Appendix F

Geotechnical Test Results and Geotechnical Plots

Geotechnical Laboratory Test Results

LABORATORY REPORT

4043

Contract Number: PSL20/5086

Report Date: 08 October 2020

Client's Reference: C-13603 sch 1

Client Name: Hydrock
Northern Assurance Buildings
9-21 Princess Street
Albert Square
Manchester
M2 4DN

For the attention of: Cameron Adams

Contract Title: North West Bicester Eco Development

Date Received: 24/9/2020
Date Commenced: 24/9/2020
Date Completed: 8/10/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

H Daniels (Senior Technician)	A Watkins (Director)	R Berriman (Quality Manager)
S Royle (Laboratory Manager)	S Eyre (Senior Technician)	L Knight (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP17	4	D	1.90		Brown mottled grey slightly gravelly sandy CLAY.
TP03	5	D	2.40		Brown mottled grey slightly gravelly sandy CLAY.
TP14	5	D	1.60		Brown mottled grey slightly gravelly sandy CLAY.
TP14	6	D	2.60		Brown mottled grey gravelly sandy CLAY.
TP22	4	D	1.20		Brown slightly gravelly slightly sandy CLAY.
TP22	5	D	2.20		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP12	2	D	0.40		Brown slightly gravelly sandy CLAY.
TP12	3	D	0.90		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP12	6	D	2.20		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP12	7	D	3.10		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP02	4	D	1.40		Brown mottled grey gravelly sandy CLAY.
TP23	2	D	0.50		Brown mottled grey slightly gravelly sandy CLAY.
TP23	5	D	1.70		Brown gravelly sandy CLAY.
TP11	2	D	0.50		Brown slightly gravelly sandy CLAY.
TP11	3	D	1.00		Brown mottled grey gravelly sandy CLAY.
TP20	3	B	1.40	2.40	Brown slightly gravelly slightly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP17	4	D	1.90		24			43	22	21	96	Intermediate plasticity CI.
TP03	5	D	2.40		26			40	19	21	93	Intermediate plasticity CI.
TP14	5	D	1.60		18			48	23	25	97	Intermediate plasticity CI.
TP14	6	D	2.60		29			43	20	23	89	Intermediate plasticity CI.
TP22	4	D	1.20		26			62	25	37	94	High plasticity CH.
TP22	5	D	2.20		30			68	28	40	96	High plasticity CH.
TP12	2	D	0.40		14							
TP12	3	D	0.90		21			58	24	34	94	High plasticity CH.
TP12	6	D	2.20		23							
TP12	7	D	3.10		25							
TP02	4	D	1.40		11			38	18	20	82	Intermediate plasticity CI.
TP23	2	D	0.50		29							
TP23	5	D	1.70		18			43	20	23	82	Intermediate plasticity CI.
TP11	2	D	0.50		20			42	20	22	92	Intermediate plasticity CI.
TP11	3	D	1.00		16							
TP20	3	B	1.40	2.40	24		2.70	56	24	32	94	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

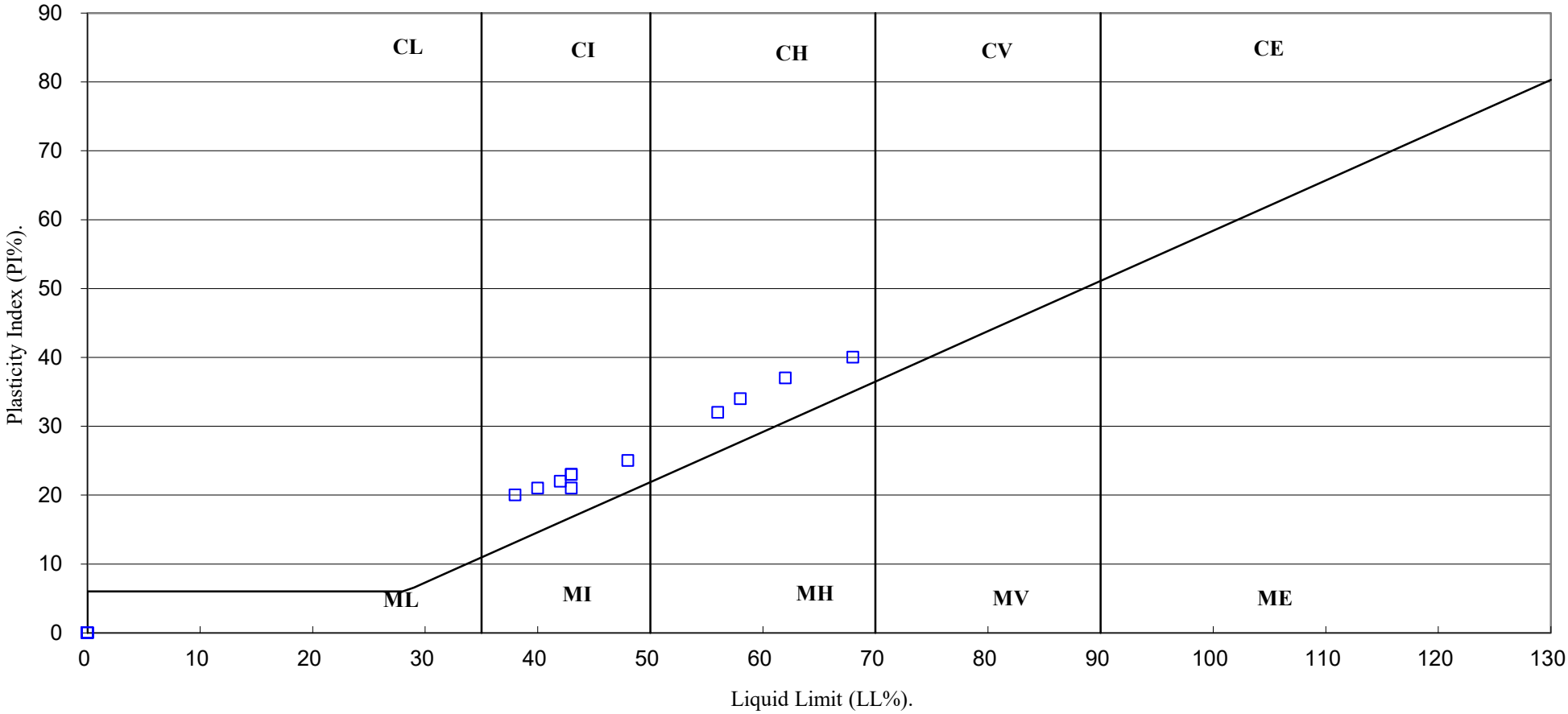
Contract No:

PSL20/5086

Client Ref:

C-13603

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



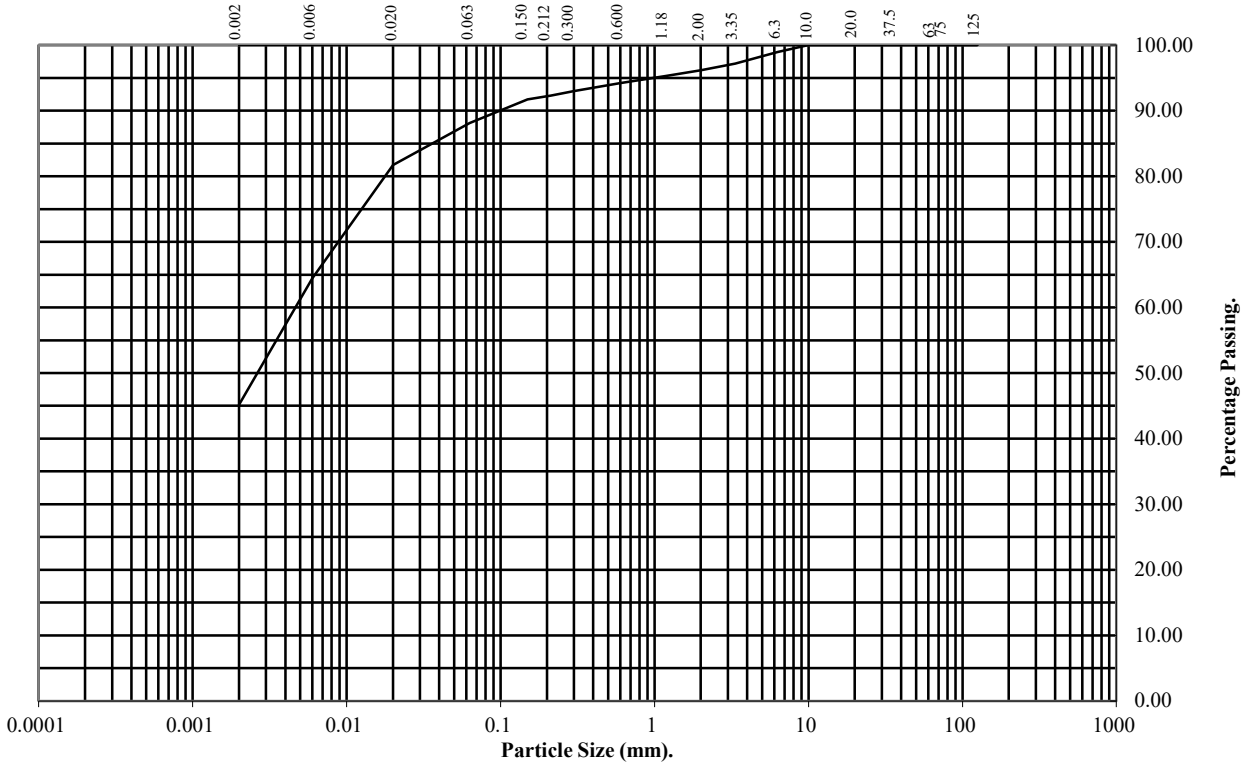
UKAS TESTING 4043	PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5086
			Client Ref: C-13603

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP20**	**Top Depth (m):**	**1.40**
Sample Number:	**4**	**Base Depth(m):**	**2.40**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	96
1.18	95
0.6	94
0.3	93
0.212	92
0.15	92
0.063	88

