ST Consult
Environmental & Geotechnical

Final Verification Report

Desk Studies | Risk Assessments | Site Investigations | Geotechnical | Contamination Investigations | Remediation Design and Validation

Site: 45 Broadwater Road, Welwyn Garden City

Client: C Field Construction Ltd

Report Date: 2nd June 2023

Project Reference: JN1576

SUMMARY

The site is located at 45 Broadwater road, in Welwyn Garden City, Hertfordshire and occupies an area of approximately 60m^2. A four storey care home has been constructed, with associated infrastructure and soft landscaping.

A desk study was carried out by others and indicates that the site has a history of residential use, prior to its likely commercial use from the early 1900's.

Relevant Pollutant Linkages had been identified in respect of minor and isolated lead, copper, zinc, PAH's, TPH and asbestos in a number of investigations.

A Remediation Strategy comprising the excavation and removal of the diesel impact in the southern part of the site was carried out, with subsequent inspection, sampling and laboratory analysis of the residual soils to confirm that they are suitable to be retained on site. In addition, recommendations were made for new soft landscaped areas and provision of Protecta-Line pipes, which are also covered in this report.

The contamination screening values used are valid at the time of writing but may be subject to change and any such changes will have implications for the assessments based upon them. Their validity should be confirmed at the time of site development. As a precaution, residential screening values were used for topsoil imported to new areas of soft landscaping to ensure that a good quality topsoil was imported.

No previously undiscovered contamination was identified or reported during the course of the development works, by the contractor.

This report has been prepared for the sole internal use and reliance of C Field Construction Ltd. and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The findings and opinions conveyed via this report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Ltd believes are reliable. Nevertheless, Southern Testing Laboratories Ltd cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

J Kelly BSc PhD DIC
For and on behalf of Southern Testing Laboratories Limited

TABLE OF CONTENTS

A INTRODUCTION

1 Authority

Our authority for carrying out this work was given by Brian Greene of C Field Construction, dated 28th May 2021.

2 Location

The site is located at 45 Broadwater road, in Welwyn City Garden, Hertfordshire AL7 3AX. The approximate National Grid Reference of the site is TL 24180 12450.

The site location is indicated on Figure 1 within Appendix A.

3 Construction

A four-storey care home has been constructed, with associated hard and soft landscaping.

For the purposes of the contamination risk assessment, and taking a conservative approach, the proposed development land use is classified as Residential with home-grown produce, (CLEA model1/C4SL report2). The gas sensitivity of the site is therefore rated as High (CIRIA C6653), although no gas risk was identified.

4 Scope

Southern Testing have been employed on a watching brief in respect of verification of remedial measures to deal with the soil contamination identified at the site. This report presents the data collected in the verification process, and our interpretation of that data.

This report should be read in conjunction with the supporting information appended, and the relevant reports referred to.

The findings and opinions conveyed via this Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Limited believes are reliable. Nevertheless, Southern Testing Laboratories Limited cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

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Southern Testing have not been responsible for verification that the exported soils reached their destination, nor that the receiving tip was licensed to receive the waste. This has been and remains the responsibility of the Client.

The conclusions contained in this report may not be appropriate to alternative development schemes.

B BACKGROUND INFORMATION

5 Site Investigation Works

The site has been the subject of a series of site investigation reports, as listed below:

Report Number	Date of Issue	Author	Report Reference / Title	Purpose
1	2019	Integral Geotechnique (Wales) Limited (IGWL)	Not known	Phase I and II Site Investigation Report.
2	October 2020	A F Howland Associates	Ground Investigation Report for a proposed residential care home/JAH/20.212/GIR	Phase III Ground Investigation Report
3	July 2021	ST Consult	Phase III Investigation – JN1576	Phase III Contamination Investigation Site Report
4	July 2021	ST Consult	Remediation Strategy and Verification plan	Remediation Strategy

These reports provided good coverage and characterisation of the site and information derived from these is discussed below. The reader is referred to the original reports for supporting detail if needed. These reports are referred to below by the number given in the left hand column of the above table.

6 Site History

The desk study was very briefly summarised in [2]. The site has reportedly been occupied by buildings, used for light industrial activity, since the 1930's, with some reconfiguration of these between 1960 and 1990.

7 Summary of Previous Investigations

The site has been the subject of several reports, a Phase 1 desk study and Phase 2 intrusive investigation by IGWL which was not available for review. Subsequently, it was summarised in a Phase III ground investigation report by A F Howland [2] and comprised a number of trial pits and windowless sample trial holes.

The site was then further investigated by ST Consult and summarised in JN1576 Phase III Contamination site investigation report [3]. This investigation consisted of 9 Trial pits with gas monitoring of the previously installed wells.

A remediation strategy was then proposed for the site [4].

8 Relevant Pollutant Linkages

The site investigation and risk assessments carried out identified the following relevant pollution linkages for the site:

Contaminant/Source	Pathways	Receptors
Asbestos within the made ground (generally low-level)	Soil/dust dermal exposure Soil/dust ingestion/inhalation	Site/Construction workers Future residents
PAH's in Made Ground	Ingestion/inhalation/dermal contact Direct Contact	Future residents and construction Workers Structures/services
Zinc/Copper in Made Ground	Vegetation growing in contaminated soil	Flora
Petroleum Hydrocarbons	Soil/dust ingestion/inhalation Soil/dust ingestion/inhalation Direct contact Migration through soil	Site/Construction workers Future residents Structures/services Perched groundwater

C REMEDIAL OBJECTIVES AND REMEDIATION STARTEGY

9 Introduction

On the basis of the investigation carried and site proposals, the remediation objectives were as follows:

- Reduce any risk, to the site workers and future residents, from the asbestos, lead, zinc, lead, PAHs and TPH identified in the made ground material.
- To reduce the risk to the perched groundwater from the hotspot of diesel identified.
- To reduce the risk to water main pipes from the generally minor levels of TPH/PAH recorded in the soils on site.

D REMEDIATION STRATEGY

The Remediation Strategy comprised the following:

Location	Details
Diesel impact at depth 2.7m in WS 105	Removal of any petroleum hydrocarbon impacted soils and perched groundwater. The exposed soil was inspected with validation testing to confirm that it was suitable to remain on site.
Soft landscaped areas	Provision of 300mm of certified clean topsoil in new soft landscaping areas. There are no private gardens or allotments on site.
New Water Supply pipes	Protecta-Line pipes have been provided.

10 Assessment Criteria

The following assessment criteria values was used in the verification process:

Contaminant Screening Values for Imported Soils

Contaminant	Units	Proposed Land Use					
		Residential with home-grown produce consumption	Residential without home-grown produce consumption	Open Space* (Residential)	Open Space* (Park)	Allotments	Commercial / Industrial
Arsenic (As) [2]	mg/kg	37	40	79	170	43	640
Cadmium (Cd) [2]	mg/kg	11	85	120	555	1.9	190
Trivalent Chromium (CrIII) [2]	mg/kg	910	910	1,500	33,000	18,000	8600
Hexavalent Chromium (CrVI) [2]	mg/kg	6	6	7.7	220	1.8	33
Lead (Pb) [3]	mg/kg	200	310	630	1300	80	2330
Mercury (Hg) [1,2,7]	mg/kg	7.6-11	9.2-15	40	68-71	6.0	29-320
Selenium (Se) [2]	mg/kg	250	430	1,100	1,800	88	12,000
Nickel (Ni) [1,4]	mg/kg	pH<6.0 60 pH 6.0-7.0 75 pH>7.0 110					
Copper (Cu) [1,4]	mg/kg	pH<6.0 100 pH 6.0-7.0 135 pH>7.0 200					
Zinc (Zn) [1,4]	mg/kg	pH<6.0 200 pH 6.0-7.0 200 pH>7.0 300					
Phenol [1,2]	mg/kg	120-380	440-1200	440-1300	440-1300	23-83	440-1300
Benzo[a]pyrene [1,5]	mg/kg	1.7-2.4	2.6	4.9	10	0.67-2.7	36
Naphthalene [1,2]	mg/kg	2.3-13	2.3-13	77-430+	77-430+	4.1-24	77-430+
Total Cyanide (CN) [6]	mg/kg	/	/			/	/
Free Cyanide [6]	mg/kg	/	/			/	/
Complex Cyanides [6]	mg/kg	/	/			/	/
Thiocyanate [6]	mg/kg	/	/			/	/
Asbestos	-	Absent	Absent	Absent	Absent	Absent	Absent

Notes:

* Open Space levels calculated on the basis of the exposure modelling developed in the C4SL research.

+ Screening values constrained to saturation limit. Higher values may be acceptable on a site specific basis.

[1] Where ranges of values are given for organic contaminants, the screening value is dependent on the Soil Organic Matter. Where ranges are given for inorganic contaminants, the screening value is dependent on the pH.

[2] LQM/CIEH S4UL (2014). Copyright Land Quality Management Ltd reproduced with permission; Publication Number S4UL 3116. All rights reserved.

[3] C4SL (DEFRA 2014).

[4] Copper Zinc and Nickel may have phototoxic effects at the GAC or SGV concentrations and alternative criteria are given for importation of Topsoil or other soils for cultivation, based on BS3882:2007 (Topsoil) and BS8601:2013 (Subsoil).

[5] Based on the Surrogate Marker approach and modelled using the modified exposure parameters of C4SL but retaining 'minimal risk' HCV.

[6] Usually Non-Detect concentrations. Screening criteria to be derived on a site specific basis if test results indicate.

[7] SGV/GAC for Methyl Mercury, higher concentrations may be tolerable if inorganic mercury is the only species present. Lower concentrations apply for elemental mercury.

Imported soils shall be free from deleterious materials, weeds and contamination. The material to be used will be tested in accordance with the appropriate BS Specifications for Topsoil (BS3882:2015) and any subsoil (BS8601:2013). As a precaution, the analysis shall comply with the values given for a residential with home grown produce consumption land-use in the table above. These values are valid at the time of writing but may be subject to change and any such changes will have implications for the assessments based on them. Their validity should be confirmed at the time of site development.

