TS1-07	N/A	S	526441	c	Metals in soil by ICP-OES	L038B	c
TS1-07	N/A	S	526441	c	Monohydric phenols in soil	L080-PL	c
TS1-07	N/A	S	526441	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TS1-07	N/A	S	526441	c	Total cyanide in soil	L080-PL	c
TS1-07	N/A	S	526441	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	c
TS1-07	N/A	S	526441	c	Total petroleum hydrocarbons by HS-GC-MS in soil	L129-PL	c
TS1-07	N/A	S	526441	c	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	c

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Analytical Report Number : 25-036586

Project / Site name:	CTC	**Samples received on:**	10/07/2025
Your job number:	112	**Samples instructed on/ Analysis started on:**	10/07/2025
Your order number:	PO 0112	**Analysis completed by:**	17/07/2025
Report Issue Number:	1	**Report issued on:**	17/07/2025
Samples Analysed:	4 soil samples		

Signed:

Adam Fenwick
Customer Relationship Manager
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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-036586
Project / Site name: CTC
Your Order No: PO 0112

Lab Sample Number				610382	610383	610384	610385
Sample Reference				TS1-08	TS1-09	TS1-10	TS1-11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/07/2025	09/07/2025	09/07/2025	09/07/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	0.35	0.28	0.33	0.23
Total mass of sample received	kg	0.1	NONE	0.9	0.8	0.9	1.1
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ
Analysis completed	N/A	N/A	N/A	16/07/2025	16/07/2025	16/07/2025	16/07/2025
General Inorganics							
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	0.13	0.19	0.26	0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.06	0.07	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.05	0.07	0.09	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.05	0.07	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80

Analytical Report Number: 25-036586
Project / Site name: CTC
Your Order No: PO 0112

Lab Sample Number				610382	610383	610384	610385
Sample Reference				TS1-08	TS1-09	TS1-10	TS1-11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/07/2025	09/07/2025	09/07/2025	09/07/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	21	23	17
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	1.8	1.6	1.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	31	22	25	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	22	25	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.7	11	9.3	9.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	11	12	9.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	15	16	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1	1.1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	98	62	77	64
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	47	52	50	38
Petroleum Hydrocarbons							
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0 ##	< 1.0 ##	< 1.0 ##	< 1.0 ##
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0 ##	< 2.0 ##	< 2.0 ##	< 2.0 ##
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0 ##	< 8.0 ##	< 8.0 ##	< 8.0 ##
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	15	24	17
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	10	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	15	24	17
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	15	34	17
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	12	23	42	25
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	12 ##	23 ##	42 ##	25 ##

Analytical Report Number: 25-036586
Project / Site name: CTC
Your Order No: PO 0112

Lab Sample Number				610382	610383	610384	610385
Sample Reference				TS1-08	TS1-09	TS1-10	TS1-11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/07/2025	09/07/2025	09/07/2025	09/07/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**				
VOCs							
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number : 25-036586
Project / Site name: CTC

* 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 *
610382	TS1-08	None Supplied	None Supplied	Brown sand with gravel and vegetation
610383	TS1-09	None Supplied	None Supplied	Brown sand with gravel and vegetation
610384	TS1-10	None Supplied	None Supplied	Brown sand with gravel and vegetation
610385	TS1-11	None Supplied	None Supplied	Brown sand with gravel and vegetation

Analytical Report Number : 25-036586
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
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	L080-PL	W	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	L080-PL	W	MCERTS
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC-MS	In-house method	L129-PL	W	ISO 17025

Analytical Report Number : 25-036586
Project / Site name: CTC

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

##- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

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Analytical Report Number : 24-047642

Project / Site name:	CTC, HAYES	**Samples received on:**	09/10/2024
Your job number:		**Samples instructed on/ Analysis started on:**	14/10/2024
Your order number:		**Analysis completed by:**	22/10/2024
Report Issue Number:	1	**Report issued on:**	22/10/2024
Samples Analysed:	2 soil samples		

Signed:

Dominika Liana
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: 24-047642
Project / Site name: CTC, HAYES

Lab Sample Number				347834	347835
Sample Reference				Sprinkler ES1	Sprinkler ES2
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				08/10/2024	08/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Stone Content	%	0.1	NONE	30	41.2
Moisture Content	%	0.01	NONE	10	12
Total mass of sample received	kg	0.1	NONE	0.8	0.8