Particle Diameter	Percentage Passing
0.02	82
0.006	64
0.002	45

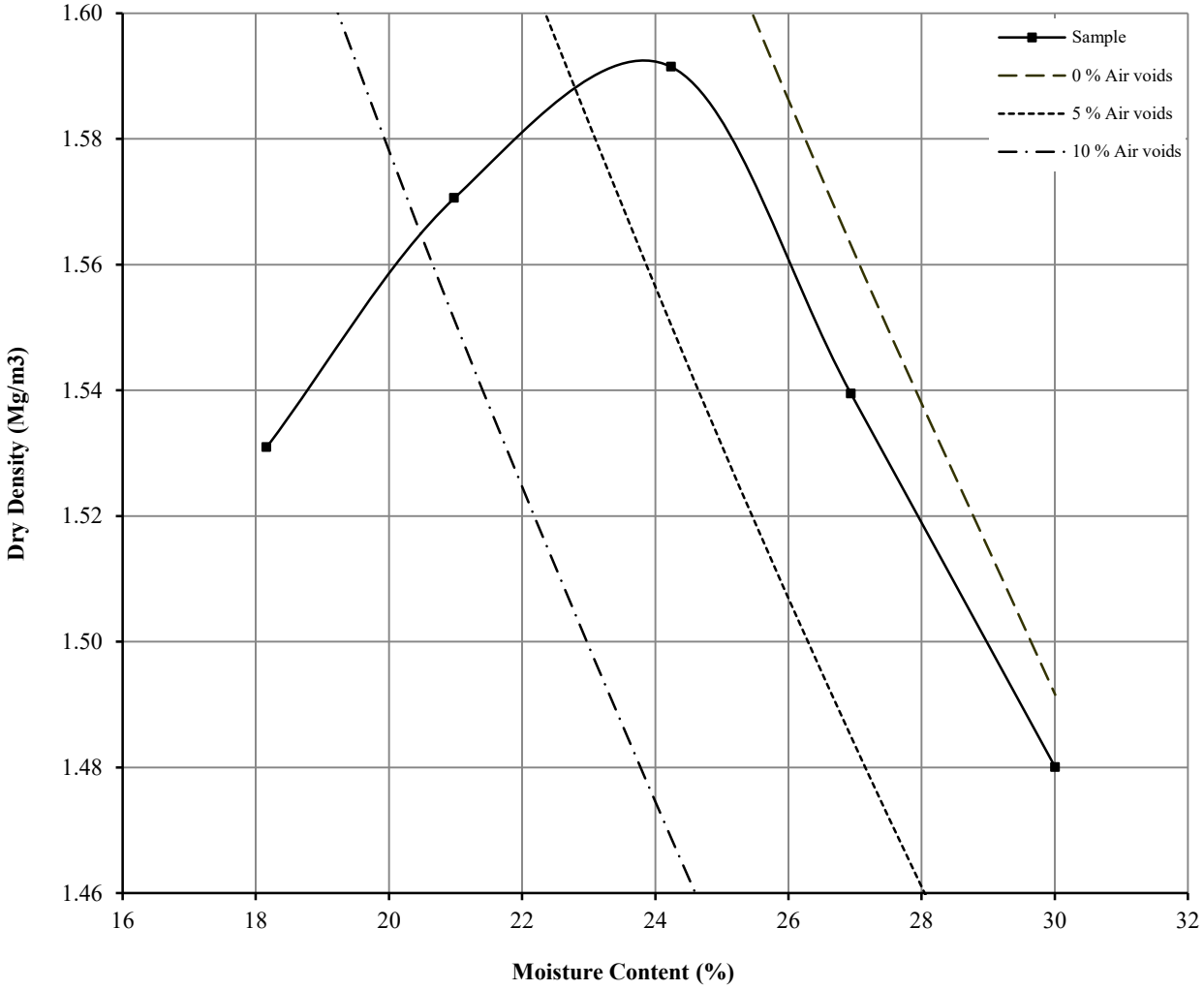
Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	8
Silt	43
Clay	45

Remarks:
See Summary of Soil Descriptions

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**TP20**	**Top Depth (m) :**	**1.40**
Sample Number:	**4**	**Base Depth (m) :**	**2.00**
Sample Type:	**B**		



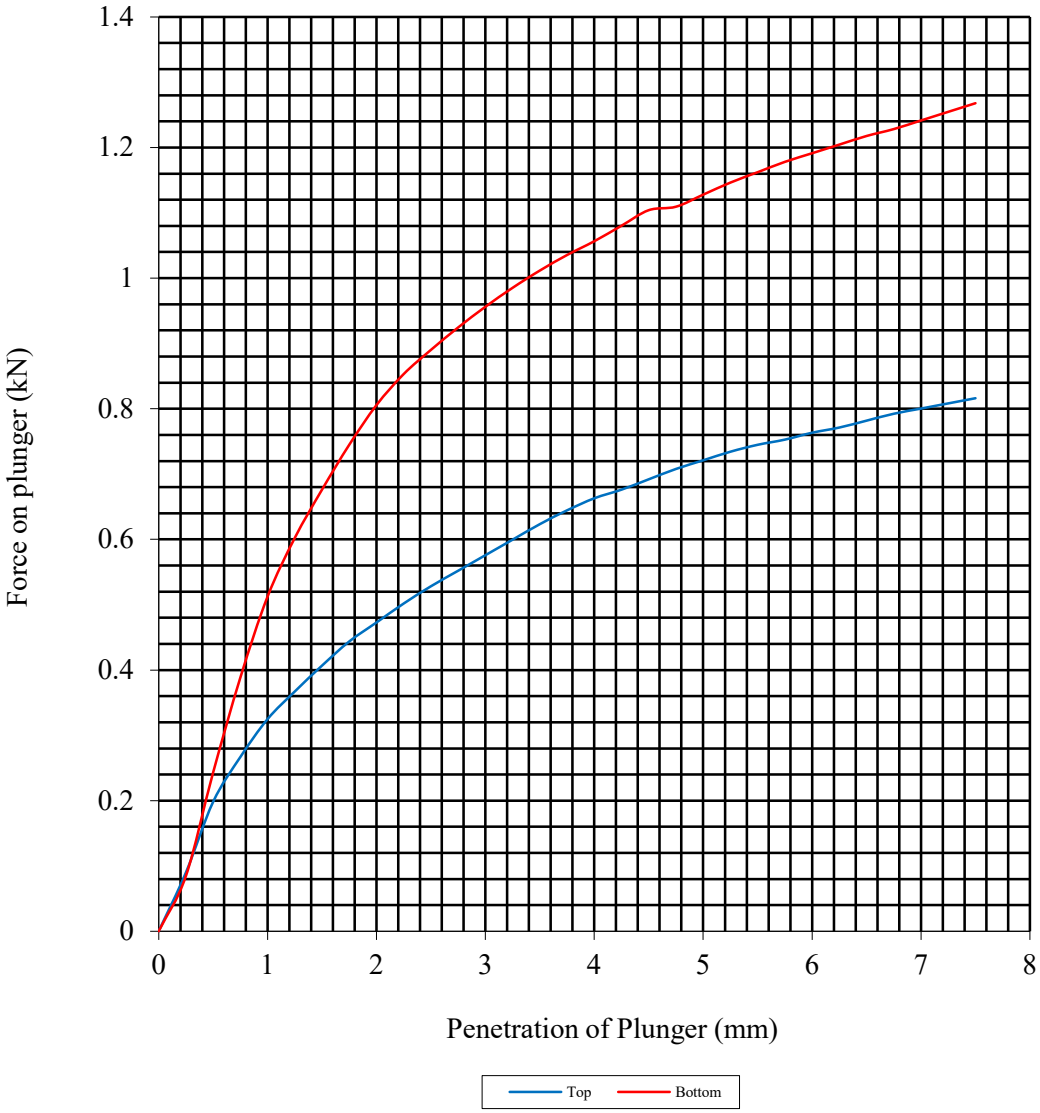
Initial Moisture Content:		24	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.70	Measured	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.59	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		24			
Remarks See summary of soil descriptions.					

UKAS TESTING 4043	PSL Professional Soils Laboratory	**North West Bicester Eco Development**	**Contract** **PSL20/5086** **Client Ref** **C-13603**

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number:	**TP20**	**Top Depth (m):**	**1.40**
Sample Number:	**3**	**Base Depth (m):**	**2.40**
Sample Type:	**B**		



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	24	Surcharge Kg:	4.20	Sample Top	26	Sample Top	4.0
Bulk Density Mg/m3:	1.98	Soaking Time hrs	96	Sample Bottom	25	Sample Bottom	6.7
Dry Density Mg/m3:	1.59	Swelling mm:	1.05	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:
PSL20/5086
Client Ref:
C-13603

SUMMARY OF LABORATORY HAND VANES

(BS1377 : PART 7 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Peak Shear Strength kPa	Residual Shear Strength kPa	Remarks
TP20	3	B	1.40	2.40	18	>140		Remoulded with 2.5kg effort
TP20	3	B	1.40	2.40	21	>140		Remoulded with 2.5kg effort
TP20	3	B	1.40	2.40	24	102		Remoulded with 2.5kg effort
TP20	3	B	1.40	2.40	27	64		Remoulded with 2.5kg effort
TP20	3	B	1.40	2.40	30	26		Remoulded with 2.5kg effort

* This test is out of our UKAS scope

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:

PSL20/5086

Client Ref:

C-13603

2531

ANALYTICAL TEST REPORT

Contract no: 89762

Contract name: North West Bicester Eco Development (C-13603)

Client reference: PSL20/5086

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 29 September 2020

Analysis started: 29 September 2020

Analysis completed: 06 September 2020

Report issued: 06 September 2020

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:
U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			89762-1	89762-2	89762-3	89762-4	89762-5	89762-6
Sample id			TP01	TP03	TP06	TP08	TP11	TP12
Depth (m)			1.00	2.40	0.50	0.70	0.50	0.40
Date sampled			28/09/2020	28/09/2020	28/09/2020	28/09/2020	28/09/2020	28/09/2020
Test	**Method**	**Units**						
pH	CE004 [U]	units	8.7	8.5	8.4	8.5	8.4	8.4
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	1.2	<1	1.8	<1	<1
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	3.9	2.3	2.0	3.2	1.5	1.8
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	8.9	12	27	6.1	10	6.6
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	22	20	13	24	13	18
Sulphate (total)	CE062 [U]	mg/kg SO_4	946	718	811	940	751	861
Sulphur (total)	CE119	mg/kg S	556	314	413	443	376	405
Sulphur (total)	CE119	% w/w S	0.06	0.03	0.04	0.04	0.04	0.04
Total Organic Carbon (TOC)	CE072 [U]	% w/w C	-	-	-	-	-	-
Estimate of OMC (calculated from TOC)	CE072 [U]	% w/w	-	-	-	-	-	-

Chemtech Environmental Limited

SOILS

Lab number			89762-7	89762-8	89762-9	89762-10	89762-11
Sample id			TP13	TP14	TP17	TP20	TP22
Depth (m)			0.40	1.60	1.90	1.40-2.40	2.20
Date sampled			28/09/2020	28/09/2020	28/09/2020	28/09/2020	28/09/2020
Test	**Method**	**Units**					
pH	CE004 U	units	8.3	8.4	8.3	7.7	8.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	<1	<1	<1	<1
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	3.0	2.5	2.1	<1	45
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	19	9.3	10	<1	9.6
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	17	15	15	45	16
Sulphate (total)	CE062 U	mg/kg SO_4	986	701	581	504	487
Sulphur (total)	CE119	mg/kg S	490	326	256	231	216
Sulphur (total)	CE119	% w/w S	0.05	0.03	0.03	0.02	0.02
Total Organic Carbon (TOC)	CE072 U	% w/w C	-	-	-	0.3	-
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	-	-	-	0.5	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	U	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	U	0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
89762-1	TP01	1.00	N	
89762-2	TP03	2.40	N	
89762-3	TP06	0.50	N	
89762-4	TP08	0.70	N	
89762-5	TP11	0.50	N	
89762-6	TP12	0.40	N	
89762-7	TP13	0.40	N	
89762-8	TP14	1.60	N	
89762-9	TP17	1.90	N	
89762-10	TP20	1.40-2.40	N	
89762-11	TP22	2.20	N	