11 Introduction

The verification plan was set out in report JN1576 Remediation Strategy and Verification Plan dated 1st July 2021 [4], to which the reader is referred for more detail.

12 Data Collection

The data collected as part of the verification works are described below.

Location	Details	Responsible Party
Diesel Hotspot (WS 105)	Excavation and removal of any petroleum hydrocarbon impacted soils.	Main Contractor
	Provision of consignment notes for the petroleum hydrocarbon contaminated soils removed from site.	Main contractor
	Sampling & confirmatory laboratory analysis of the exposed soils	ST Consulting
Soft Landscaped areas	Post placement check of thickness Post placement soil samples (if required) Consignment Notes (for certified clean imported topsoil)	ST Consult ST Consult Main contractor
Buried Services	Allowances for fully barrier-protected piping	Main Contractor

E VERIFICATION PROGRESS AND DATA

13 Works Completed

At the time of writing, all of the remediation work has been completed.

14 Site Visits

The site was visited on three occasions by representatives of Southern Testing Laboratories Limited, as the topsoil was being placed in the soft landscaped area.

The first two visits cover the site visits to validate the petroleum hydrocarbon impact reported in earlier reports by others. This work is covered in the report in Appendix E.

Date	Visit No	Details
19/08/2021	1	Petroleum hydrocarbon validation visit.
24/08/2021	2	Petroleum hydrocarbon validation visit.
30/05/2023	3	Validation visit to confirm the placement certified clean topsoil in the soft landscaped area. The pictures are shown on the plan in in Appendix B.

15 Topsoil Test Results

As discussed above, the topsoil used was supplied by Toon Materials Ltd, sourced from Freeland Horticulture in Potters Bar. A certificate for February 2023 is appended for reference (Appendix B) which confirm the suitability of this well-known and reliable source.

On this basis, and our previous experience, the material is considered suitable for use in the soft landscaping areas on site. Photographs confirming that a suitable depth of clean cover has been provided, are also presented in Appendix B, at the locations shown on the plan in Appendix A. Depths of around 300mm have been recorded, which will be raised further with turf. On this basis, the remediation work is considered complete.

16 Protecta-Line Data

As per the recommendations, Protecta-Line pipes were installed to mitigate the risk from the organic contamination identified. The data sheet for the pipe is presented in Appendix D along with photographs from the site confirming the installation.

17 Discovery Strategy

No previously undiscovered contamination was reportedly encountered in the course of the redevelopment works by the contractors.

18 Imported Soils

The transfer notes relating to topsoil imported are presented in Appendix C.

19 Exported Soils

The transfer notes relating to the soil exported from the hydrocarbon remediation exercise are appended to the report in Appendix E.

F SUMMARY

At the time of writing, all specified remedial works are complete. To the best of our knowledge, the site remediation has been carried out by C Field Construction Ltd and their appointed representatives, in accordance with the approved method statement.

APPENDIX A

Site Plans

0 5 10 15 20 Metres

Scale Bar

SITE PLAN - AS PROPOSED

NOTES

MATERIALS PROHIBITED

NOTES

1. Scheme design is subject to relevant Statutory Approvals.
2. Drawing based on topographical survey ref: TS18-448X1.
3. Tree information based on Arboricultural Survey ref. BS5837.
4. Refer to Deacon Design information for landscaping and materials.
5. Refer to Canham Consulting information for levels.

KEY

- Site Boundary
- Previous Consent Footprint
- Existing Buildings
- Proposed Building
- Vehicular Access & Parking
- Paths
- Patio Areas
- Existing Tree - Retained
- Existing Tree - Removed
- Tree Root Protection Area
- New Tree
- CS Cycle Shelter - 8 Spaces

SCHEDULE OF ACCOMMODATION:

CARE HOME

	Units	Beds/ Suites	GIA m²
Ground Floor	2	27	1490
First Floor	2	31	1477
Second	2	32	1455
Third Floor	1	13	1313
TOTAL BEDS/SUITES & GIA		90 Beds/ 13 Suites	**5735**

PARKING

33 car parking spaces incl. 3No. disabled

TENDER ISSUE

Ⓙ Hard standing areas amended to reflect Deacon Design info 08-02-2021

Ⓘ - Levels removed and note added to refer to Canham info - Shrubs removed from key and noted added to refer to Deacon Design info 15-01-2021

Ⓗ Main entrance moved and parking amended to suit [PS email 30-11-2020] DD layout shown to amenity garden 01-12-2020

Ⓖ Drop off zone and parking amended to suit client comments [meeting with PS 11-08-2020] 13-08-2020

Ⓕ Existing Oak tree retained and access footpath and parking amended to suit. 16-07-2020

Ⓔ Frontage trees revised. 04.08.2019

Ⓓ GIA increased by 5m² due to Third Floor balcony redesign as agreed with Planning on 16.05.2019. 17.06.2019

Ⓒ 'Car parking spaces out of use during refuse collection' notation omitted based on Mayer Brown drawing no. BPWELWYNGC.1/TK10. 30.04.2019

Ⓑ 'Do Not Scale' notation omitted. 17.01.2019

Ⓐ Sub-station indicated. 17.12.2018

REVISION DETAILS date / by

○ Preliminary
○ For Approval
● Tender
○ Construction

CLIENT
Marbrook

PROJECT
Broadwater Road
Welwyn Garden City
AL7 3AX

DRAWING TITLE
Proposed Site Plan

SCALE	drawn by	date
1 200@A1	CS	03.08.2018

DRAWING NO.	revision
17-132-110	J

Condy Lofthouse Architects
T: 0151 207 4371 • F: 0151 207 7087
Condy & Lofthouse Ltd Trading as CLA • Unit 17 Connect Business Village • 24 Derby Road • Liverpool • L5 9PR • E: info@condylofthouse.co.uk • www.condylofthouse.co.uk

Site:	Broadwater Road, Welwyn	STL: JN1576	Fig No: 1
Date:	2nd June 2023	Topsoil Validation Locations	

Southern Testing: Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4QA
ST Consult: Twigden Barns, Brixworth Road, Creaton, Northampton NN6 8NN

APPENDIX B

Validtion Visit Photographs and Topsoil Data

JN1576 – 45 Broadwater Road, Welwyn Garden City

Soft Landscaping Validation Pictures

Plate 1. Location 1 (see plan in Appendix A); 300mm of certified clean topsoil

Plate 2. Location 2 (see plan in Appendix A); 300mm of certified clean topsoil

Plate 3. Location 3 (see plan in Appendix A); 300mm of certified clean topsoil

Freeland
HORTICULTURE LIMITED

Freeland Horticulture Ltd
Rosedale Nursery
College Road
Hextable
Kent
BR8 7LT

Attention: [redacted]

Our Ref: 1137 SA

21 February 2023

Dear [redacted]

Topsoil Analysis Report: Potters Bar, Hertfordshire Topsoil – February 2023

We have completed the analysis of the topsoil sample recently taken from the above site and it has been forwarded to an approved laboratory for analysis and have the pleasure of reporting our findings. The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes and its compliance with the current British Standard for topsoil (BS3882).

SOIL SAMPLING & EXAMINATION

At the time of our sampling visit the topsoil was stored in a stockpile. A series of 10 hand augered trial holes were constructed across the stockpile for the purpose of soil examination and sample collection. As the soil examination confirmed a consistent topsoil composition, the ten samples were combined together to form one composite sample for analysis purposes. The soil was described as dark brown, slightly moist and friable with a well-developed, fine to medium granular structure. The soil contained a low fraction of small stones and no deleterious materials (eg. building waste materials, glass, roots or rhizomes of pernicious weeds) or unusual odours (eg. hydrocarbons) were recorded.

LABORATORY ANALYSIS

The topsoil sample was submitted to a UKAS and MCERTS accredited laboratory for routine physical and chemical parameters to confirm the composition and fertility of the soil. The following parameters were determined:

- pH & electrical conductivity values;
- major plant nutrients (N, P, K, Mg) & organic matter content;
- particle size distribution and stone content;
- heavy metals & potentially toxic elements (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- sulphate, sulphur, sulphide;
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16)
- banded aromatic and aliphatic petroleum hydrocarbons (C_5-C_{35}).
- Asbestos

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

COMMENTS

pH & Electrical Conductivity (salinity) Values

The sample was alkaline in nature (pH 8.5) with a pH value that would be considered suitable for general landscaping purposes.

The electrical conductivity (salinity) value using the soil:water extract was (1501µS/cm) indicating that soluble salts are not present at levels that would be harmful to plants.

The electrical conductivity values by $CaSO_4$ extract (BS3882 requirement) fell below the maximum specified value (3300µS/cm) given in BS3882:2015.

Organic Matter & Nutrient Status

The sample was rich in organic matter and all major plant nutrients. No further a tion of compost or fertiliser are required, or indeed recommended, for at least the first growing se

The C:N ratio of the sample was acceptable for general landscape purposes [redacted]

Particle Size Distribution & Stone Content

The sample contained 85% sand and fell into the sandy loam texture class. This particle size distribution is considered suitable for a broad range of landscape applications, including tree and shrub planting, turfing and seeding.

The sample was Virtually free from stones of 50 mm and upwards in diameter and only contained a slight fraction of smaller stones (11.9%). As such, s will not restrict the use of the soil for landscaping purposes.

Potential Contaminants

[redacted]

We are not aware of any specified contaminant levels for the proposed end-use of this topsoil. This includes human health, environmental protection and metals considered toxic to plants. In the absence of any site-specific assessment criteria, the concentrations that affect human health have been compare with the 'residential with homegrown produce' land use in the Suitable For Use Levels presented in. 'The LQM/CIEH S4Uls' for Human Health Risk Assessmet (2015) and DEFRA SP1010: 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

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

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes. From the soil examination and laboratory analysis, the soil is described as an alkaline, non-saline, sandy loam. The organic matter and nutrient levels are acceptable, and no significant contamination was found with respect to the parameters determined. This soil would adhere to the current BS3882 specification for 'multipurpose grade'.

To conclude, based on our findings, the topsoil would be considered well-suited to general landscaping purposes provided the physical condition of the soil is maintained.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if you have any queries or comments.