Asbestos

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

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.07	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.62	0.66
Anthracene	mg/kg	0.05	MCERTS	0.22	0.25
Fluoranthene	mg/kg	0.05	MCERTS	1.4	1.8
Pyrene	mg/kg	0.05	MCERTS	1.3	1.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.56	0.89
Chrysene	mg/kg	0.05	MCERTS	0.6	0.84
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.68	1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.26	0.38
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.66	0.93
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.32	0.43
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.1
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.35	0.43

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	7.04	9.37

Analytical Report Number: 24-047642
Project / Site name: CTC, HAYES

Lab Sample Number				347834	347835
Sample Reference				Sprinkler ES1	Sprinkler ES2
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				08/10/2024	08/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	14
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	1.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	52	37
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	52	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	82	80
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	38
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	95	69
Petroleum Hydrocarbons					
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	3.2	2.6
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	84	11
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	340	62
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	240	40
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	430	75
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	660	110
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	5.1	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	25	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	100	15
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	110	15
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	130	15
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	240	30
TPH Total >EC6 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	760	120
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	760	120
VOCs					
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

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

Analytical Report Number : 24-047642
Project / Site name: CTC, HAYES

* 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 *
347834	Sprinkler ES1	None Supplied	None Supplied	Brown clay and loam with gravel and stones
347835	Sprinkler ES2	None Supplied	None Supplied	Brown clay and loam with gravel and stones

Analytical Report Number : 24-047642
Project / Site name: CTC, HAYES

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
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, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
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	L080-PL	W	MCERTS

Analytical Report Number : 24-047642
Project / Site name: CTC, HAYES

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
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	L080-PL	W	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

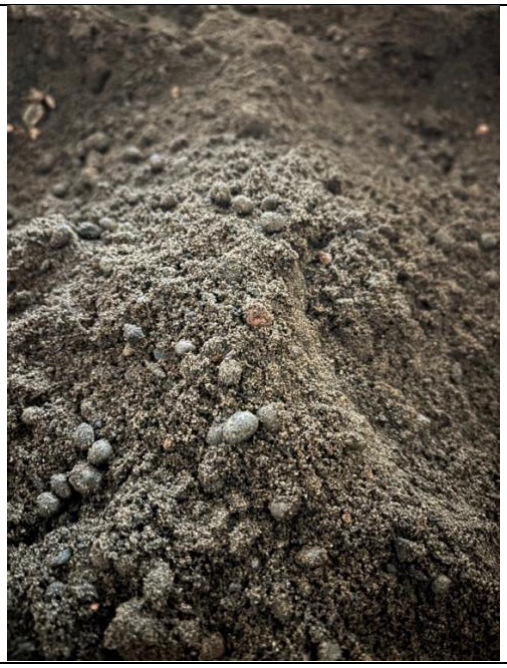
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Appendix D – Site Photographs

APPENDIX D – Site Photographs

Representative photo showing bulk bags with imported topsoil prior to placement



Soil texture of imported topsoil (TS2 and TS3)

Soil texture of imported topsoil (TS1)

APPENDIX D – Site Photographs

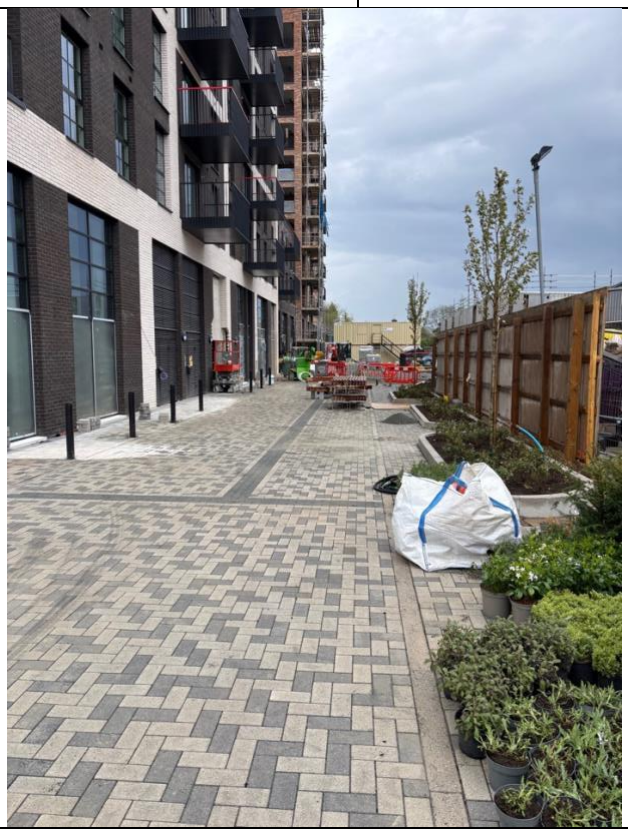
Representative photos showing marker layer and topsoil within area of installed utilities in Block F