LABORATORY REPORT

4043

Contract Number: PSL20/5199

Report Date: 15 October 2020

Client's Reference: C-13603 sch 3

Client Name: Hydrock
Northern Assurance Buildings
9-21 Princess Street
Albert Square
Manchester
M2 4DN

For the attention of: Cameron Adams

Contract Title: North West Bicester Eco Development

Date Received: 30/9/2020
Date Commenced: 30/9/2020
Date Completed: 15/10/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
L Knight (Senior Technician)	S Eyre (Senior Technician)	S Royle (Laboratory Manager)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP19	4	D	1.70		Brown slightly gravelly sandy CLAY.
TP19	5	D	2.70		Brown mottled grey sandy CLAY.
TP25	4	D	1.30		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP25	5	D	2.00		Brown mottled grey sandy CLAY.
TP31	4	D	2.20		Brown mottled grey slightly gravelly sandy CLAY.
TP31	3	D	1.20		Brown slightly gravelly sandy CLAY.
TP41	3	D	1.20		Brown mottled grey sandy CLAY.
TP30	4	D	1.50		Brown mottled grey gravelly sandy CLAY.
TP30	5	D	2.00		Brown mottled grey gravelly sandy CLAY.
TP32	4	D	1.00		Brown gravelly very sandy CLAY.
TP32	5	D	2.30		Brown mottled grey sandy CLAY.
TP28	3	D	1.00		Brown mottled grey sandy CLAY.
TP28	4	D	1.80		Brown mottled grey sandy CLAY.
TP42	4	D	1.20		Brown slightly gravelly sandy CLAY.
TP45	3	D	0.70		Brown slightly gravelly slightly sandy CLAY.
TP49	5	D	1.70		Brown slightly gravelly slightly sandy CLAY.
TP48	3	D	0.55		Brown very gravelly very sandy CLAY.
TP48	5	D	1.80		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP50	4	D	1.00		Brown slightly gravelly slightly sandy CLAY.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP56	4	D	1.70		Brown mottled grey sandy CLAY.
TP54	3	D	0.60		Brown gravelly sandy CLAY.
TP54	6	D	2.40		Brown slightly gravelly slightly sandy CLAY.
TP54	7	D	3.00		Brown sandy CLAY.
TP44	2	D	0.50		Brown slightly gravelly sandy CLAY.
TP44	4	D	1.60		Brown slightly gravelly slightly sandy CLAY.
TP46	4	B	1.80	1.90	Brown mottled grey slightly sandy CLAY.
TP42	3	B	0.70	0.80	Brown GRAVEL of cobbles.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP19	4	D	1.70		22			52	22	30	96	High plasticity CH.
TP19	5	D	2.70		20							
TP25	4	D	1.30		23			55	23	32	95	High plasticity CH.
TP25	5	D	2.00		28							
TP31	4	D	2.20		19			51	22	29	92	High plasticity CH.
TP31	3	D	1.20		20							
TP41	3	D	1.20		22			37	19	18	100	Intermediate plasticity CI.
TP30	4	D	1.50		18			45	21	24	90	Intermediate plasticity CI.
TP30	5	D	2.00		16			37	19	18	85	Intermediate plasticity CI.
TP32	4	D	1.00		17							
TP32	5	D	2.30		17							
TP28	3	D	1.00		19							
TP28	4	D	1.80		17							
TP42	4	D	1.20		22			47	22	25	92	Intermediate plasticity CI.
TP45	3	D	0.70		27			63	26	37	97	High plasticity CH.
TP49	5	D	1.70		26			53	23	30	95	High plasticity CH.
TP48	3	D	0.55		12							
TP48	5	D	1.80		24			56	24	32	94	High plasticity CH.
TP50	4	D	1.00		22			58	25	33	91	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

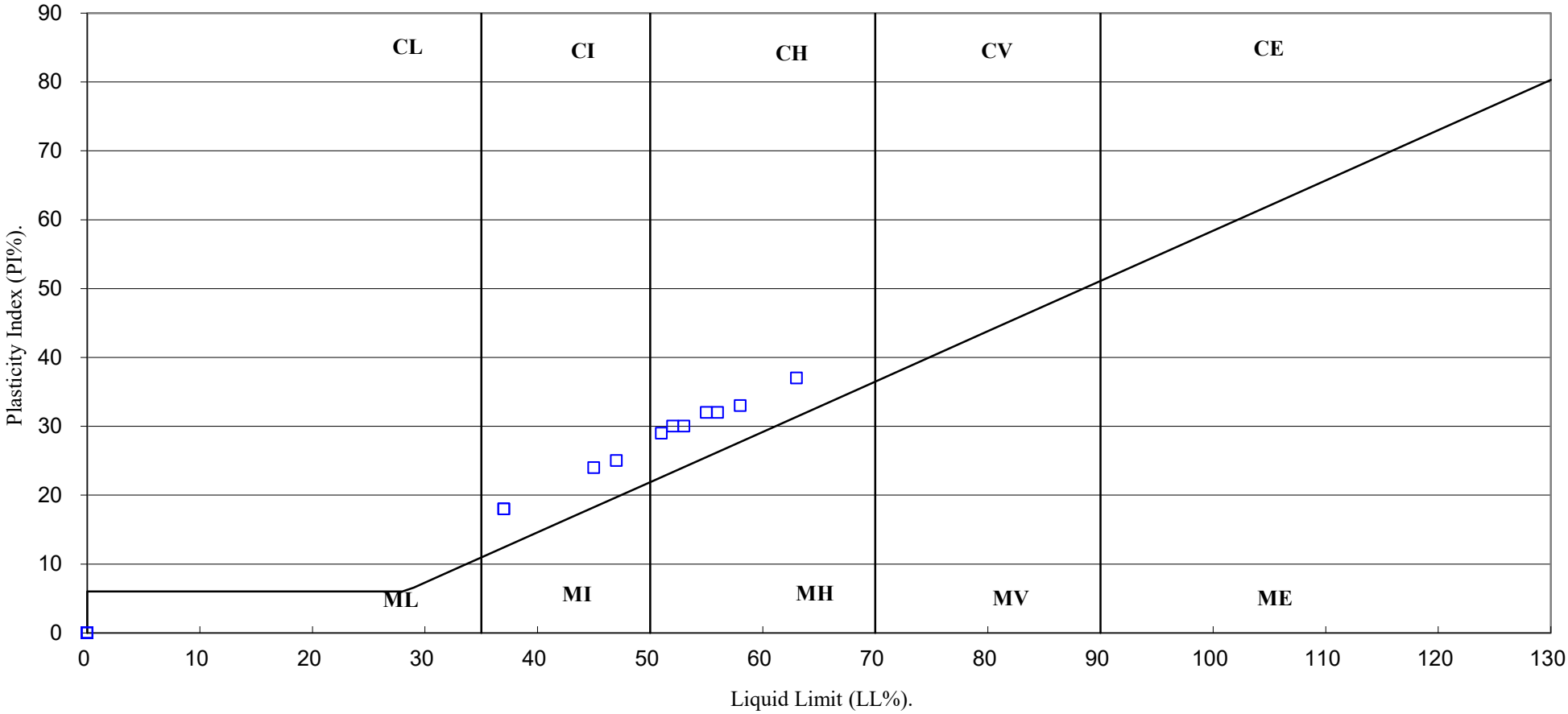
Contract No:

PSL20/5199

Client Ref:

C-13603

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5199 Client Ref: C-13603

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP56	4	D	1.70		24							
TP54	3	D	0.60		24							
TP54	6	D	2.40		28			55	24	31	93	High plasticity CH.
TP54	7	D	3.00		32							
TP44	2	D	0.50		19							
TP44	4	D	1.60		27							
TP46	4	B	1.80	1.90	22		2.70	52	23	29	100	High plasticity CH.
TP42	3	B	0.70	0.80	2.2		2.65		NP			

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

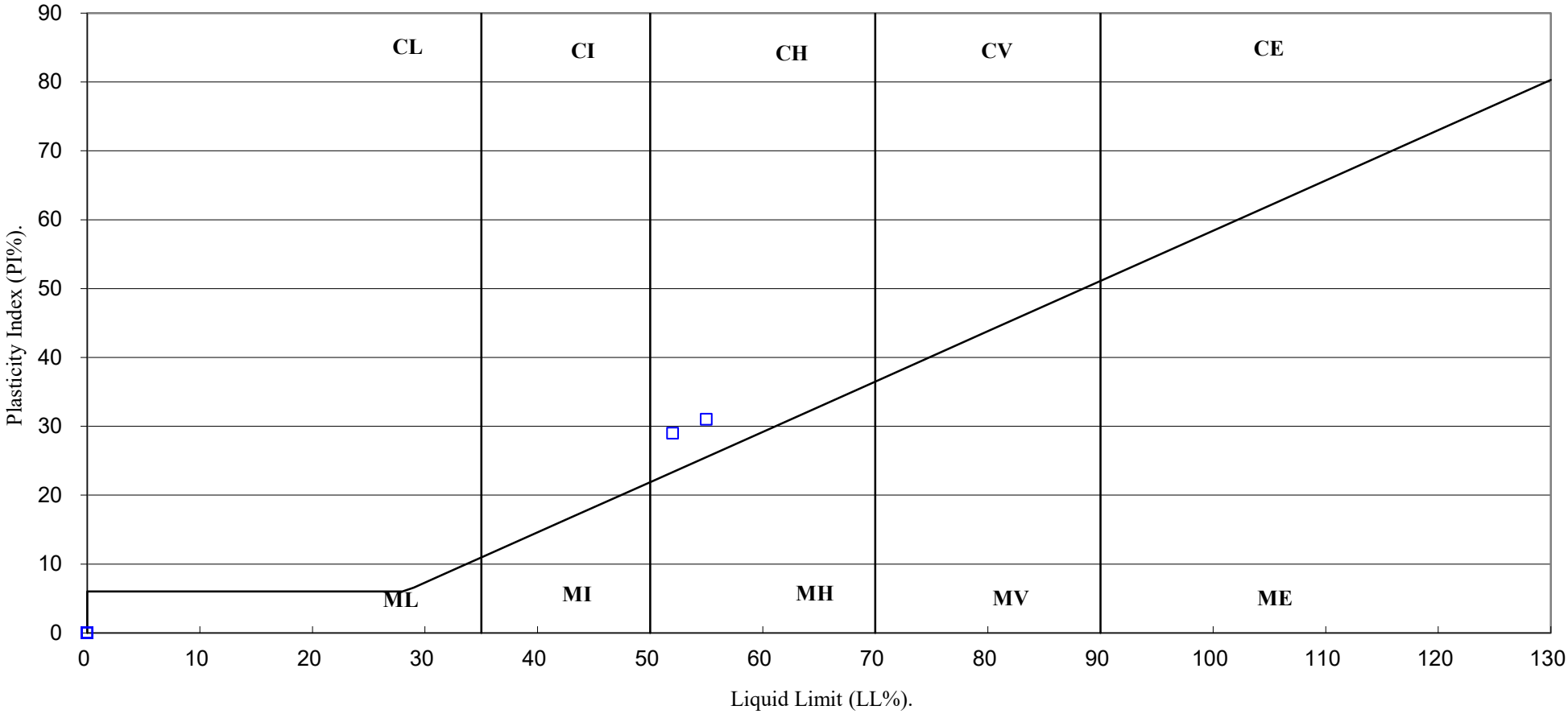
Contract No:

PSL20/5199

Client Ref:

C-13603

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



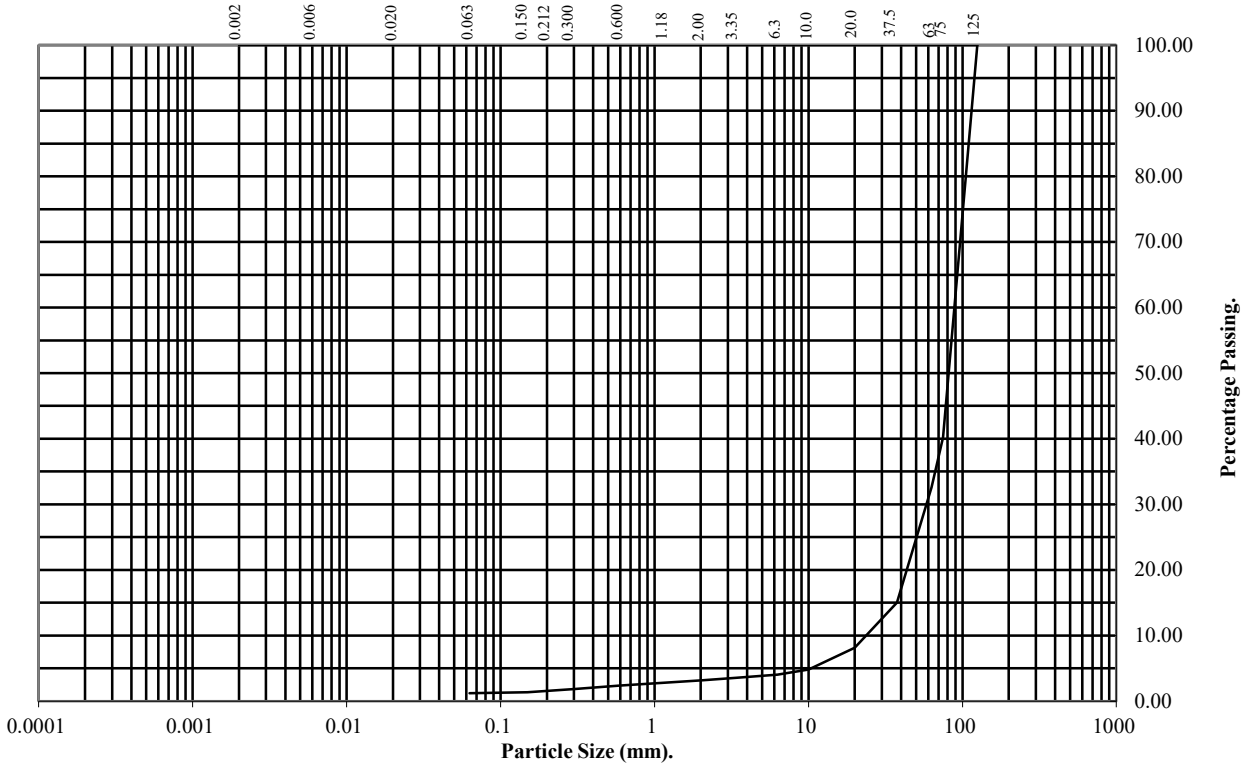
UKAS TESTING 4043	PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5199 Client Ref: C-13603

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**TP42**	**Top Depth (m):**	**0.70**
Sample Number:	**3**	**Base Depth(m):**	**0.80**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	40
63	33
37.5	15
20	8
10	5
6.3	4
3.35	4
2	3
1.18	3
0.6	2
0.3	2
0.212	2
0.15	1
0.063	1

Soil Fraction	Total Percentage
Cobbles	67
Gravel	30
Sand	2
Silt/Clay	1

Remarks:

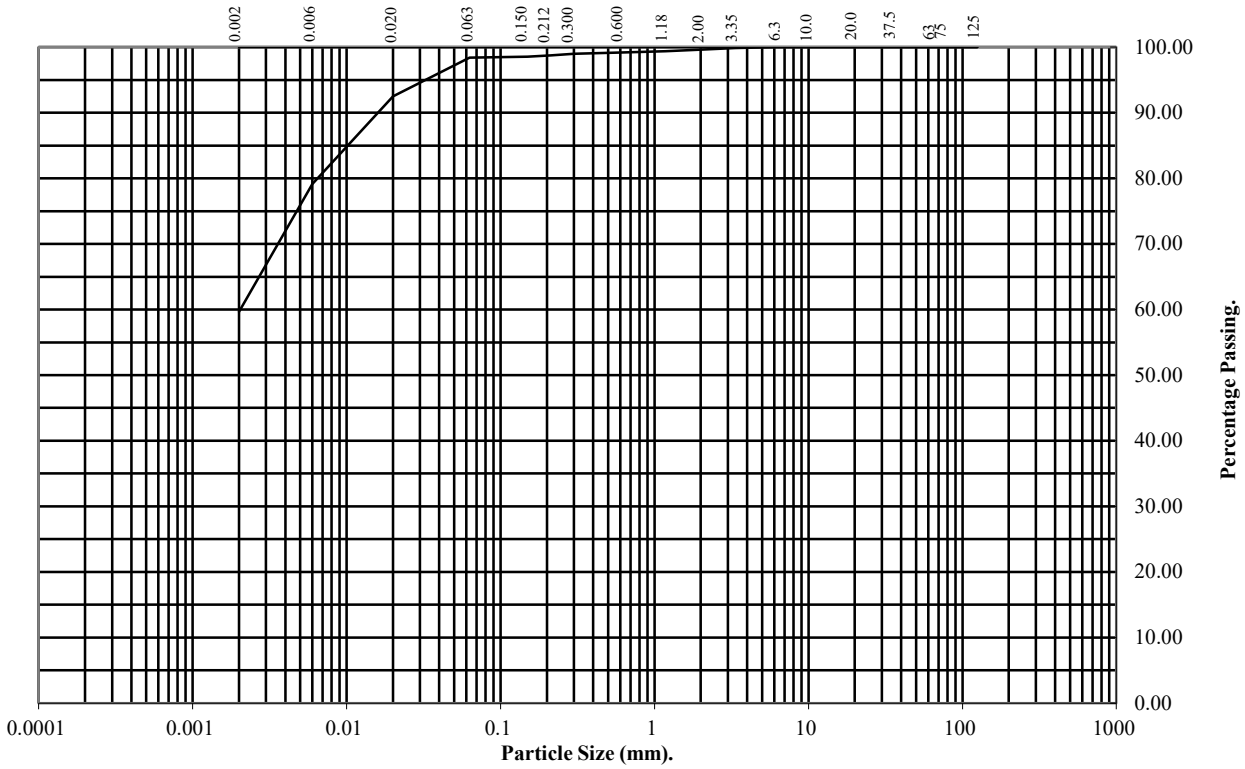
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP46**	**Top Depth (m):**	**1.80**
Sample Number:	**4**	**Base Depth(m):**	**1.90**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.6	99
0.3	99
0.212	99
0.15	99
0.063	98

Particle Diameter	Percentage Passing
0.02	92
0.006	79
0.002	60

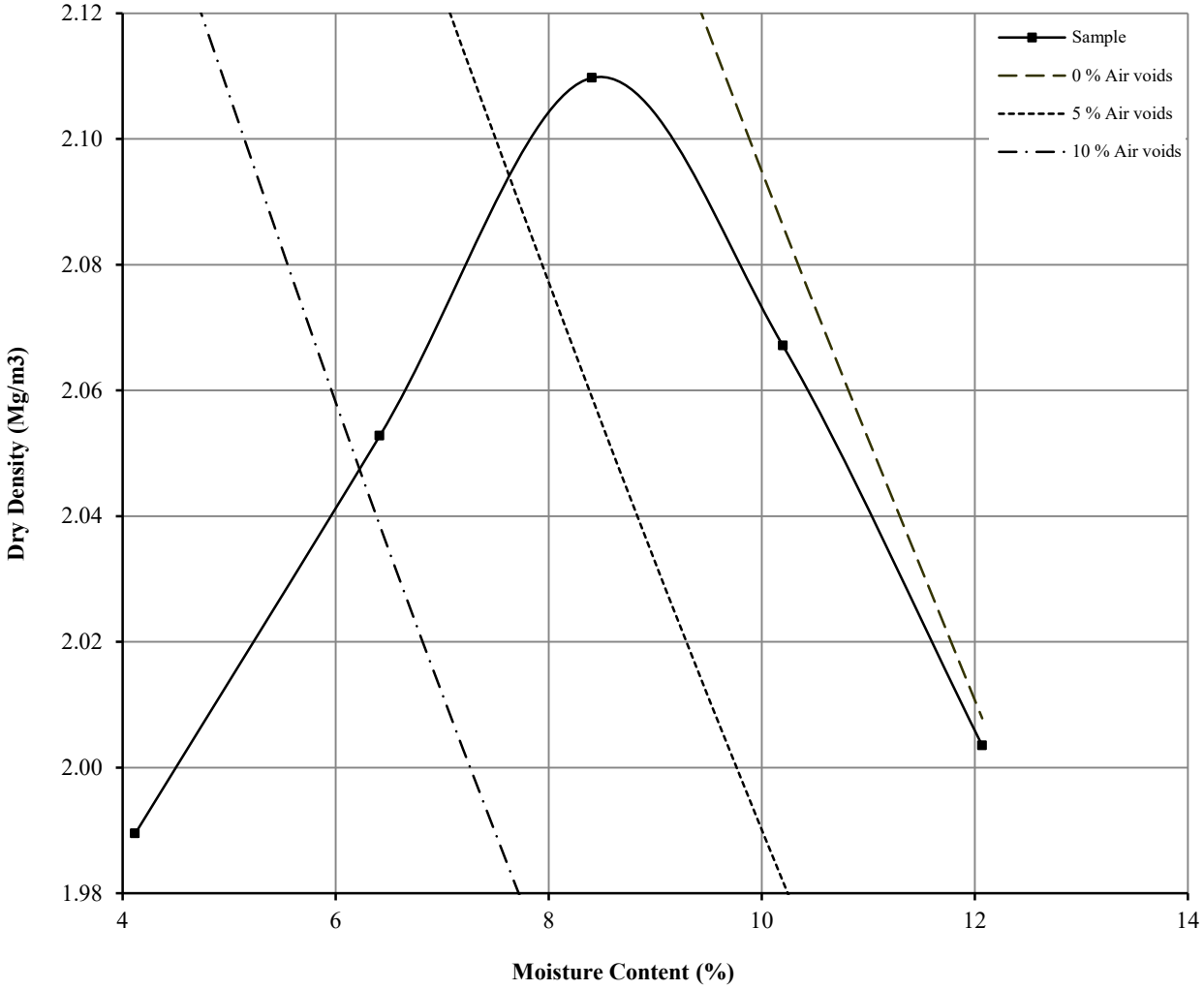
Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	2
Silt	38
Clay	60