[redacted] MSc Soil Sci. M.I Soil Sci.

Freeland 013 619

Freeland
HORTICULTURE LIMITED

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Potters Bar, Hertfordshire
Month/Year	February 23
Our Ref	1137-SA
Date	21 February 2023

		Composite sample
pH Value & Salinity		
pH value (1:2.5 soil/water ext)	units	8.5
Electrical Conductivity (1:2.5 soil/water ext)	µS/cm	1501
Electrical Conductivity (1:2.5 soil/CaSO4 ext)	µS/cm	3159
Neutralising Value ($CaCO_3$ equivalent)	%	1.5
Organic Matter & Nutrient Status		
Organic Matter (LOI)	%	7.1
Organic Carbon (Derived)	%	4.1
Total Nitrogen	%	0.319
Carbon:Nitrogen Ratio	:1	12.9
Available Phosphorus	mg/l	49.6
Available Potassium	mg/l	1472
Available Magnesium	mg/l	165
Particle Size Analysis & Stones		
Clay (<0.002mm)	%	6
Silt (0.063-0.002mm)	%	9
Sand (2.0-0.063mm)	%	85
Texture Class	UK Class	Sandy Loam
Stones 2-20mm	% by DW	11.9
Stones 20-50mm	% by DW	0.9
Stones >50mm	% by DW	0.0
Potential Contaminants		
Total Arsenic (As)	mg/kg	15.6
Total Cadmium (Cd)	mg/kg	0.24
Total Chromium (Cr)	mg/kg	66.2
Hexavalent Chromium (CR^{VI})	mg/kg	0.9
Total Copper (Cu)	mg/kg	19.5
Total Lead (Pb)	mg/kg	23.2
Total Mercury (Hg)	mg/kg	<0.2
Total Nickel (Ni)	mg/kg	22.4
Total Selenium (Se)	mg/kg	0.42
Total Zinc (Zn)	mg/kg	96.5
Total Beryllium (Be)	mg/kg	<1
Total Barium (Ba)	mg/kg	45.0
Total Vanadium (V)	mg/kg	34.0
Hot Water Soluble Boron (B)	mg/kg	1.8
Total Cyanide (CN)	mg/kg	<1
Elemental Sulphur (S)	mg/kg	8.5
Easily Liberated Sulphide (S^{2-})	mg/kg	<1
Water Soluble Sulphate (SO_4^{2-})	mg/l	107
Total Phenols Index	mg/kg	<1
Asbestos Screen	-	N.D.

Chain of Custody requires a Freeland Horticulture Delivery

Freeland
HORTICULTURE LIMITED

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Potters Bar, Hertfordshire
Month/Year	February 23
Our Ref	1137-SA
Date	21 February 2023

Polyaromatic Hydrocarbons

Naphthalene	mg/kg	<0.05
Acenaphthylene	mg/kg	<0.05
Acenaphthene	mg/kg	<0.05
Fluorene	mg/kg	<0.05
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.05
Fluoranthene	mg/kg	0.1
Pyrene	mg/kg	<0.1
Benzo[a]anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo[b]fluoranthene	mg/kg	<0.1
Benzo[k]fluoranthene	mg/kg	<0.1
Benzo[a]pyrene	mg/kg	<0.1
Indeno[1,2,3-cd]pyrene	mg/kg	<0.1
Dibenzo[a,h]anthracene	mg/kg	<0.1
Benzo[g,h,i]perylene	mg/kg	<0.1
Total PAHs sum US EPA 16	mg/kg	<1

Banded Petroleum Hydrocarbons

Aliphatic TPH >C_5-C_6	mg/kg	<0.05
Aliphatic TPH >C_6-C_8	mg/kg	<0.05
Aliphatic TPH >C_8-C_{10}	mg/kg	<0.05
Aliphatic TPH >C_{10}-C_{12}	mg/kg	<10
Aliphatic TPH >C_{12}-C_{16}	mg/kg	<10
Aliphatic TPH >C_{16}-C_{21}	mg/kg	<10
Aliphatic TPH >C_{21}-C_{35}	mg/kg	47.0
Aliphatic TPH >C_{35}-C_{44}	mg/kg	24.0

Aromatic TPH >C_5-C_7	mg/kg	<0.05
Aromatic TPH >C_7-C_8	mg/kg	<0.05
Aromatic TPH >C_8-C_{10}	mg/kg	<0.05
Aromatic TPH >C_{10}-C_{12}	mg/kg	<10
Aromatic TPH >C_{12}-C_{16}	mg/kg	<10
Aromatic TPH >C_{16}-C_{21}	mg/kg	13.0
Aromatic TPH >C_{21}-C_{35}	mg/kg	58.0
Aromatic TPH >C_{35}-C_{44}	mg/kg	46.0

Total Petroleum Hydrocarbons (C_5-C_{44})	mg/kg	188

BTEX

Benzene	mg/kg	<0.02
Toluene	mg/kg	<0.2
Ethyl Benzene	mg/kg	<0.04
m- & p-Xylene	mg/kg	<0.2
o-Xylene	mg/kg	<0.1

Chain of Custody requires a Freeland Horticulture Delivery

APPENDIX C

Transfer Notes for Imported Topsoil

INERT / NON HAZARDOUS MUCK TICKET

Ticket No. 46933

TOON
Materials Ltd
Established 10 Years

Unit C3, Pierson Court,
Knowl Piece, Wilbury Way, Hitchin,
Hertfordshire SG4 OTY
[redacted]

Date & Time of Loading 18/05/23 ..... am/pm	Customers Name: F. LAND
Vehicle Reg No. EX72 NTJ	Site Address: RIDGE P/BAL
1 x 8 Wheeler	Name of Person in Charge of Vehicle [redacted]

Description of Material

☐	Insert Muck/Soil	EWC	17	05	04
☐	Brick/Rubble/Hardcore	EWC	17	01	07
☐	Concrete	EWC	17	01	01
☐	Other	EWC			

1X8W F/LAND T/SOIL

*ALL MUCK COLLECTED IS CLEAN INERT CATEGORY 'A' UNLESS SPECIFIED OTHERWISE

SIC Code .....

Disposal Point

Name YBI CONST

Address 45 BROADWATER RD

Waste Reg. No. (If applicable) W.G.C. AL7 3SP

SIGNED FOR ON BEHALF OF THE COMPANY	PRINT NAME - COMPULSORY
[redacted]	[redacted]

DATE: .....

ALL SECTIONS TO BE COMPLETED

"I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the Waste (England & Wales) Regulations 2011."

Customers ordering vehicles off the public road do so entirely on their own responsibility.

Materials supplied remain the property of the Toon Materials Ltd until paid for in full.

Toon Materials Limited Waste Carrier Licence: CBDU120759

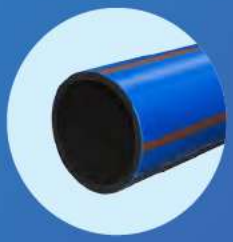
APPENDIX D

Protecta-Line Pipe Data and Installation Pictures

Product data sheet

Protecta-Line pipe

A multi-layered PE pipe with an embedded aluminium barrier layer. It is designed to safely transport drinking water in land which is contaminated or has the potential to be contaminated in the future.



Range / pressure rating

OD (mm)	SDR	Pressure rating	Material
25	11	12.5 bar	PE80
32			
63	11	16 bar	PE100
90 to 180	11	16 bar	PE100
	17	10 bar	PE100
225 to 630	11	16 bar	PE100
	17	10 bar	PE100

Colours

Material	Description	Colour
PE80	Black core and light blue outer with brown stripes.	
PE100	Black core and dark blue outer with brown stripes.	

Pipe diameter ≤ 180mm pipe has four brown stripes; > 180mm pipe has eight brown stripes.

Standards / approvals

The Water Supply Regulation 31/33	BS EN 12201-2	WRAS Approved	BS 8588

Certification

WRAS APPROVED PRODUCT 1606501 1511343 1505514 1302025	BS EN 12201-2 KM 508224	BS 8588 KM 695717

Lengths

Pipes ≤ 180mm in diameter are available in coiled lengths of 25m, 50m or 100m.

Pipes 63mm – 630mm in diameter are also available in straight lengths of 6 or 12m.

Other lengths may be produced at customer's request.

Aliaxis UK - St. Peter's Road, Huntingdon, PE29 7DA, United Kingdom
Sales/Technical: +44 (0)1480 442600
customerservice@aliaxis.com

Product data sheet

Protecta-Line pipe

Markings

As a minimum requirement, the following information is marked indelibly and linearly at intervals along the pipe:

- Manufacturers identification: **GPS**
- System: **Protecta-Line**
- Pipe composition: **PE Pipe with AL Barrier**
- Standard and pipe type:: **BS 8588 TYPE A**
- Material designation: **PE100 or PE80**
- Nominal size: **180mm (example)**
- SDR value: **Water**
- Continuous pressure rating at 20°C **10 bar (example)**

The pipes are marked with the following three times per metre:

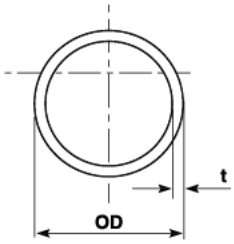
- Application: **Water**

Batch number format

8 Digit Code	Extruder Number 1 & 2	Shift Number 3 & 4	Week Number 5 & 6	Year 7 & 8
	01-23	01 - 14	01 - 52	01-99

Pipe dimensions – water applications (BS EN 12201-2)