Representative photo showing marker layer and topsoil within asset protection in Block F

APPENDIX D – Site Photographs

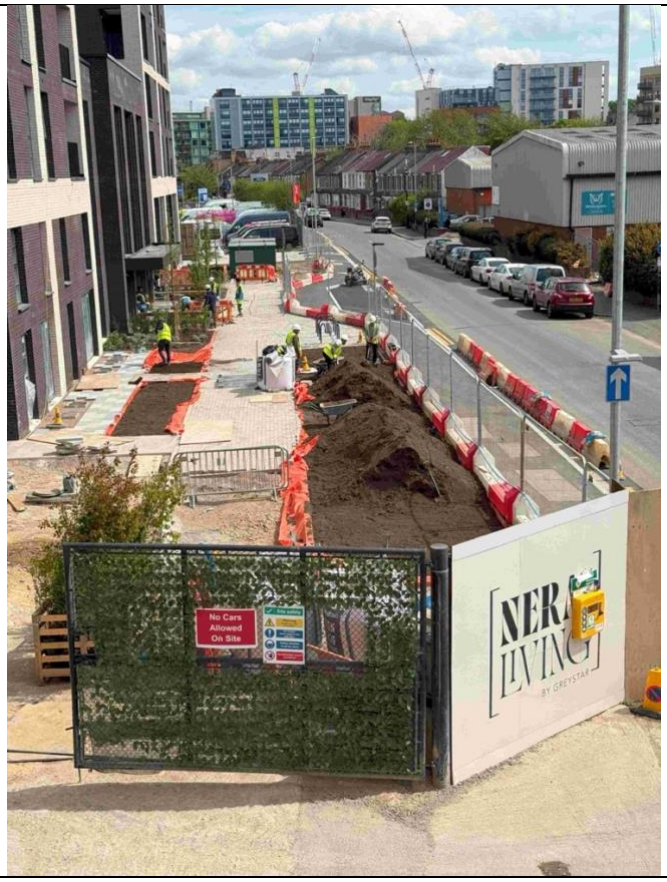
Reduced thickness example within asset protection in Block F

600mm thickness example within Block F (Ground Level)

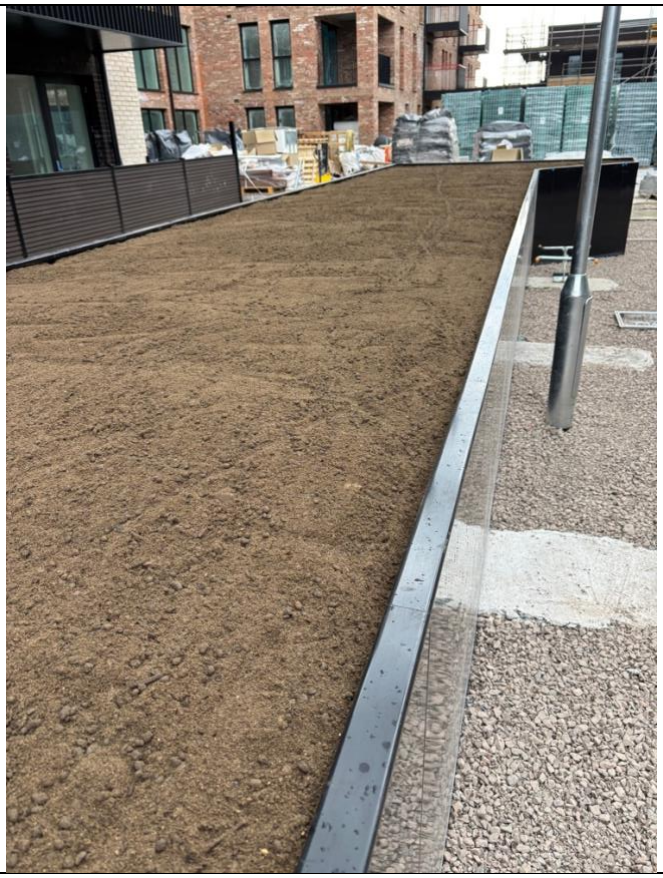


Examples of completed landscaped areas (with planting) in Block F (east side)