Remarks:
See Summary of Soil Descriptions

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number:	**TP42**	**Top Depth (m) :**	**0.70**
Sample Number:	**3**	**Base Depth (m) :**	**0.80**
Sample Type:	**B**		



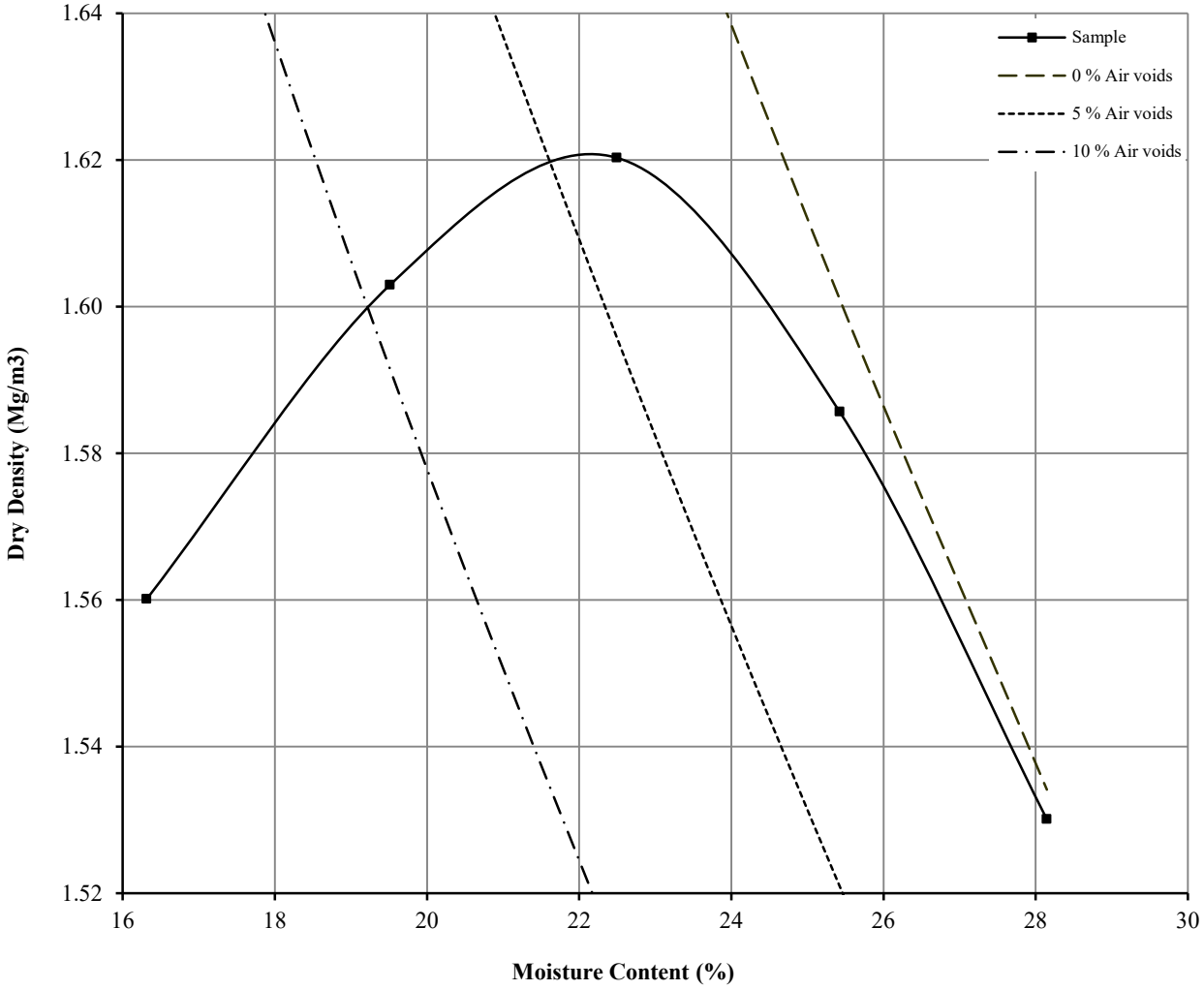
Initial Moisture Content:		2.2	Method of Compaction:	Vibro	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):		85
Maximum Dry Density (Mg/m3):		2.11	Material Retained on 20.0 mm Test Sieve (%):		7
Optimum Moisture Content (%):		8			
Remarks See summary of soil descriptions.					

UKAS TESTING 4043	PSL Professional Soils Laboratory	**North West Bicester Eco Development**	**Contract** **PSL20/5199** **Client Ref** **C-13603**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**TP46**	**Top Depth (m) :**	**1.80**
Sample Number:	**4**	**Base Depth (m) :**	**1.90**
Sample Type:	**B**		

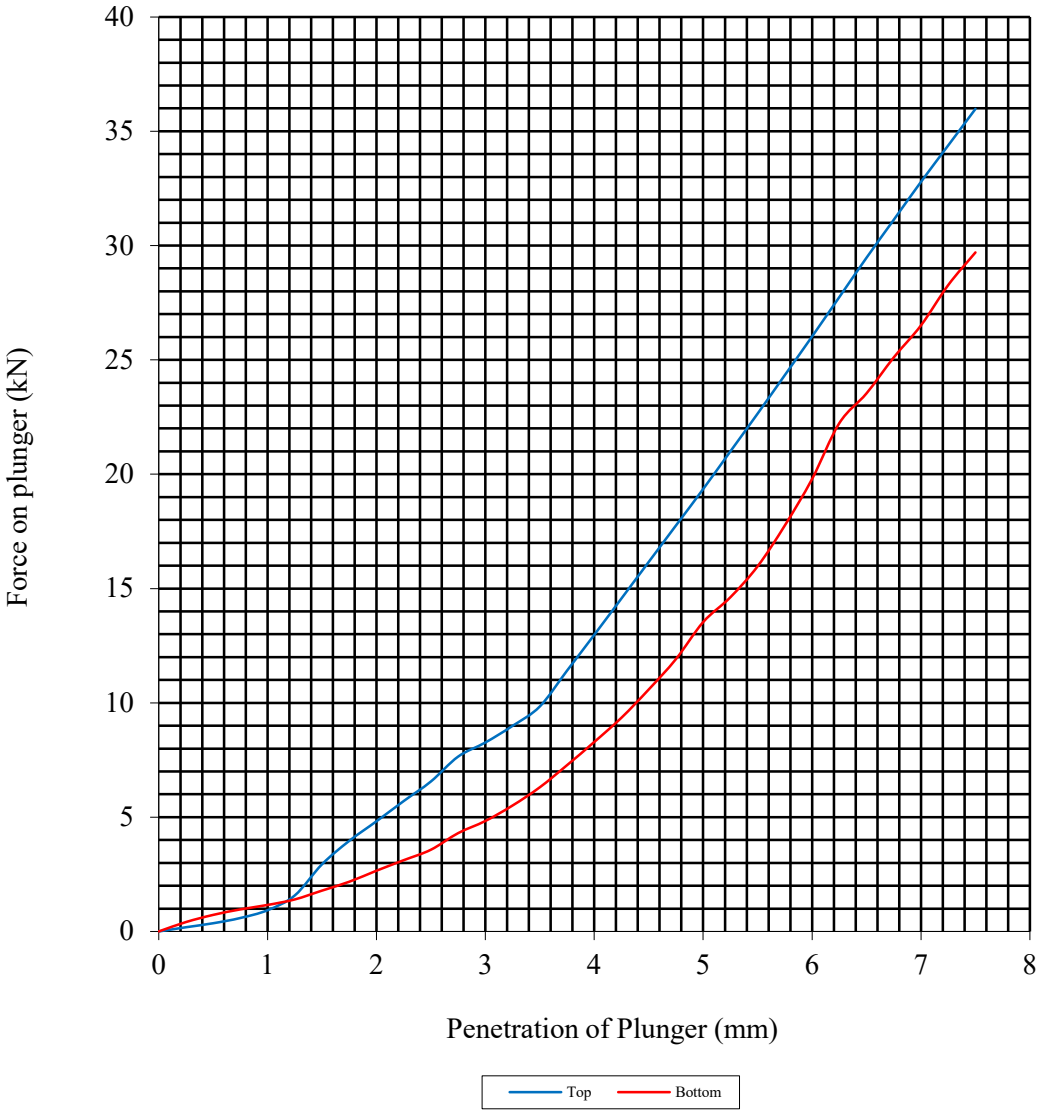


Initial Moisture Content:		22	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.70	Measured	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.62	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		22			
Remarks See summary of soil descriptions.					

CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

Hole Number:	**TP42**	**Top Depth (m):**	**0.70**
Sample Number:	**3**	**Base Depth (m):**	**0.80**
Sample Type:	**B**		



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.4	Surcharge Kg:	4.20	Sample Top	9.3	Sample Top	96.8
Bulk Density Mg/m3:	2.29	Soaking Time hrs	96	Sample Bottom	9.5	Sample Bottom	67.7
Dry Density Mg/m3:	2.11	Swelling mm:	0.01	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			92				
Compaction Conditions		Vibro					