Size* (mm)	SDR	Mix OD (mm)	Max OD (mm)	Mean Bore (mm)	Min t (mm)	Max t (mm)	Approx Weight (kg/m)
25	11	26.2	27.4	20.0	3.0	3.7	0.3
32	11	33.3	34.5	26.0	3.7	4.4	0.4
63	11	64.3	65.6	50.9	6.5	7.6	1.3
90	11	92.2	93.5	72.9	9.3	10.7	2.6
	17	92.2	93.5	78.8	6.5	7.5	1.9
110	11	112.2	113.5	89.2	11.1	12.7	3.7
	17	112.2	113.5	96.3	7.7	8.8	2.7
125	11	127.2	128.5	101.2	12.5	14.2	4.7
	17	127.2	128.5	109.6	8.5	9.8	3.4
160	11	163.2	165.1	130.4	15.8	17.9	7.6
	17	163.2	165.1	141.1	10.7	12.4	5.4
180	11	183.3	185.4	146.8	17.6	20.0	9.5
	17	183.3	185.4	158.8	11.9	13.7	6.8
225	11	227.3	229.5	182.5	21.7	24.4	14.5
	17	227.3	229.5	197.4	14.6	16.6	10.3
250	11	252.3	254.9	203	23.9	26.8	17.7
	17	252.3	254.9	219.6	16.0	18.3	12.4
280	11	282.3	285.1	227.4	26.6	29.8	22.0
	17	282.3	285.1	245.9	17.8	20.1	15.4
315	11	317.3	320.2	255.7	29.8	33.3	27.6
	17	317.3	320.2	276.6	19.9	22.4	19.3
355	11	357.3	360.6	288.3	33.4	37.3	34.8
	17	357.3	360.6	311.6	22.3	25.1	24.3
400	11	402.3	405.8	324.8	37.5	41.8	43.9
	17	402.3	405.8	351.3	24.9	27.9	30.4
450	11	452.3	456.1	365.4	42.1	46.8	55.3
	17	452.3	456.1	395.2	27.9	31.2	38.2
500	11	502.3	506.4	406	46.6	51.8	67.9
	17	502.3	506.4	439.0	30.9	34.5	46.9
560	11	562.3	566.8	454.9	52.0	57.7	84.7
	17	562.3	566.8	491.8	34.4	38.4	58.4
630	11	632.3	637.2	511.6	58.4	64.8	106.9
	17	632.3	637.2	553.2	38.6	43.0	73.6



* The size is the nominal core pipe outside diameter. Other diameters, SDRs and lengths can be made subject to a minimum order value.

Aliaxis UK - St. Peter's Road, Huntingdon, PE29 7DA, United Kingdom
Sales/Technical: +44 (0)1480 442600
customerservice@aliaxis.com


23064022
GPS
WATER
PROTECTA-LINE PE PIPE WITH AL BARRIER
BS8588:2017
MXBKVE
WATER
TYPE A
16 BAR

APPENDIX E

Petroleum Hydrocarbon Hotspot Validation Report

ST Consult
Environmental & Geotechnical

Petroleum Hydrocarbon Hotspot Remediation Report

Desk Studies | Risk Assessments | Site Investigations | Geotechnical | Contamination Investigations | Remediation Design and Validation

Site: 45 Broadwater Road, Welwyn Garden City

Client: C Field Construction

Report Date: 2nd June 2023

Project Reference: JN1576

SUMMARY

The site is located at 45 Broadwater road, in Welwyn City Garden, Hertfordshire and occupies an area of approximately 60m^2. It is proposed to construct a four storey care home, with associated infrastructure and soft landscaping.

The Mapped geology is Lowestoft Formation (Secondary A Aquifer) over Lewes and Seaford Chalk Formation (Principal Aquifer). The site is located in a SPZ III (Total catchment).

A number of investigations have been carried out by others, with the only remediation recommended, other than provision of clean cover in areas of soft landscaping, being the removal of a hotspot of diesel contamination in the location of WS105. This was confirmed by our Phase III investigation, which comprised a number of trial pits in and around the hotspot, none of which encountered any fuel impact.

This report covers the delineation, excavation and removal of the diesel impacted soils, along with validation of the exposed faces to confirm that the remediation work has been successfully carried out.

The verification testing carried out demonstrates that the remediation of the diesel hotspot has been successful, although it was not possible to excavate any further on the southern boundary due to the presence of a sewer. Post-excavation perched water sampling and analysis has not reported any Petroleum hydrocarbon impact in a nearby monitoring well.

Validation of the soft landscaped areas, is yet to be completed, and will be reported under separate cover.

The verification work was conducted and this report has been prepared for the sole internal use and reliance of C Field Construction and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

J KELLY		C NOLAN
(Countersigned)		(Signed)

For and on behalf of Southern Testing Laboratories Limited

STL: JN1576
14 June 2023

TABLE OF CONTENTS

A INTRODUCTION

1 Authority

Our authority for carrying out this work was given by Brian Greene of C Field Construction, dated 23rd July 2021.

2 Location

The site is located at 45 Broadwater road, in Welwyn City Garden, Hertfordshire. The approximate National Grid Reference of the site is TL 24180 12450.

3 Construction

It is proposed to construct a four-storey care home, with associated hard and soft landscaping.

For the purposes of the contamination risk assessment, and taking a conservative approach, the proposed development land use is classified as Residential with home-grown produce, (CLEA model[1]/C4SL report[2]). The gas sensitivity of the site is therefore rated as High (CIRIA C665[3]).

4 Scope

Southern Testing have been employed on a watching brief in respect of verification of remedial measures to deal with the soil contamination identified at the site. This report presents the data collected in the verification process for the diesel hotspot and our interpretation of that data.

Other aspects relating to the remediation of the site, such as validation of the soft landscaped areas, will be reported under separate cover.

This report should be read in conjunction with the supporting information appended, and the relevant reports referred to.

The findings and opinions conveyed via this Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Limited believes are reliable. Nevertheless, Southern Testing Laboratories Limited cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

The verification work was conducted and this report has been prepared for the sole internal use and reliance of C Field Construction and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

[1] Environment Agency Publication SC050021/SR3 'Updated technical background to the CLEA Model' (2009).
[2] SP1010 Development of Category 4 Screening Levels DEFRA (2014)
[3] CIRIA C665 (2006) Assessing risks posed by hazardous ground gases to buildings.

Waste transfer certificates collated and attached to this report are provided solely as evidence of the volumes of soil exported from site. Southern Testing have not been responsible for verification that the exported soils reached their destination, nor that the receiving tip was licensed to receive the waste. This has been and remains the responsibility of the Client.

The conclusions contained in this report may not be appropriate to alternative development schemes.

B BACKGROUND

5 Site History

The site has reportedly been occupied by buildings, used for light industrial activity, since the 1930's, with some reconfiguration of these between 1960 and 1990.

Previous investigations reported some impact with lead, PAH's, TPH and asbestos, although no more details were provided. In the investigation by AF Howland associates in October 2020, no heavy metal or PAH contamination was identified, although significant diesel impact was recorded at depth in one trial hole close to where impact had been reportedly recorded in the earlier investigation by IGWL (their trial pit 8); this had also impacted the perched groundwater in the area.

In addition, asbestos was identified in the Made Ground samples screened, with subsequent quantification tests confirming concentrations of <0.001% to 0.07%. In conclusion, the only remediation recommended was removal and validation of the diesel impact identified.

This was confirmed by our Phase III investigation, which comprised a number of trial pits in and around the hotspot, none of which encountered any fuel impact.

6 Relevant Pollutant Linkages

The Relevant Pollutant Linkages for consideration in the validation, for which remedial action will be required, have been identified in the revised conceptual model presented in our Phase III investigation. For the purposes of this remediation and validation exercise, which only deals with the diesel hotspot identified, the specific linkages relating to petroleum hydrocarbon are outlined in the table below. It should be stressed that, for the most part, the various investigations have not encountered particularly significant or widespread contamination, despite the depth of Made Ground on some of the site. The most significant contamination identified was the diesel impact at depth in the southern part of the site.

Other assessment and remediation work will be undertaken, namely further assessment of the perched groundwater and validation of the soft landscaped areas, will be reported under separate cover.

A discovery strategy will also need to be put in place, to mitigate the risk from any undetected contamination that might come to light during the development work.

Contaminant/Source	Pathways	Receptors
Petroleum Hydrocarbons	Soil/dust ingestion/inhalation	Site/Construction workers
	Soil/dust ingestion/inhalation	Future residents
	Direct contact	Structures/services
	Migration through soil	Perched groundwater

C REMEDIAL OBJECTIVES AND REMEDIATION STRATEGY

7 Introduction

The remedial objectives and remediation strategy are set out in our report ref JN1576 Phase III Contamination Site Investigation Report, dated July 2021, to which the reader is referred. A summary of the remedial objectives and strategy adopted is given below, in relation to the diesel contamination identified.

8 Remedial Objectives

On the basis of the investigations to date and the site proposals the remediation objectives are as follows:

Reduce any risk to the site workers and future residents, from the diesel impact.

To reduce the risk to the perched groundwater from the hotspot of diesel.

To reduce the risk to the water main pipes from the diesel recorded in soils.

9 Remediation Strategy

Locate and excavate the extent of the diesel impacted material for removal from site. Following a review of the previous investigations, and our Phase III investigation, WS105, drilled as part of an earlier investigation by others, was the only trial hole that reported any significant fuel impact; as such, the remediation excavation commenced at this location.

D VERIFICATION PLAN

11 Introduction

Starting at the point of the most significant contamination identified (WS105), a trial pit was extended laterally, based on the visual and olfactory evidence, and below the impacted materials.

Following removal of the impact, a new monitoring well will be installed in the vicinity of WS105, and at two other locations, to further assess the vapour risk and the risk to the perched groundwater.

12 Data Collection

The data to be collected as part of the verification works are described below.

Samples were taken from the base and sides of the pit once all visually impacted material had been removed, to prove the success of this remediation exercise.

The samples were analysed for TPH CWG with aliphatic and aromatic splits.

Samples were also taken of the excavated material to assist with waste classification.

E VERIFICATION PROGRESS AND DATA

13 Works Completed

At the time of writing, the remediation of the diesel impact has been completed, as follows:

- A pit was excavated with the starting point being WS105. This was extended laterally to find the extent of the impacted material which was removed and segregated during excavation. Full removal was, however, constrained to the south due to live sewers.

- A visual and olfactory assessment of material observed in the excavation was used as a means of deciding whether the identified hotspot had been successfully removed. This was supplemented by using a PID on site to confirm low residual volatile levels. The maximum PID level recorded during these remediation works was only 14ppb in WS105EH@4.0m, which indicates minimal volatile content.