APPENDIX D – Site Photographs

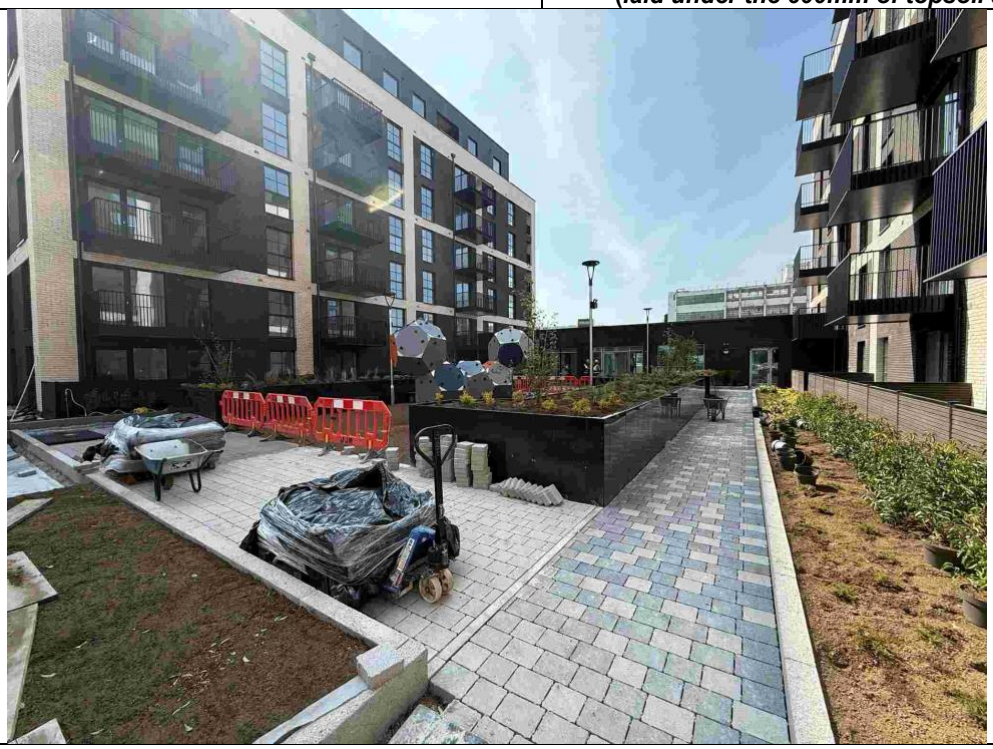
<table>
<tr><td> 
</td><td>  </td></tr>
<tr><td>Overview of soft landscape construction in Blocks E and F</td><td>600mm thickness example within Block E (Ground Level)</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Landscaping in Block F (Podium Level)</td><td>Thickness example (600mm) within podium prior to topsoil placement in Block F</td></tr>
</table>

APPENDIX D – Site Photographs



Thickness after topsoil placement in Block F Podium

Representative photo showing bulk bag with imported sand prior to placement (*laid under the 600mm of topsoil at podium level*)



Topsoil Example (Block E Podium)

APPENDIX D – Site Photographs

Progress in Block C (East Side)

Progress in Block C (East Side)

APPENDIX D – Site Photographs

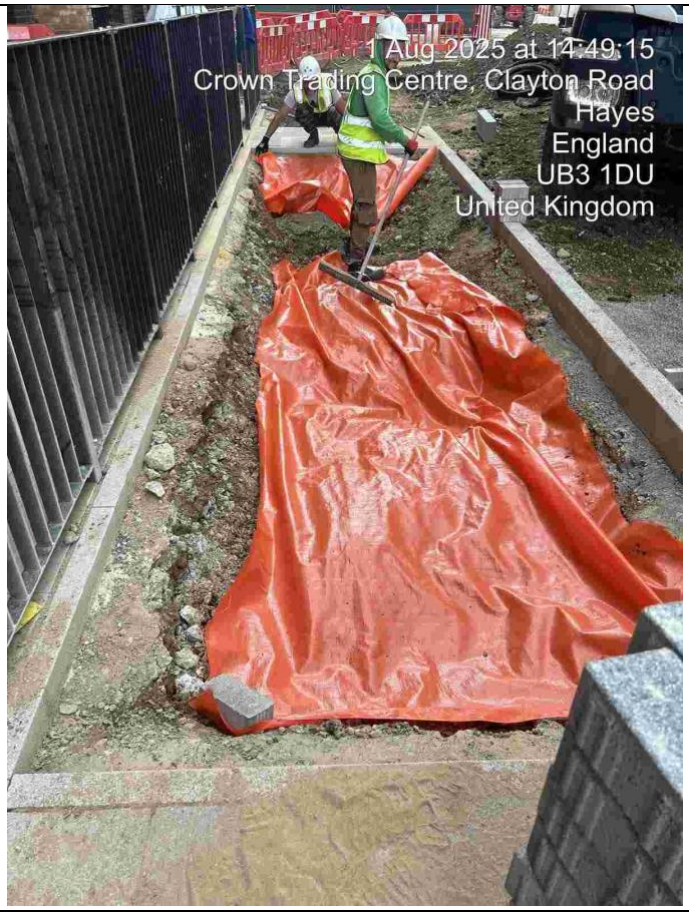
Topsoiling and Landscaping Complete in Block C (East Side)