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

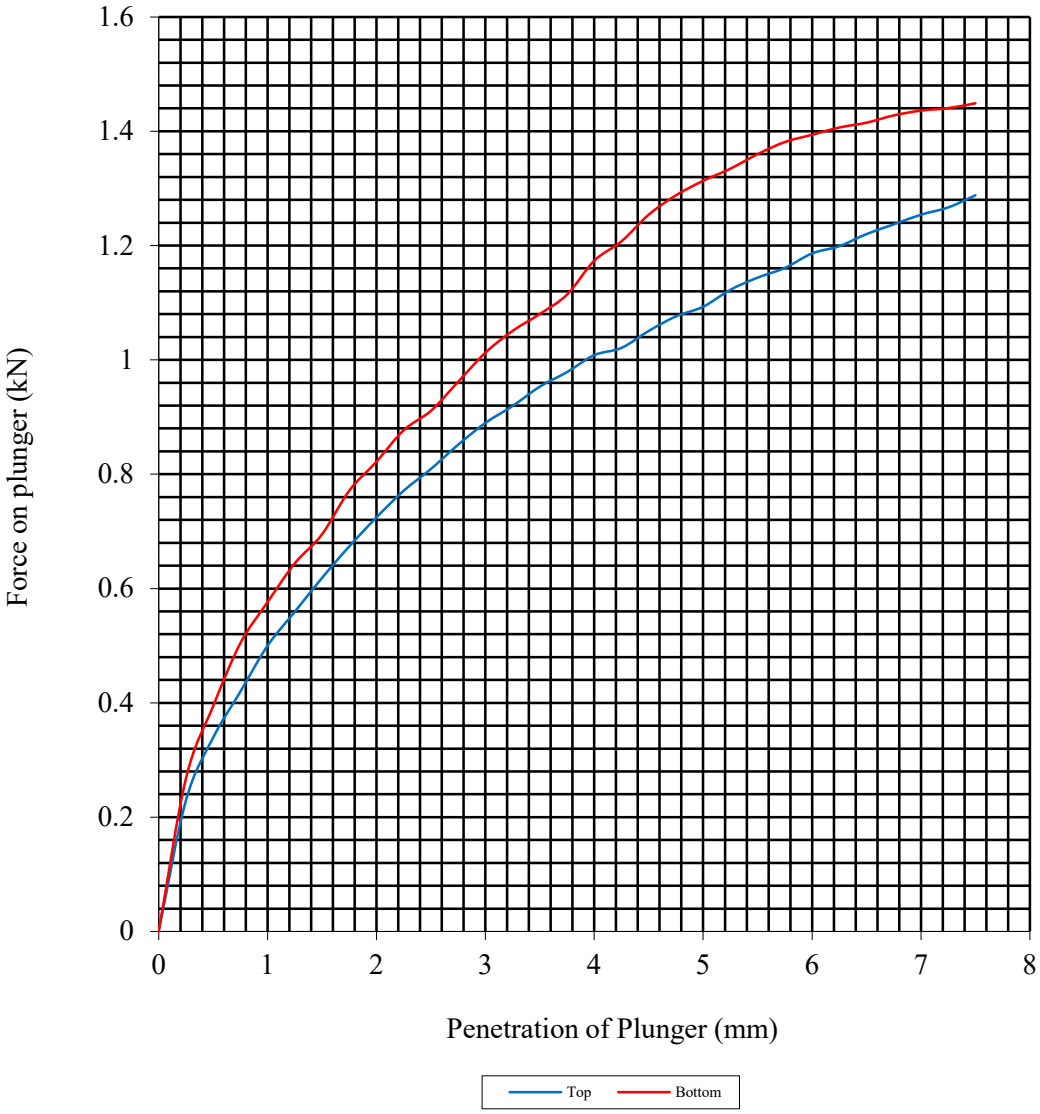
Contract No: PSL20/5199

Client Ref: C-13603

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number:	**TP46**	**Top Depth (m):**	**1.80**
Sample Number:	**4**	**Base Depth (m):**	**1.90**
Sample Type:	**B**		



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	22	Surcharge Kg:	4.20	Sample Top	24	Sample Top	6.1
Bulk Density Mg/m3:	1.98	Soaking Time hrs	96	Sample Bottom	24	Sample Bottom	6.9
Dry Density Mg/m3:	1.62	Swelling mm:	1.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:
PSL20/5199
Client Ref:
C-13603

SUMMARY OF LABORATORY HAND VANES

(BS1377 : PART 7 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Peak Shear Strength kPa	Residual Shear Strength kPa	Remarks
TP46	4	B	1.80	1.90	16	>146		
					19	>146		
					22	113		
					25	68		
					28	22		

* This test is out of our UKAS scope

PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5199 Client Ref: C-13603

DETERMINATION OF LOS ANGELES COEFFICIENT

BS EN ISO 1097 Part 2 : 2010

Hole Number:	**TP42**	**Top Depth (m):**	**0.70**
Sample Number:	**3**	**Base Depth (m):**	**0.80**
Sample Type:	**B**	**Sample Date:**	
Sample Description:	**See summary of soil descriptions**		

Test Specimen Details:	**Mass (g)**	**Mass (%)**
Passing 14mm sieve	5000	100
Retained 12.5mm sieve	1740	35
Retained 10mm sieve	3260	65
Retained 1.6mm sieve post rotation and washing	3971	n/a

Test Results:	
LA Coefficient	**21**

Remarks:

2531

ANALYTICAL TEST REPORT

Contract no: 90074

Contract name: North West Bicester Eco Development (C-13603)

Client reference: PSL20/5199

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 08 October 2020

Analysis started: 08 October 2020

Analysis completed: 15 October 2020

Report issued: 15 October 2020

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:
U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			90074-1	90074-2	90074-3	90074-4	90074-5	90074-6
Sample id			TP18	TP19	TP28	TP30	TP31	TP37
Depth (m)			1.00	1.70	1.80	1.50	0.50	0.60
Date sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
Test	**Method**	**Units**						
pH	CE004 U	units	8.8	8.5	8.4	8.6	8.5	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.5	1.0	1.3	<1	1.6	1.6
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	5.9	2.8	2.3	1.6	3.0	3.5
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	2.3	1.2	1.7	<1	6.5	3.8
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	20	20	24	16	13	14
Sulphate (total)	CE062 U	mg/kg SO_4	1097	961	820	682	1025	887
Sulphur (total)	CE119	mg/kg S	405	544	357	249	407	326
Sulphur (total)	CE119	% w/w S	0.04	0.05	0.04	0.02	0.04	0.03
Total Organic Carbon (TOC)	CE072 U	% w/w C	-	-	-	-	-	-
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	-	-	-	-	-	-

Chemtech Environmental Limited

SOILS

Lab number			90074-7	90074-8	90074-9	90074-10	90074-11	90074-12
Sample id			TP41	TP42	TP42	TP46	TP48	TP50
Depth (m)			1.20	0.70-0.80	1.20	1.80-1.90	1.80	1.00
Date sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
Test	**Method**	**Units**						
pH	CE004 U	units	8.5	8.6	8.5	8.5	8.5	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.1	2.8	1.1	<1	1.0	1.4
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	6.0	2.8	2.3	1.6	3.0	3.5
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	2.4	1.2	1.8	<1	6.7	3.9
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	<10	36	17	13	23	20
Sulphate (total)	CE062 U	mg/kg SO_4	365	744	833	680	749	649
Sulphur (total)	CE119	mg/kg S	130	406	301	240	290	263
Sulphur (total)	CE119	% w/w S	0.01	0.04	0.03	0.02	0.03	0.03
Total Organic Carbon (TOC)	CE072 U	% w/w C	-	0.4	-	<0.1	-	-
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	-	0.6	-	<0.1	-	-

Chemtech Environmental Limited

SOILS

Lab number			90074-13	90074-14
Sample id			TP51	TP54
Depth (m)			0.60	2.40
Date sampled			07/10/2020	07/10/2020
Test	**Method**	**Units**		
pH	CE004 U	units	8.5	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.9	2.3
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	4.4	2.3
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	1.8	2.6
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	16	16
Sulphate (total)	CE062 U	mg/kg SO_4	843	599
Sulphur (total)	CE119	mg/kg S	292	220
Sulphur (total)	CE119	% w/w S	0.03	0.02
Total Organic Carbon (TOC)	CE072 U	% w/w C	-	-
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	-	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	U	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	U	0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
90074-1	TP18	1.00	N	
90074-2	TP19	1.70	N	
90074-3	TP28	1.80	N	
90074-4	TP30	1.50	N	
90074-5	TP31	0.50	N	
90074-6	TP37	0.60	N	
90074-7	TP41	1.20	N	
90074-8	TP42	0.70-0.80	N	
90074-9	TP42	1.20	N	
90074-10	TP46	1.80-1.90	N	
90074-11	TP48	1.80	N	
90074-12	TP50	1.00	N	
90074-13	TP51	0.60	N	
90074-14	TP54	2.40	N	

LABORATORY REPORT

4043

Contract Number: PSL20/5200

Report Date: 14 October 2020

Client's Reference: C-13603 sch 4

Client Name: Hydrock
Northern Assurance Buildings
9-21 Princess Street
Albert Square
Manchester
M2 4DN

For the attention of: Cameron Adams

Contract Title: North West Bicester Eco Development

Date Received: 30/9/2020
Date Commenced: 30/9/2020
Date Completed: 14/10/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
L Knight (Senior Technician)	S Eyre (Senior Technician)	S Royle (Laboratory Manager)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP68	4	D	1.20		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP82	3	D	1.00		Brown slightly gravelly slightly sandy CLAY.
TP82	4	B	1.50	1.80	Brown slightly sandy CLAY.
TP83	3	B	1.00	1.50	Brown sandy very clayey GRAVEL with many cobbles.
TP77	4	D	1.00		Brown very gravelly slightly sandy CLAY.
TP70	6	D	1.50		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP59	3	D	1.60		Brown mottled grey gravelly slightly sandy CLAY.
TP59	5	B	2.00	3.00	Brown very gravelly sandy CLAY.
TP61	2	D	0.60		Brown slightly sandy slightly clayey GRAVEL.
TP61	4	D	2.00		Brown slightly gravelly slightly sandy CLAY.
TP72	4	D	1.10		Brown gravelly slightly sandy CLAY.
TP81	4	B	0.50	1.20	Brown slightly gravelly slightly sandy CLAY.
TP69	3	D	1.50		Light brown very gravelly slightly sandy CLAY.
TP71	3	D	0.90		Brown slightly gravelly slightly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP68	4	D	1.20		27			67	27	40	92	High plasticity CH.
TP82	3	D	1.00		19							
TP82	4	B	1.50	1.80	28			63	26	37	93	High plasticity CH.
TP83	3	B	1.00	1.50	11			39	20	19	24	Intermediate plasticity CI.
TP77	4	D	1.00		15			62	26	36	70	High plasticity CH.
TP70	6	D	1.50		20			59	24	35	92	High plasticity CH.
TP59	3	D	1.60		18			62	25	37	82	High plasticity CH.
TP59	5	B	2.00	3.00	14							
TP61	2	D	0.60		9.0							
TP61	4	D	2.00		20							
TP72	4	D	1.10		16			60	25	35	81	High plasticity CH.
TP81	4	B	0.50	1.20	30			57	24	33	93	High plasticity CH.
TP69	3	D	1.50		15			53	24	29	76	High plasticity CH.
TP71	3	D	0.90		24			56	24	32	93	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