- Representative samples were taken from the sides and base to confirm successful removal of the diesel impacted material soil. As discussed, however, it was not possible to extend the pit to the south, due to the sewer in this area. As such, the best removal/remediation possible was carried out, whilst not putting this infrastructure at risk.

Site Visits

The site was visited on two occasions by representatives of Southern Testing Laboratories Limited to oversee the excavation of the pit and segregation of impacted material, from the overlying un-impacted soil (19th & 23rd August 2021).

The final extent of the pit was approximately 10m x 4.8m x 4m deep, as per the schematic attached. The general sequence noted was paviour on ballast to 0.7m (clean stockpile), over 'visually dirty' hardcores to 1.0m (contaminated stockpile), over orange brown sandy clays to 2.5/3.0m (clean stockpile), then stained and malodorous sands with basal gravels to 3.8m (contaminated stockpile), over clean clay (the end of excavation at around 4m).

No groundwater was noted during excavation works.

The contaminated stockpile was approximately 4 x 8 x 2m high on completion of the works, and retained on an adjacent area of asphalt and covered to reduce any risk of leaching. Representative samples were taken for both a general range of contaminants and WAC testing to provide to the tips to assist with off-site disposal classification.

A series of photographs are included as part of the record of works (see Appendix B).

14 Test Results

The results obtained from the validation sampling (8 from the sides of the excavation and 3 from the base – see Fig 1. in Appendix A) generally concur with what was observed during the excavation exercise, with the bulk of the base and side samples analysed reporting very low or concentrations below the limit of detection, confirming a very low risk to the end users, site workers or perched groundwater.

However, as discussed, the south excavation was limited by the presence of an active sewer. The sample taken from this face reported a total concentration of around 1,600mg/kg (see test certificate dated 31st August 2021 – South Wall), which concurs with the visual and olfactory evidence, all in the higher aliphatic fractions. Although this still represents some minor to moderate impact, it is significantly lower than the total concentrations reported in this area in the earlier investigations by others (up to 11,000mg/kg).

All the test results are presented in Appendix C; two of these test certificates (dated 31st August - 4 soils samples and 3rd September 2021) include the 10 validation samples taken during the two visits. The test certificate dated 31st August (4 soils samples) includes a validation sample taken from the base at 4.2m (WS105 HOT) and one from both the north and south faces (north and south wall – the latter as discussed above). A sample of the impacted soil, being stockpiled from the excavation, was also taken at this time to provide data for waste classification (stockpile). The results for the stockpile are presented in the two test certificates dates 31st August (4 soil samples and 1 10:1 WAC sample).

The test certificate dated 3rd September comprises 8 validation samples taken as the excavation extended. This comprised two samples from the base (both from 4m) and six from the sides at depth ranging from 2.5-3.7m.

On this basis, and given the live services to the south, the remediation of the diesel impact area is considered complete and no further work is considered necessary in this regard, other than implementation of a discovery strategy to mitigate the risk from any other contamination identified on site, during the construction works.

Some post-removal assessment of the perched water will also be carried out and reported under separate cover.

15 Waste Disposal

The results of WAC and totals analysis of material sampled from the 'contaminated' stockpile were sent to the Client to help arrange appropriate tip disposal of the soils. These are also presented in Appendix C

Tip details and receipts are presented in Appendix D.

16 Variations from Verification Plan

The presence of a mains sewer to the south limited the extension of the pit in this direction and some TPH remains, although the validation testing suggests that the risk is acceptable.

17 Discovery Strategy

No previously undiscovered contamination was encountered in the course of this specific remediation work.

F MONITORING DATA

18 Post-Remediation Monitoring – September 2021

A monitoring borehole was installed in the vicinity of the excavated area to assess the perched groundwater quality, post-removal (MW3). Two other monitoring wells were also installed at other locations on the site, as a precaution (MW1 and 2). These locations are shown on the plan in Appendix A.

During the Phase III investigation [3], and in the previous investigation by others, the perched water recovered from WS105 (where the hydrocarbon hotspot was) was impacted with heavy-end petroleum hydrocarbons.

Because the impact had been excavated, it wasn't possible to replicate the specific location of WS105, so MW3 was located just outside the excavation (see Appendix A). Trial holes MW1 and 2 were dry at the time of the monitoring visit, so it was only possible to recover water from MW3 on 9th November 2021. There was no odour noted during sampling and a PID was used prior to sampling (the recording was <0.1 ppm).

The sample was kept cool and taken straight to the laboratory for analysis. None of the fractions were recorded above detection limit (see test certificate dated 17th November 2021 in Appendix C.

On this basis, no further assessment was considered necessary.

G SUMMARY

19 Summary

At the time of writing, the specified remedial works, that is the excavation and removal of the diesel impacted soils, are complete. To the best of our knowledge, the site remediation to date has been carried out by C Field Construction and their appointed representatives, in accordance with the method statement.

The results of the laboratory analysis carried out on samples taken from the sides and base of the excavation meet the assessment criteria for the remedial works.

The following works are outstanding and will be reported under separate cover once completed:

- Validation of soft landscaped areas
- Confirmation of installation of Protecta-Line Pipes
- Confirmation of any discovery strategy findings or otherwise

APPENDIX A

Site Plans

0 5 10 15 20 Metres

Scale Bar

SITE PLAN - AS PROPOSED

N

NOTES

© This drawing is copyright of Condy and Lofthouse Ltd. and may not be reproduced in any way without their specific permission.

MATERIALS PROHIBITED

Materials prohibited from use, except where used in accordance with Good Practice in the Selection of Construction Materials (March 2011) or unless required by the Contract:

a) high alumina cement in the structural elements;
b) wood wool slabs in permanent formwork to concrete;
c) calcium chloride admixtures for use in reinforced concrete;
d) asbestos or asbestos-containing products, as defined in the Control of Asbestos at Work Regulations, as amended 2012 or any other statutory modification or re-enactment thereof;
e) any naturally occuring or man made mineral fibres (for example, rock-wool or slag wool) with a thickness of 3 microns or less and a length of 200 microns or less, unless they are appropriately sealed to prevent migration of fibres;
f) aggregates for use in reinforced concrete which do not comply with:
BS EN 12620:2002: properties of aggregates used in concrete.
BS EN 13139:2002: Properties of aggregates used in mortar.
BS EN 13055 (Parts 1 & 2): properties of lightweight aggregates.
Guidance on avoiding alkali-silica reaction and limitations on alkali content in BRE Digest 330 (2004) & Concrete Society Technical Report 30 (1999);
g) lead, lead paint or any other materials containing lead which may be ingested, inhaled or absorbed, except where copper alloy fittings also containing lead are specifically required in drinking water pipework by any relevant statutory requirement or where lead flashings or other lead roof coverings are specifically provided for in the Contract;
h) urea formaldehyde foam or materials which may release formaldehyde in quantities which may be hazardous with reference to the limits set by the Health and Safety Executive;
i) calcium silicate bricks or tiles;
j) vermiculite unless it is established as being fibre-free; calcium silicate bricks or tiles;
k) any products containing cadmium referred to in Statutory Instrument SI 2006/3311 Controls on dangerous substances and preparations Regulations 2006. Reference should also be made to HSE IDGE391 Cadmium and you;
l) any new timber treated with pentachlorophenol;
m) non galvanised mild steel structural fixings for building elements particularly susceptible to erosion;
n) concrete used in circumstances where it is susceptible to alkali/silica reaction;
o) materials containing chlorofluorocarbons (CFCs);
p) solvent based paints except where water based paints are unsuitable for unavailable;
q) any new materials not in accordance with statutory requirements, British Standards, Codes of Practice and good building practice current at the date of incorporation of the relevant materials into the Works or the specifications thereof;

NOTES

1. Scheme design is subject to relevant Statutory Approvals.
2. Drawing based on topographical survey ref: TS18-448X1.
3. Tree information based on Arboricultural Survey ref. BS5837.
4. Refer to Deacon Design information for landscaping and materials.
5. Refer to Canham Consulting information for levels.

KEY

- Site Boundary
- Previous Consent Footprint
- Existing Buildings
- Proposed Building
- Vehicular Access & Parking
- Paths
- Patio Areas
- Existing Tree - Retained
- Existing Tree - Removed
- Tree Root Protection Area
- New Tree
- CS Cycle Shelter - 8 Spaces

SCHEDULE OF ACCOMMODATION:

CARE HOME

	Units	Beds/ Suites	GIA m²
Ground Floor	2	27	1490
First Floor	2	31	1477
Second	2	32	1455
Third Floor	1	13	1313
TOTAL BEDS/SUITES & GIA		90 Beds/ 13 Suites	**5735**

PARKING

33 car parking spaces
incl. 3No. disabled

TENDER ISSUE

Ⓙ Hard standing areas amended to reflect Deacon Design info 08-02-2021

Ⓘ - Levels removed and note added to refer to Canham info
- Shrubs removed from key and noted added to refer to Deacon Design info 15-01-2021

Ⓗ Main entrance moved and parking amended to suit [PS email 30-11-2020]
DD layout shown to amenity garden 01-12-2020

Ⓖ Drop off zone and parking amended to suit client comments [meeting with PS 11-08-2020] 13-08-2020

Ⓕ Existing Oak tree retained and access footpath and parking amended to suit. 16-07-2020

Ⓔ Frontage trees revised. 04.08.2019

Ⓓ GIA increased by 5m² due to Third Floor balcony redesign as agreed with Planning on 16.05.2019. 17.06.2019

Ⓒ 'Car parking spaces out of use during refuse collection' notation omitted based on Mayer Brown drawing no. BPWELWYNGC.1/TK10. 30.04.2019