Marker Layer being laid (Block C – Example)

60cm Depth of Topsoil (Block C – Example)

APPENDIX D – Site Photographs

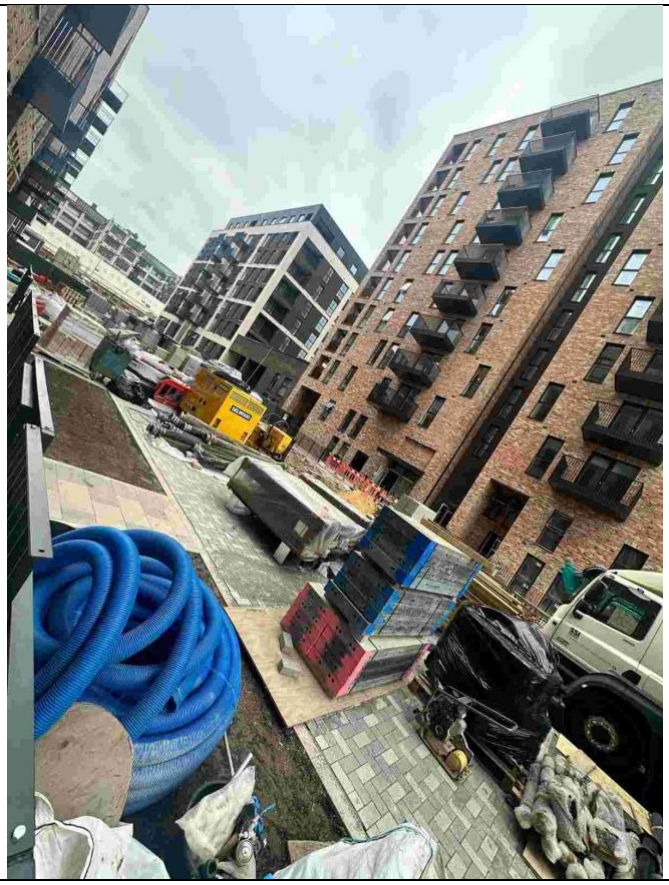
Topsoiling and Landscaping Complete in Block C (North Side)



Example of marker layer laying and lapping with concrete (Block B)

APPENDIX D – Site Photographs

Example of 60cm topsoil thickness (Block B)



Example of Finished Topsoiled Areas, i.e. pre-planting (west side of Block B)

APPENDIX D – Site Photographs

Example of marker layer laying and lapping with concrete (Blocks A and D)

Example of 60cm topsoil thickness (Blocks A and D)