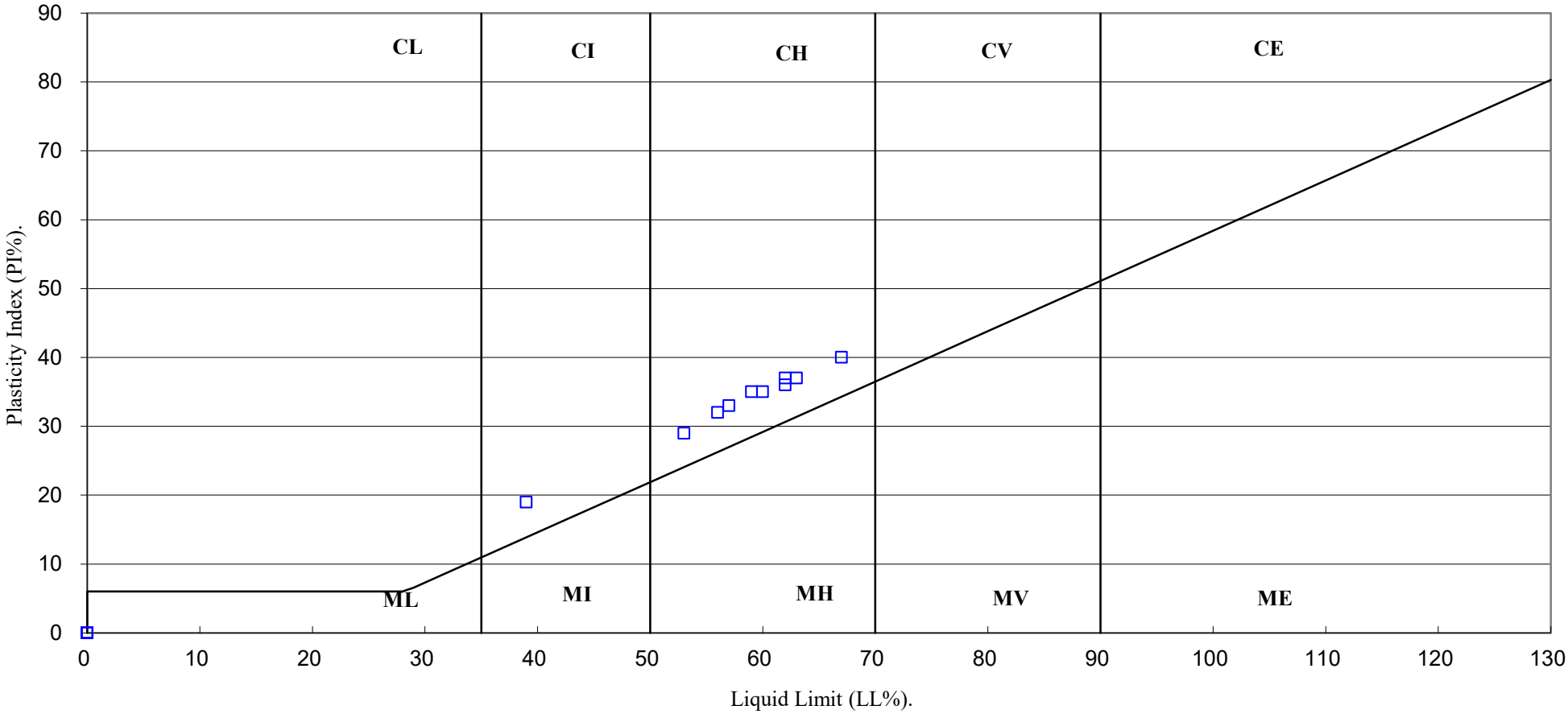
Contract No:

PSL20/5200

Client Ref:

C-13603

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



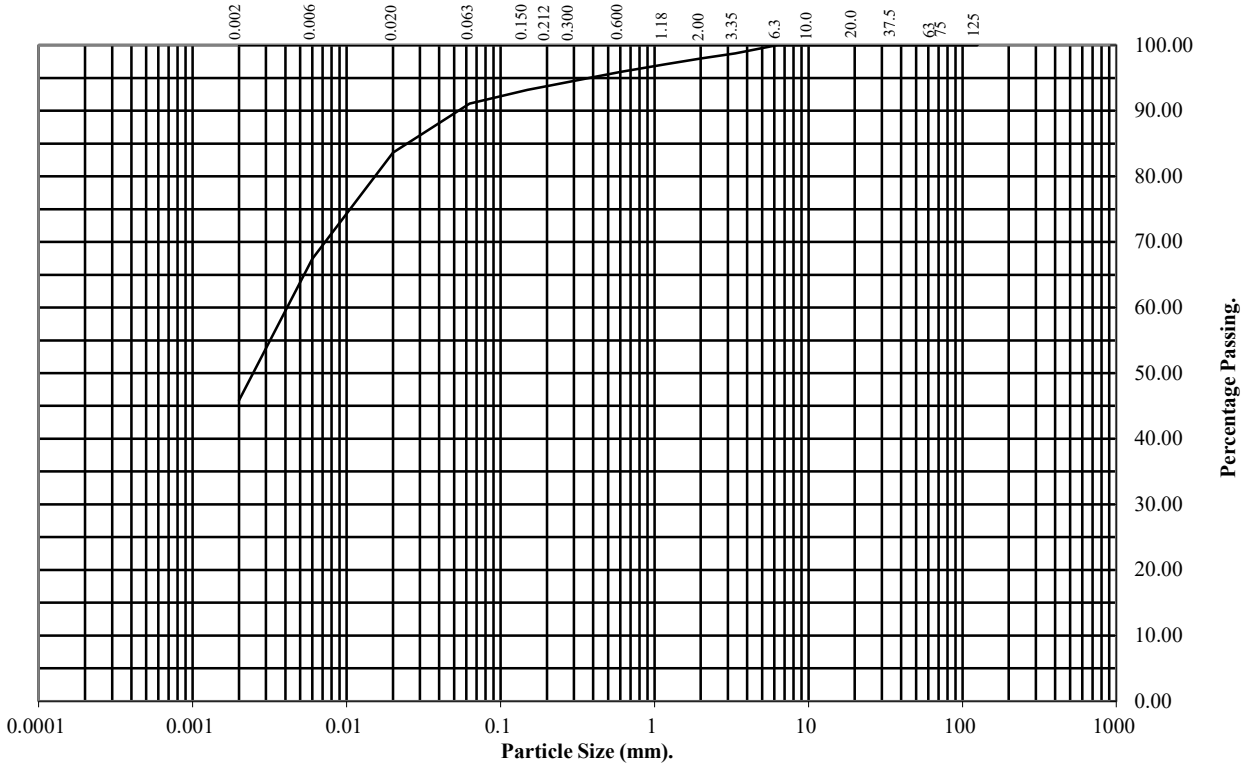
UKAS TESTING 4043	PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5200 Client Ref: C-13603

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP82**	**Top Depth (m):**	**1.50**
Sample Number:	**4**	**Base Depth(m):**	**1.80**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	97
0.6	96
0.3	95
0.212	94
0.15	93
0.063	91

Particle Diameter	Percentage Passing
0.02	84
0.006	67
0.002	46

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	7
Silt	45
Clay	46

Remarks:

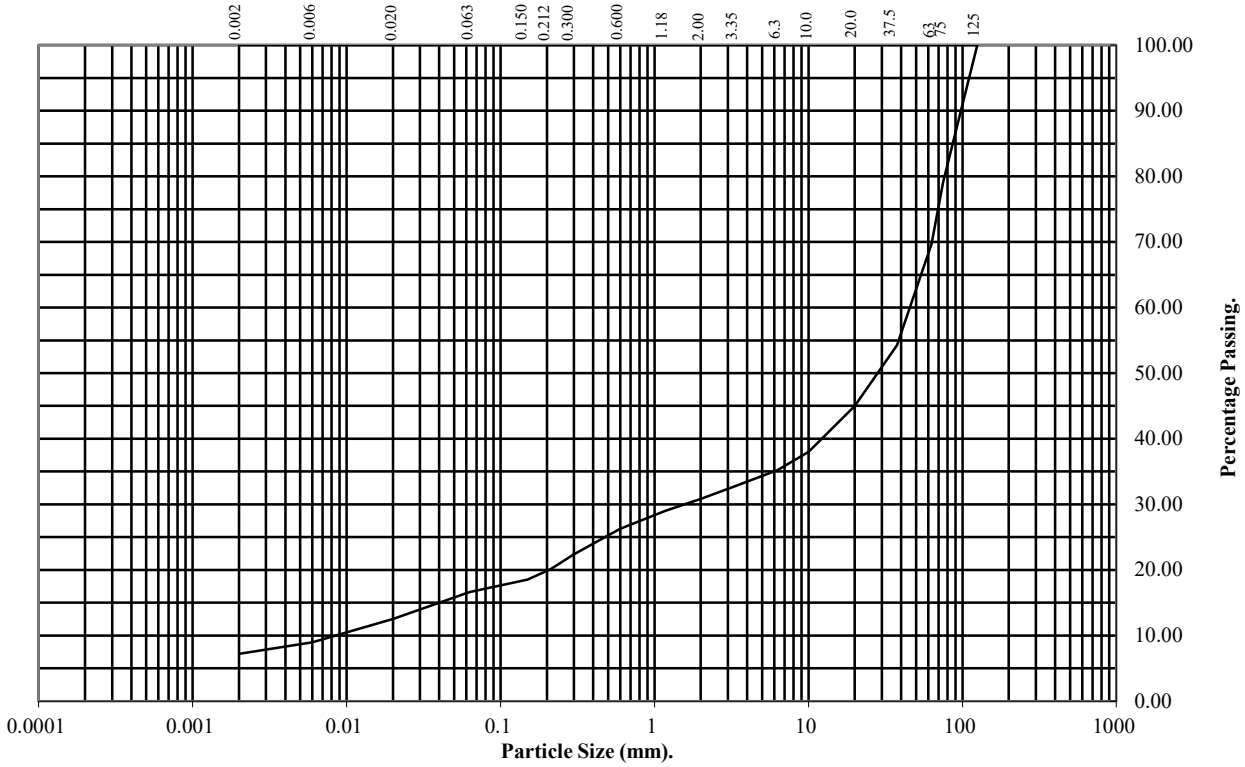
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP83**	**Top Depth (m):**	**1.00**
Sample Number:	**3**	**Base Depth(m):**	**1.50**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	79
63	70
37.5	54
20	45
10	38
6.3	35
3.35	33
2	31
1.18	29
0.6	26
0.3	22
0.212	20
0.15	19
0.063	17