Ⓑ 'Do Not Scale' notation omitted. 17.01.2019

Ⓐ Sub-station indicated. 17.12.2018

REVISION DETAILS date / by

○ Preliminary
○ For Approval
● Tender
○ Construction

CLIENT

Marbrook

PROJECT

Broadwater Road
Welwyn Garden City
AL7 3AX

DRAWING TITLE

Proposed Site Plan

SCALE	drawn by	date
1 200@A1	CS	03.08.2018

DRAWING NO.	revision
17-132-110	Ⓙ

Condy Lofthouse Architects
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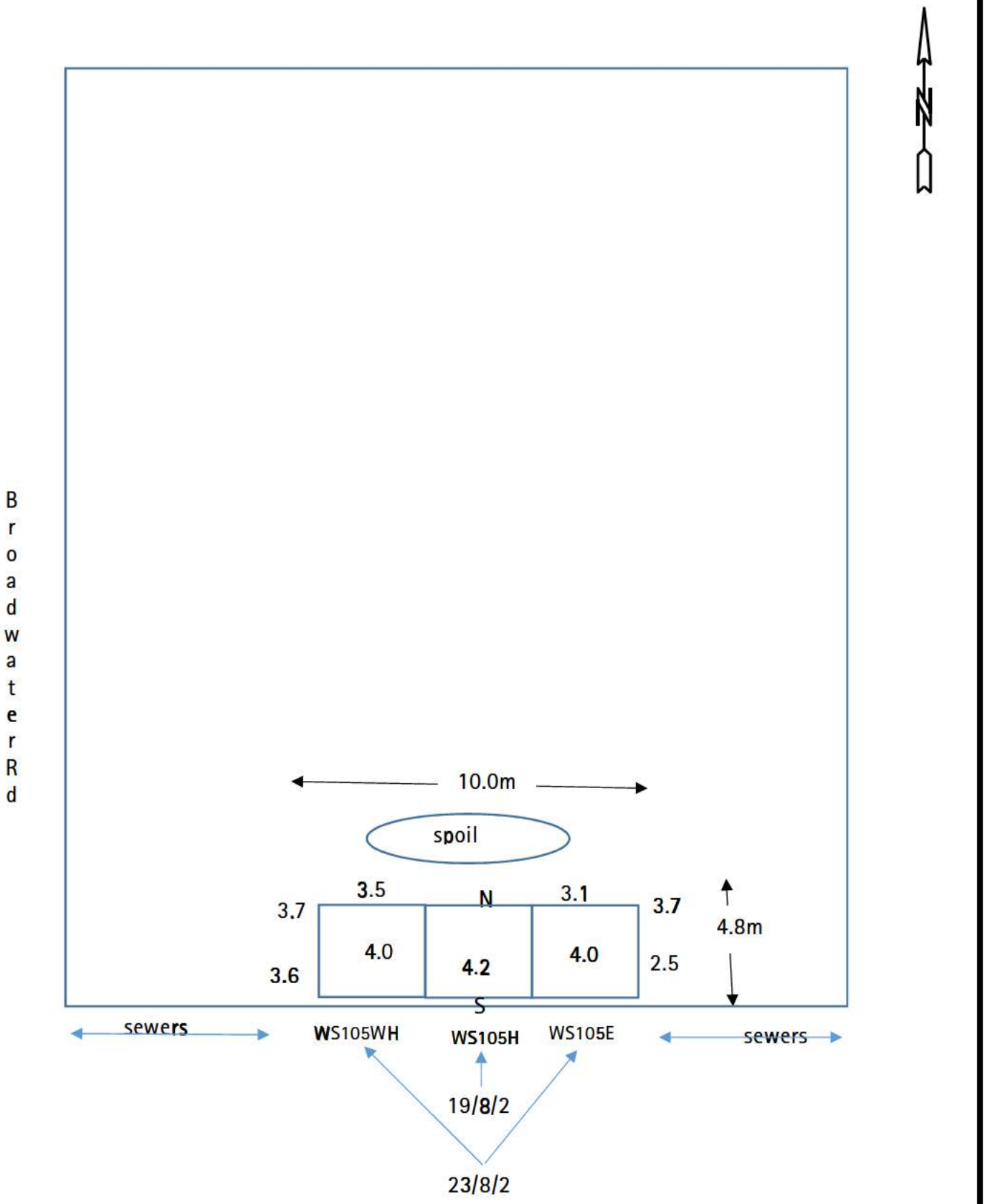
Condy & Lofthouse Ltd Trading as CLA • Unit 17 Connect Business Village • 24 Derby Road • Liverpool • L5 9PR • E: info@condylofthouse.co.uk • www.condylofthouse.co.uk



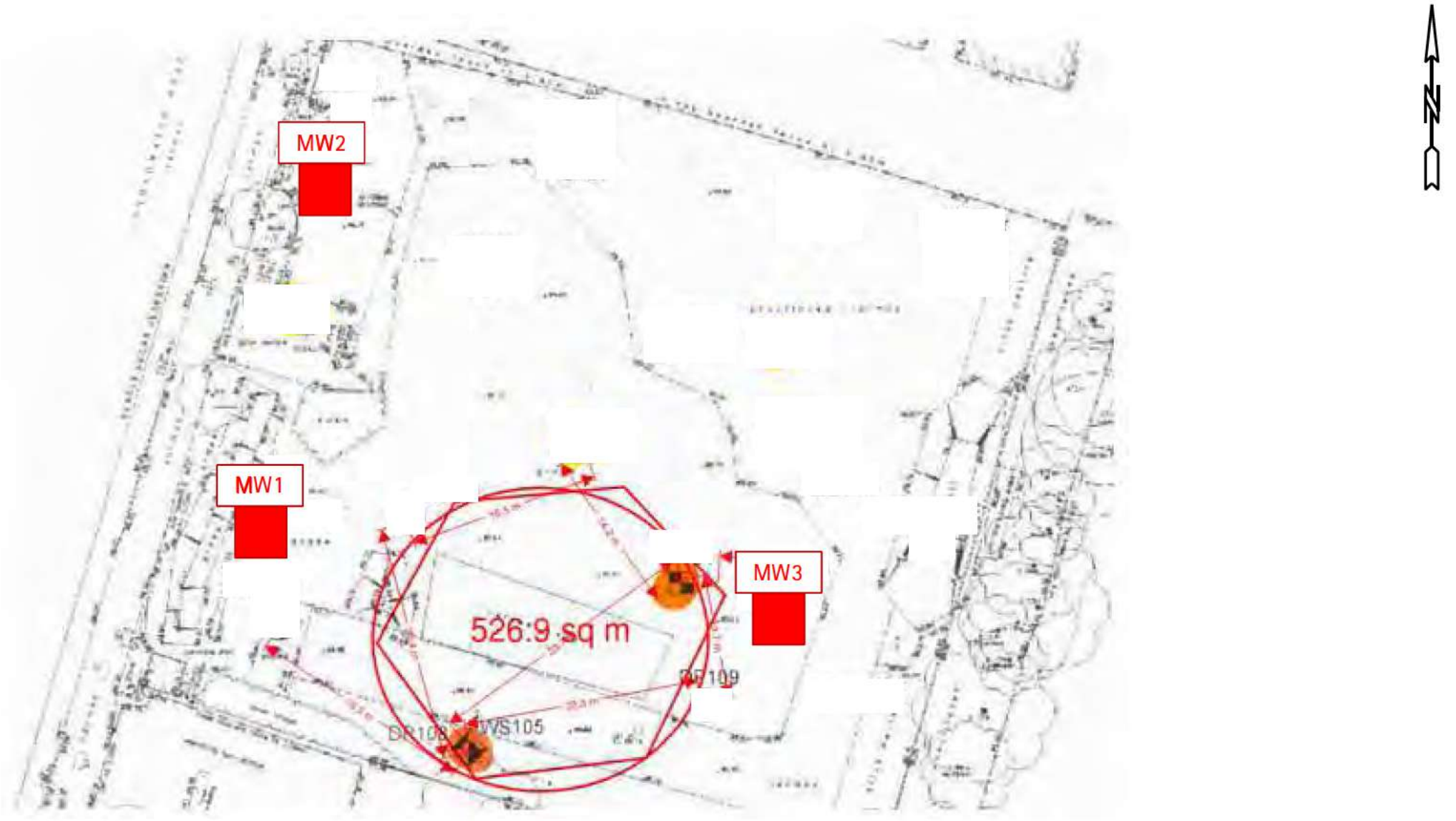
NB: Positions of Pits are only indicative

Site: Broadwater Road, Welwyn Garden City	STL: JN1576	Fig No: 1
Date: 17 & 23 August 2021	Sampling Locations	

Southern Testing

Southern Testing: Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4QA
ST Consult: Twigden Barns, Brixworth Road, Creaton, Northampton NN6 8NN

ST Consult



NB: Positions of Boreholes and/or Trial Pits are only indicative

Site: Broadwater Road, Welwyn	STL: JN1576	Fig No: 1
Date: 3rd June 2021	Groundwater Monitoring Wells (MW1 – MW3)	

Southern Testing

Southern Testing: Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4QA
ST Consult: Twigden Barns, Brixworth Road, Creaton, Northampton NN6 8NN

ST Consult

APPENDIX B

Photographs

JN1576 - Welwyn WS105 Hotspot	
	
Plate 1. Ballast removal in the east	Plate 2. Clean subsoils in the east
	
Plate 3. Tainted/stained deep soils east 2.6m	Plate 4. Cleaner soils at 2.6m in SE
	
Plate 5. Staining pinching out at 3.7m in the SE	Plate 6. Clean soil in the NE

JN1576 - Welwyn WS105 Hotspot	
	
Plate 7. Clean excavation in NE	Plate 8. Clean arisings from the east
	
Plate 9. Excavated stockpile for removal	Plate 10. Ballast removed to dirty hardcore in the west
	
Plate 11. Clean subsoils placed in central hotspot excav.	Plate 12. East hotspot excavation

JN1576 - Welwyn WS105 Hotspot	
	
Plate 13. Clean subsoil reduction in the west	Plate 14, Clean subsoil reduction in the west
	
Plate 15, Encountering gravel staining in the west	Plate 16. Cleaner clays below
	
Plate 17. Clean north face from the west	Plate 18. Pinching staining west

APPENDIX C

Laboratory Test Results

[redacted]
ST Consult Ltd
Twigden Barns
Brixworth Road
Creaton
Northamptonshire
NN6 8NN

t: 01604 500020
f: 01604 500021
e: [redacted]