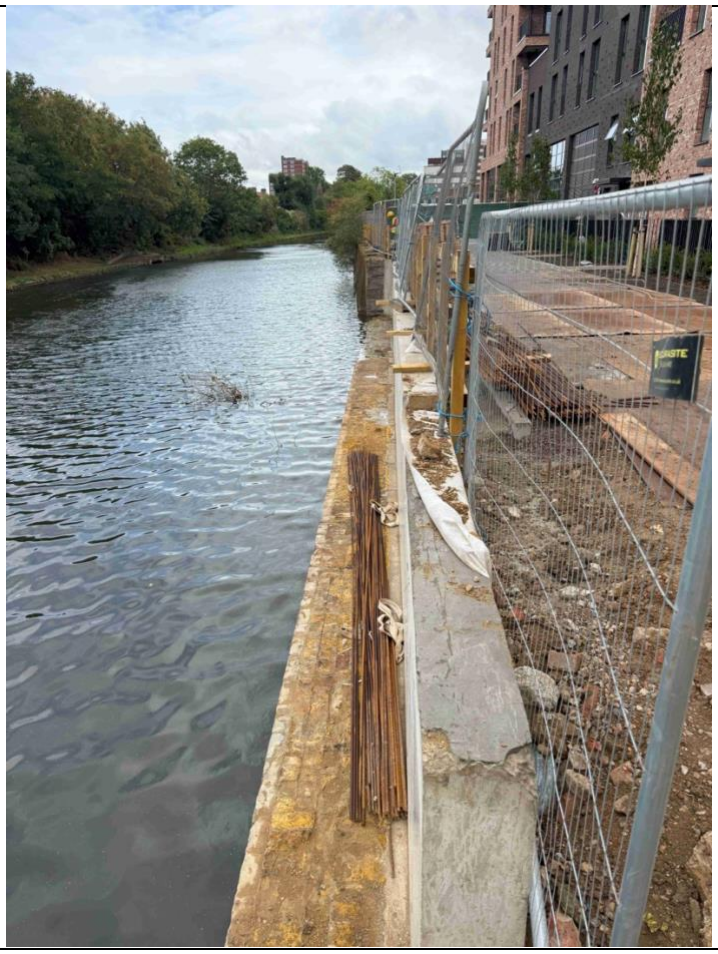
APPENDIX D – Site Photographs

Example of 60cm topsoil thickness (Blocks A and D)

Example of Finished Topsoiled Areas, i.e. pre-planting (west side of Blocks A and D)

APPENDIX D – Site Photographs

Canal Wall Excavation Progress (Example)



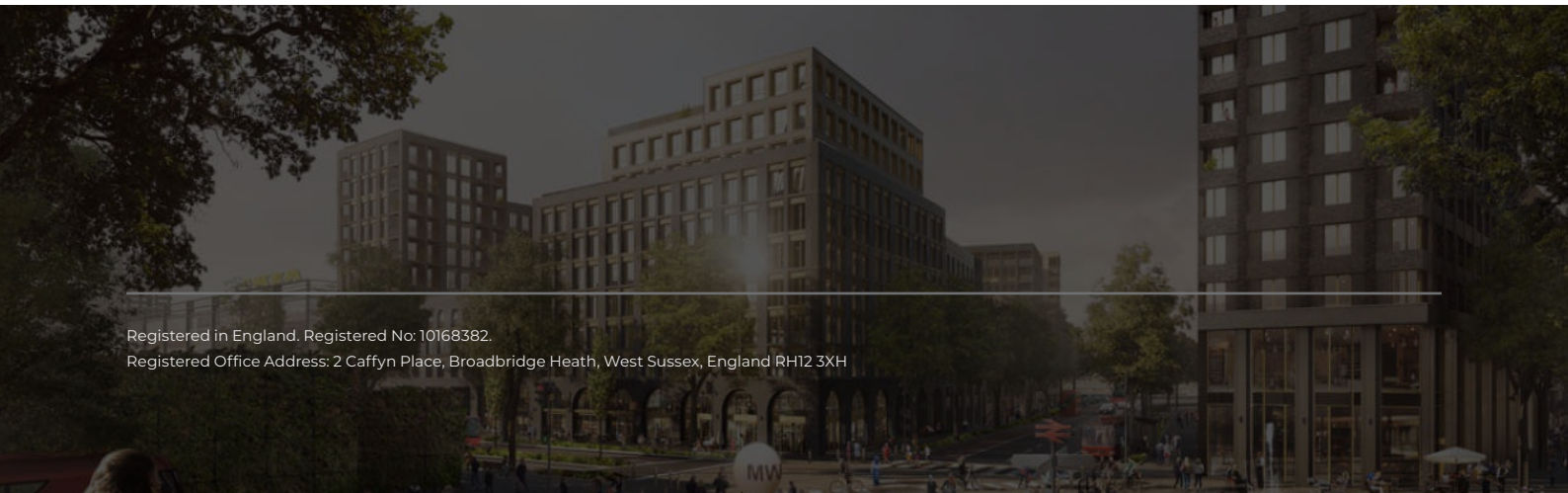
Canal Wall Excavation Progress (Example)

Canal Wall Excavation Progress (Example)

Turnkey Regeneration

Turnkey Regeneration Ltd
2 Caffyn Place
Broadbridge Heath
Horsham RH12 3XH

www.turnkeyregeneration.com



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