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

t: 01923 225404
f: 01923 237404
e: [redacted]

Analytical Report Number : 21-94073

Project / Site name:	Welwyn	**Samples received on:**	19/08/2021
Your job number:	JN1576	**Samples instructed on/ Analysis started on:**	19/08/2021
Your order number:		**Analysis completed by:**	31/08/2021
Report Issue Number:	1	**Report issued on:**	31/08/2021
Samples Analysed:	4 soil samples		

Signed: [redacted]

[redacted]
Technical Reviewer (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

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.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 21-94073
Project / Site name: Welwyn

Lab Sample Number				1979588	1979589	1979590	1979591
Sample Reference				N. Wall	S. Wall	Stockpile	WS105 HOT
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	4.20
Date Sampled				19/08/2021	19/08/2021	19/08/2021	19/08/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	11	12	14
Total mass of sample received	kg	0.001	NONE	1 3	1 2	1 2	1 2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	8 0	8.1	7.7	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.15	0 097	0.26	0 087
Sulphide	mg/kg	1	MCERTS	1 2	11	27	< 1 0
Organic Matter (automated)	%	0.1	MCERTS	0 3	1 5	1.1	0 3
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	5.1	3 5	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	3 5	1 2	< 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	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 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	MCERTS	< 0.80	8.58	4.69	< 0.80

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Lab Sample Number				1979588	1979589	1979590	1979591
Sample Reference				N. Wall	S. Wall	Stockpile	WS105 HOT
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	4.20
Date Sampled				19/08/2021	19/08/2021	19/08/2021	19/08/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	36	54	48	33
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0 2	< 0 2	< 0 2	< 0 2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4 0	< 4 0	< 4 0	< 4 0
Chromium (III)	mg/kg	1	NONE	-	-	35	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	36	35	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	44	37	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	23	24	22	19
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	77	76	67	63
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	210	380	320	130
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
Toluene	µg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
Ethylbenzene	µg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
p & m-xylene	µg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
o-xylene	µg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1 0	< 1 0	< 1 0	< 1 0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0 001	< 0 001	< 0 001	< 0 001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0 001	< 0 001	< 0 001	< 0 001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0 001	5 8	1 3	< 0 001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	63	35	< 1 0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	760	540	< 2 0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8 0	600	450	< 8 0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8 0	130	110	< 8 0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	1600	1100	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0 001	< 0 001	< 0 001	< 0 001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0 001	< 0 001	< 0 001	< 0 001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0 001	0.15	0 076	< 0 001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1 0	8 6	< 1 0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	< 2 0	250	< 2 0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	280	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	540	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 21-94073
Project / Site name: Welwyn

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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 *
1979588	N. Wall	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
1979589	S. Wall	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
1979590	Stockpile	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
1979591	WS105 HOT	None Supplied	4.2	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 21-94073
Project / Site name: Welwyn

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

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Analytical Report Number : 21-94077

Project / Site name:	Welwyn	**Samples received on:**	19/08/2021
Your job number:	JN1576	**Samples instructed on/ Analysis started on:**	19/08/2021
Your order number:		**Analysis completed by:**	31/08/2021
Report Issue Number:	1	**Report issued on:**	31/08/2021
Samples Analysed:	1 10:1 WAC Sample		

Signed: [redacted]

[redacted]
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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Watford, WD18 8YS

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Waste Acceptance Criteria Analytical Results

Report No:	**21-94077**						
					Client:	**STCONSULT**	
Location	**Welwyn**						
Lab Reference (Sample Number)	1979605 / 1979606				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	19/08/2021				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	Stockpile						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	3.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	1100				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.4				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.56				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010			< 0.0100	0.5	2	25
Barium *	0.0296			0.245	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	< 0.0004			< 0.0040	0.5	10	70
Copper *	0.0029			0.024	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0058			0.048	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0071			0.059	4	50	200
Chloride *	2.5			20	800	15000	25000
Fluoride	0.31			2.5	10	150	500
Sulphate *	49			410	1000	20000	50000
TDS*	77			640	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.76			64.1	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	88						
Moisture (%)	12						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation
** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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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 *
1979605	Stockpile	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 21-94077
Project / Site name: Welwyn

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 21-94077
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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
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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.

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WD18 8YS

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Analytical Report Number : 21-94923

Project / Site name:	Welwyn	**Samples received on:**	24/08/2021
Your job number:	JN1576	**Samples instructed on/ Analysis started on:**	24/08/2021
Your order number:		**Analysis completed by:**	03/09/2021
Report Issue Number:	1	**Report issued on:**	03/09/2021
Samples Analysed:	8 soil samples		

[redacted]

Signed:

[redacted]
Technical Reviewer (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.

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Analytical Report Number: 21-94923
Project / Site name: Welwyn

Lab Sample Number				1984265	1984266	1984267	1984268	1984269
Sample Reference				WS105 EH	WS105 EH	WS105 EH	WS105 EH	WS105 WH
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	3.10	3.70	4.00	3.50
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	9.9	5.7	11	9.2
Total mass of sample received	kg	0.001	NONE	0.90	0.90	0.90	0.90	0.90
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	1.7	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	< 2.0	2.7	35	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8 0	< 8.0	17	61	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8 0	< 8.0	12	25	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	32	120	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	< 2.0	< 2.0	20	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	31	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	19	55	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 21-94923
Project / Site name: Welwyn

Lab Sample Number				1984270	1984271	1984272
Sample Reference				WS105 WH	WS105 WH	WS105 WH
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				3.60	3.70	4.00
Date Sampled				Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	12	14
Total mass of sample received	kg	0.001	NONE	0.90	0.90	0.90

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8 0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8 0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 21-94923
Project / Site name: Welwyn

* 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 *
1984265	WS105 EH	None Supplied	2.5	Brown clay and loam with gravel.
1984266	WS105 EH	None Supplied	3.1	Brown clay and sand.
1984267	WS105 EH	None Supplied	3.7	Brown clay and sand with gravel.
1984268	WS105 EH	None Supplied	4	Brown clay and loam with gravel.
1984269	WS105 WH	None Supplied	3.5	Brown sand.
1984270	WS105 WH	None Supplied	3.6	Brown sand.
1984271	WS105 WH	None Supplied	3.7	Brown sand.
1984272	WS105 WH	None Supplied	4	Brown clay and loam with gravel.

Analytical Report Number : 21-94923
Project / Site name: Welwyn

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	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.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Sample Deviation Report

Analytical Report Number : 21-94923
Project / Site name: Welwyn

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS105 EH	None Supplied	S	1984265	a	None Supplied	None Supplied	None Supplied
WS105 EH	None Supplied	S	1984266	a	None Supplied	None Supplied	None Supplied
WS105 EH	None Supplied	S	1984267	a	None Supplied	None Supplied	None Supplied
WS105 EH	None Supplied	S	1984268	a	None Supplied	None Supplied	None Supplied
WS105 WH	None Supplied	S	1984269	a	None Supplied	None Supplied	None Supplied
WS105 WH	None Supplied	S	1984270	a	None Supplied	None Supplied	None Supplied
WS105 WH	None Supplied	S	1984271	a	None Supplied	None Supplied	None Supplied
WS105 WH	None Supplied	S	1984272	a	None Supplied	None Supplied	None Supplied

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

[redacted]
ST Consult Ltd
Twigden Barns
Brixworth Road
Creaton
Northamptonshire
NN6 8NN

t: 01604 500020
f: 01604 500021
e: [redacted]

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

t: 01923 225404
f: 01923 237404
e: [redacted]

Analytical Report Number : 21-21499

Project / Site name:	Welwyn Garden City	**Samples received on:**	09/11/2021
Your job number:	JN1576	**Samples instructed on/ Analysis started on:**	09/11/2021
Your order number:		**Analysis completed by:**	17/11/2021
Report Issue Number:	1	**Report issued on:**	17/11/2021
Samples Analysed:	1 water sample		

Signed: [redacted]

[redacted]
Technical Reviewer (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

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.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 21-21499
Project / Site name: Welwyn Garden City

Lab Sample Number				2075197
Sample Reference				MW3
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				08/11/2021
Time Taken				1000
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Monoaromatics & Oxygenates				
Benzene	µg/l	1	ISO 17025	< 1 0
Toluene	µg/l	1	ISO 17025	< 1 0
Ethylbenzene	µg/l	1	ISO 17025	< 1 0
p & m-xylene	µg/l	1	ISO 17025	< 1 0
o-xylene	µg/l	1	ISO 17025	< 1 0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1 0
Petroleum Hydrocarbons				
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1 0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1 0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1 0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1 0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1 0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1 0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 21-21499
Project / Site name: Welwyn Garden City

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

APPENDIX D

Exported Soils Transfer Notes and Tip Receipts

B.P. MITCHELL
HAULAGE CONTRACTORS LTD

Burnside, Hertford Road, Hatfield, Herts. AL9 5RB
T [redacted]
Cert No: EMS 605752
[redacted] WRA Waste Reg. No. CB/GN5874SH

FORS FREIGHT OPERATOR RECOGNITION SCHEME

bsi. ISO 14001 Environmental Management Cert No: EMS 605752

ISO 9001 THE QUALITY SCHEME FOR READY MIXED CONCRETE — UKAS PRODUCT CERTIFICATION 009

No. 1385195

CONVEYANCE / DELIVERY NOTE

DATE: 16/9/22

Deliver to / collect from

Name and Site Address: .....

.....

.....

.....

..... **SIC 41.20**

Time on Site:	**Time off Site:**
Registration No. [redacted]	Name of person in charge of vehicle [redacted]

Cubic Metres (in words)	Description of Material	Tonnes		
Gross	DRY			
Tare				
Nett				

NB. To Customers, Authorised Agents, Representatives or Responsible Persons, signing the delivery ticket. This is in your interest - Please read the ticket fully and inspect material, agreeing quantity, quality and that everything is to your satisfaction before signing this receipt note.
You are accepting the full trading terms and conditions of B. P. Mitchell Haulage Contractors Ltd.

We regret we cannot under any circumstances entertain any claims concerning quantity or quality once the vehicle has left the site and a clear signature has been given.

Certified that the above particulars are true and relate to the sand and ballast being conveyed in the vehicle described, which sand or ballast is being so conveyed in pursuance of a sale or an agreement for the sale thereof made by volume.

RECEIVED BY Signed on behalf of Site Operator	PRINT NAME .....
SIGN [redacted]	DATE .....

Customers ordering vehicles off the public highway do so entirely at their own risk. We cannot accept responsibility for damage caused by our vehicles whilst delivering to your site.

SHOOT TICKET

DUTY OF CARE CONTROLLED WASTE TRANSFER NOTE
Environmental Protection Act 1990

Description of Waste & EWC (✓)

- ☐ Soil, Stones Excavated Subsoils EWC 17 05 04
- ☐ Concrete, Bricks EWC 17 01 07
- ☐ Soil from Contaminated Sites EWC 17 05 00
- ☐ Collection Non Hazardous Waste 38.11
- ☐ Construction and Demolition Wastes EWC 17 09 04
- ☐ Iron & Steel EWC 17 01 07
- ☐ Other ..... EWC .....
- ☐ Collection Hazardous Waste 38.12

How is it contained ☐ Loose ☐ Skip ☐ Drum ☐ Other (specify)

Current Holder of Waste

Site Name and Address

Company carrying the Waste — Date of 1st Movement

Name of Company — Transfer/Disposal Details

Name and address of site — Waste, Management Licence or Exemption

Signed for and on behalf of the disposer — Date

I CONFIRM THAT I HAVE FULFILLED MY DUTY TO APPLY THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011.

B.P. MITCHELL
HAULAGE CONTRACTORS LTD

Burnside, Hertford Road, Hatfield, Herts. AL9 5RB
[redacted]
Cert No: EMS 605752
[redacted]

FORS FREIGHT OPERATOR RECOGNITION SCHEME

bsi. ISO 14001 Environmental Management
Cert No: EMS 605752

ISO 9001 THE QUALITY SCHEME FOR READY MIXED CONCRETE
UKAS PRODUCT CERTIFICATION 009

WRA Waste Reg. No. CB/GN5874SH

No. 1403578

CONVEYANCE / DELIVERY NOTE

DATE: 16.9.2021

Deliver to / collect from

Name and Site Address: Salfix Bedwater Road WGC

SIC 41.20

Time on Site:	**Time off Site:**
Registration No. [redacted]	Name of person in charge of vehicle [redacted]

Cubic Metres (in words)	Description of Material	Tonnes		
Gross				
Tare				
Nett				

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Certified that the above particulars are true and relate to the sand and ballast being conveyed in the vehicle described, which sand or ballast is being so conveyed in pursuance of a sale or an agreement for the sale thereof made by volume.

RECEIVED BY Signed on behalf of Site Operator	PRINT NAME	
SIGN [redacted]		DATE .....

Customers ordering vehicles off the public highway do so entirely at their own risk. We cannot accept responsibility for damage caused by our vehicles whilst delivering to your site.

SHOOT TICKET

DUTY OF CARE CONTROLLED WASTE TRANSFER NOTE
Environmental Protection Act 1990

Description of Waste & EWC (✓)

- ☐ Soil, Stones Excavated Subsoils EWC 17 05 04
- ☐ Concrete, Bricks EWC 17 01 07
- ☐ Soil from Contaminated Sites EWC 17 05 00
- ☑ Collection Non Hazardous Waste 38.11
- ☐ Construction and Demolition Wastes EWC 17 09 04
- ☐ Iron & Steel EWC 17 01 07
- ☐ Other EWC .....
- ☐ Collection Hazardous Waste 38.12

How is it contained
☑ Loose ☐ Skip ☐ Drum ☐ Other (specify)

Current Holder of Waste: Salfix

Site Name and Address: WGC

Company carrying the Waste: B Pur | Date of 1st Movement

Name of Company: FCC | Transfer/Disposal Details

Name and address of site: Cricklewood | Waste, Management Licence or Exemption

Signed for and on behalf of the disposer | Date: 16.9.2021

I CONFIRM THAT I HAVE FULFILLED MY DUTY TO APPLY THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011.

B.P. MITCHELL
HAULAGE CONTRACTORS LTD

FORS
FREIGHT OPERATOR RECOGNITION SCHEME

ISO 14001 Environmental Management
Cert No: EMS 605752

ISO 9001 THE QUALITY SCHEME FOR READY MIXED CONCRETE
UKAS PRODUCT CERTIFICATION 009

Burnside, Hertford Road, Hatfield, Herts. AL9 5RB
[redacted]
Cert No: EMS 605752
[redacted] WRA Waste Reg. No. CB/GN5874SH

No. 1397902

CONVEYANCE / DELIVERY NOTE

DATE: 16/9/21

~~Deliver to~~ / collect from

Name and Site Address: SOIL FIX
JC CONSTRUCTION SITE
G.S. CLEARWATER ROAD
W.G.C

SIC 41.20

Time on Site:	**Time off Site:**
Registration No. [redacted]	Name of person in charge of vehicle [redacted]

Cubic Metres (in words)	Description of Material	Tonnes		
Gross	NON-HAZARDOUS			
Tare	SUBSOIL			
Nett				

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You are accepting the full trading terms and conditions of B. P. Mitchell Haulage Contractors Ltd.

We regret we cannot under any circumstances entertain any claims concerning quantity or quality once the vehicle has left the site and a clear signature has been given.

Certified that the above particulars are true and relate to the sand and ballast being conveyed in the vehicle described, which sand or ballast is being so conveyed in pursuance of a sale or an agreement for the sale thereof made by volume.

RECEIVED BY Signed on behalf of Site Operator	PRINT NAME
SIGN [redacted]	DATE 16/9/21

Customers ordering vehicles off the public highway do so entirely at their own risk.
We cannot accept responsibility for damage caused by our vehicles whilst delivering to your site.

SHOOT TICKET

DUTY OF CARE CONTROLLED WASTE TRANSFER NOTE
Environmental Protection Act 1990

Description of Waste & EWC (✓)

- ☐ Soil, Stones Excavated Subsoils EWC 17 05 04
- ☐ Construction and Demolition Wastes EWC 17 09 04
- ☐ Concrete, Bricks EWC 17 01 07
- ☐ Iron & Steel EWC 17 01 07
- ☐ Soil from Contaminated Sites EWC 17 05 00
- ☐ Other ..... EWC .....
- ☑ Collection Non Hazardous Waste 38.11
- ☐ Collection Hazardous Waste 38.12

How is it contained
☑ Loose ☐ Skip ☐ Drum ☐ Other (specify)

Current Holder of Waste: SOIL FIX

Site Name and Address: JC CONSTRUCTION SITE
G.S. CLEARWATER ROAD W.G.C

Company carrying the Waste	Date of 1st Movement
B.P MITCHELL LTD	

Name of Company	Transfer/Disposal Details
[redacted] FCC	

Name and address of site	Waste, Management Licence or Exemption
ENSWARE ROAD, RADLETT, WD7	

Signed for and on behalf of the disposer	Date

I CONFIRM THAT I HAVE FULFILLED MY DUTY TO APPLY THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011.

B.P. MITCHELL
HAULAGE CONTRACTORS LTD

FORS FREIGHT OPERATOR RECOGNITION SCHEME

bsi. ISO 14001 Environmental Management
Cert No: EMS 605752

ISO 9001 THE QUALITY SCHEME FOR READY MIXED CONCRETE
UKAS PRODUCT CERTIFICATION 009

Burnside, Hertford Road, Hatfield, Herts. AL9 5RB
[redacted]
Cert No: EMS 605752
[redacted] WRA Waste Reg. No. CB/GN5874SH

No. 1399249

CONVEYANCE / DELIVERY NOTE

DATE:

Deliver to / collect from

Name and Site Address: .....

.....

.....

.....

..... **SIC 41.20**

Time on Site:	**Time off Site:**
Registration No. [redacted]	Name of person in charge of vehicle [redacted]

Cubic Metres (in words)	Description of Material	Tonnes		
Gross				
Tare				
Nett				

NB. To Customers, Authorised Agents, Representatives or Responsible Persons, signing the delivery ticket. This is in your interest - Please read the ticket fully and inspect material, agreeing quantity, quality and that everything is to your satisfaction before signing this receipt note.
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We regret we cannot under any circumstances entertain any claims concerning quantity or quality once the vehicle has left the site and a clear signature has been given.

Certified that the above particulars are true and relate to the sand and ballast being conveyed in the vehicle described, which sand or ballast is being so conveyed in pursuance of a sale or an agreement for the sale thereof made by volume.

RECEIVED BY Signed on behalf of Site Operator	PRINT NAME .....
SIGN [redacted]	DATE .....

Customers ordering vehicles off the public highway do so entirely at their own risk.
We cannot accept responsibility for damage caused by our vehicles whilst delivering to your site.

SHOOT TICKET

DUTY OF CARE CONTROLLED WASTE TRANSFER NOTE
Environmental Protection Act 1990

Description of Waste & EWC (✓)

- ☐ Soil, Stones Excavated Subsoils EWC 17 05 04
- ☐ Concrete, Bricks EWC 17 01 07
- ☐ Soil from Contaminated Sites EWC 17 05 00
- ☐ Collection Non Hazardous Waste 38.11
- ☐ Construction and Demolition Wastes EWC 17 09 04
- ☐ Iron & Steel EWC 17 01 07
- ☐ Other EWC .....
- ☐ Collection Hazardous Waste 38.12

How is it contained ☐ Loose ☐ Skip ☐ Drum ☐ Other (specify)

Current Holder of Waste

Site Name and Address

Company carrying the Waste	Date of 1st Movement
Name of Company	Transfer/Disposal Details
Name and address of site	Waste, Management Licence or Exemption
Signed for and on behalf of the disposer	Date

I CONFIRM THAT I HAVE FULFILLED MY DUTY TO APPLY THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011.