Particle Diameter	Percentage Passing
0.02	13
0.006	9
0.002	7

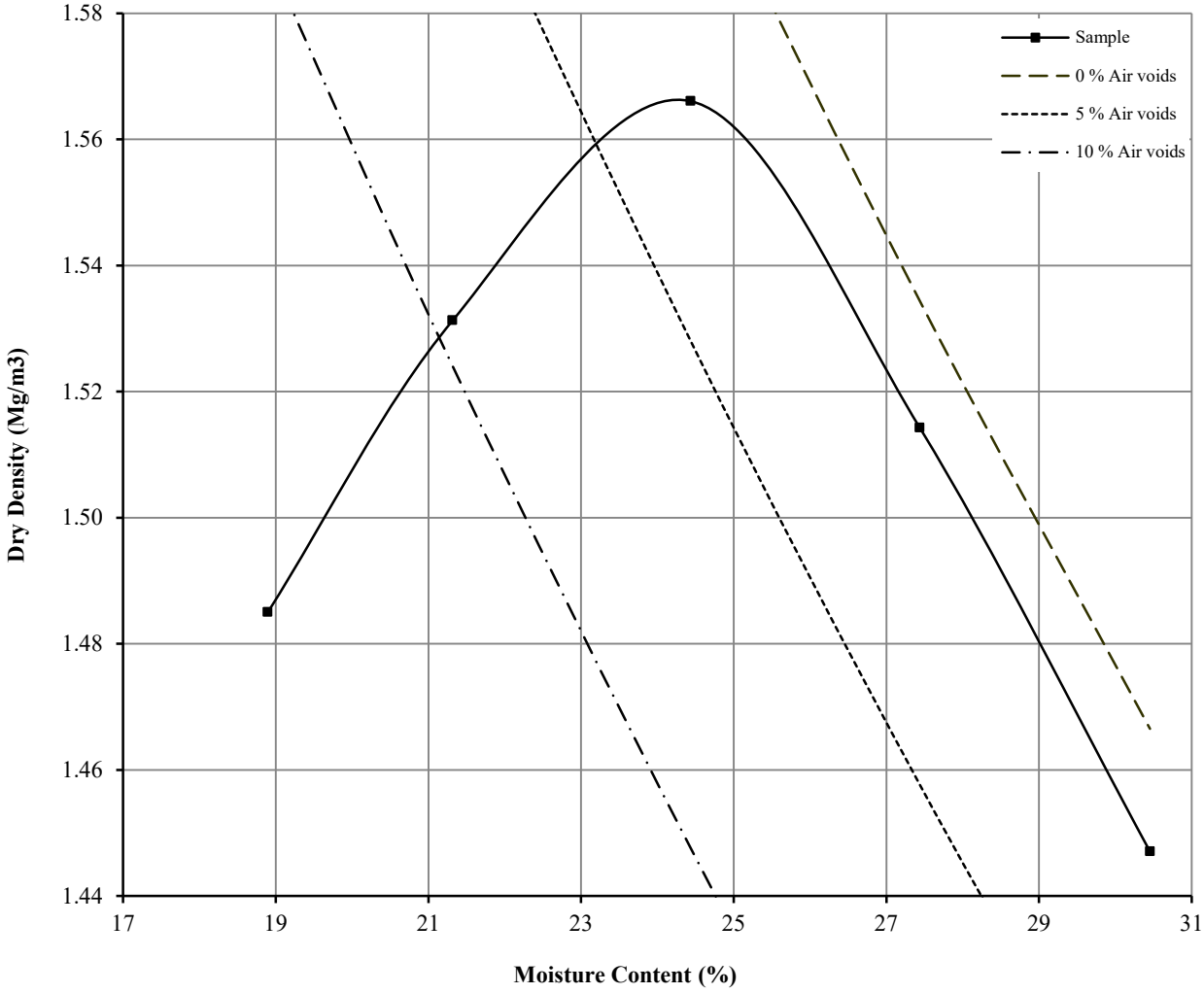
Soil Fraction	Total Percentage
Cobbles	30
Gravel	39
Sand	14
Silt	10
Clay	7

Remarks:
See Summary of Soil Descriptions

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**TP82**	**Top Depth (m) :**	**1.50**
Sample Number:	**4**	**Base Depth (m) :**	**1.80**
Sample Type:	**B**		

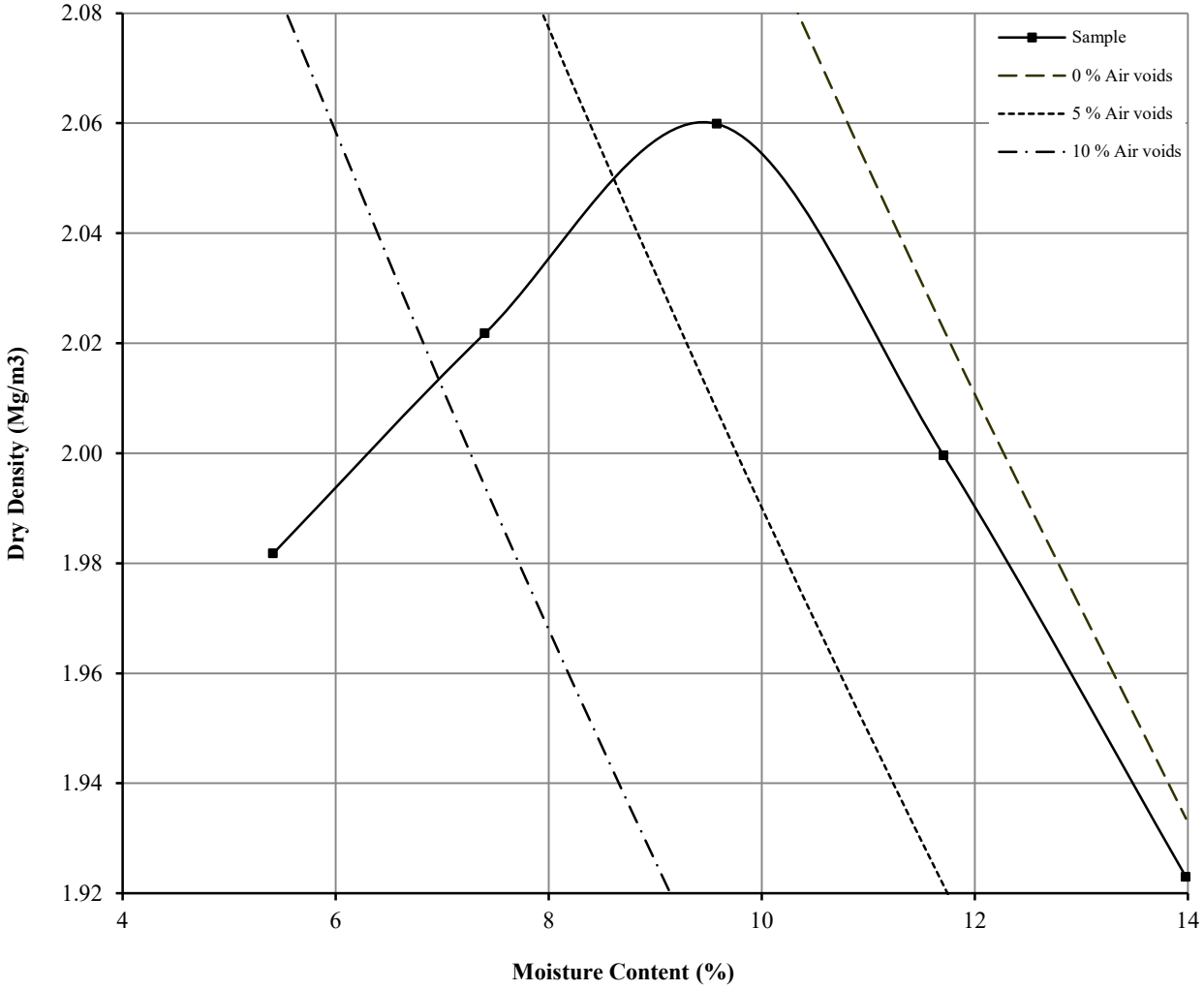


Initial Moisture Content:		30	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.57	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		24			
Remarks See summary of soil descriptions.					

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.6 : 1990

Hole Number:	**TP83**	**Top Depth (m) :**	**1.00**
Sample Number:	**3**	**Base Depth (m) :**	**1.50**
Sample Type:	**B**		

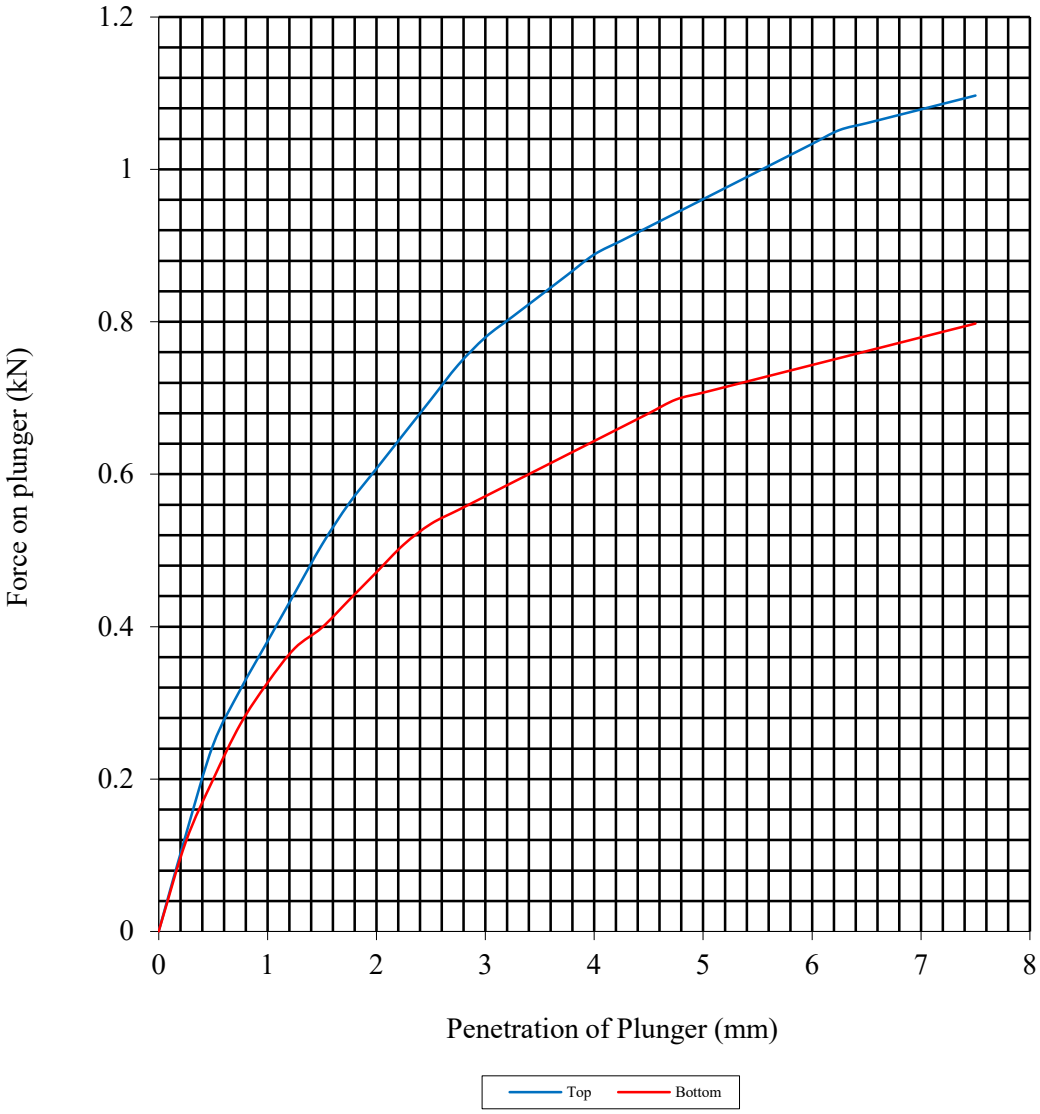


Initial Moisture Content:		9.6	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):		46
Maximum Dry Density (Mg/m3):		2.06	Material Retained on 20.0 mm Test Sieve (%):		9
Optimum Moisture Content (%):		10			
Remarks See summary of soil descriptions.					

CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number:	**TP82**	**Top Depth (m):**	**1.50**
Sample Number:	**4**	**Base Depth (m):**	**1.80**
Sample Type:	**B**		



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	24	Surcharge Kg:	4.20	Sample Top	28	Sample Top	5.3
Bulk Density Mg/m3:	1.96	Soaking Time hrs	96	Sample Bottom	27	Sample Bottom	4.1
Dry Density Mg/m3:	1.57	Swelling mm:	1.18	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

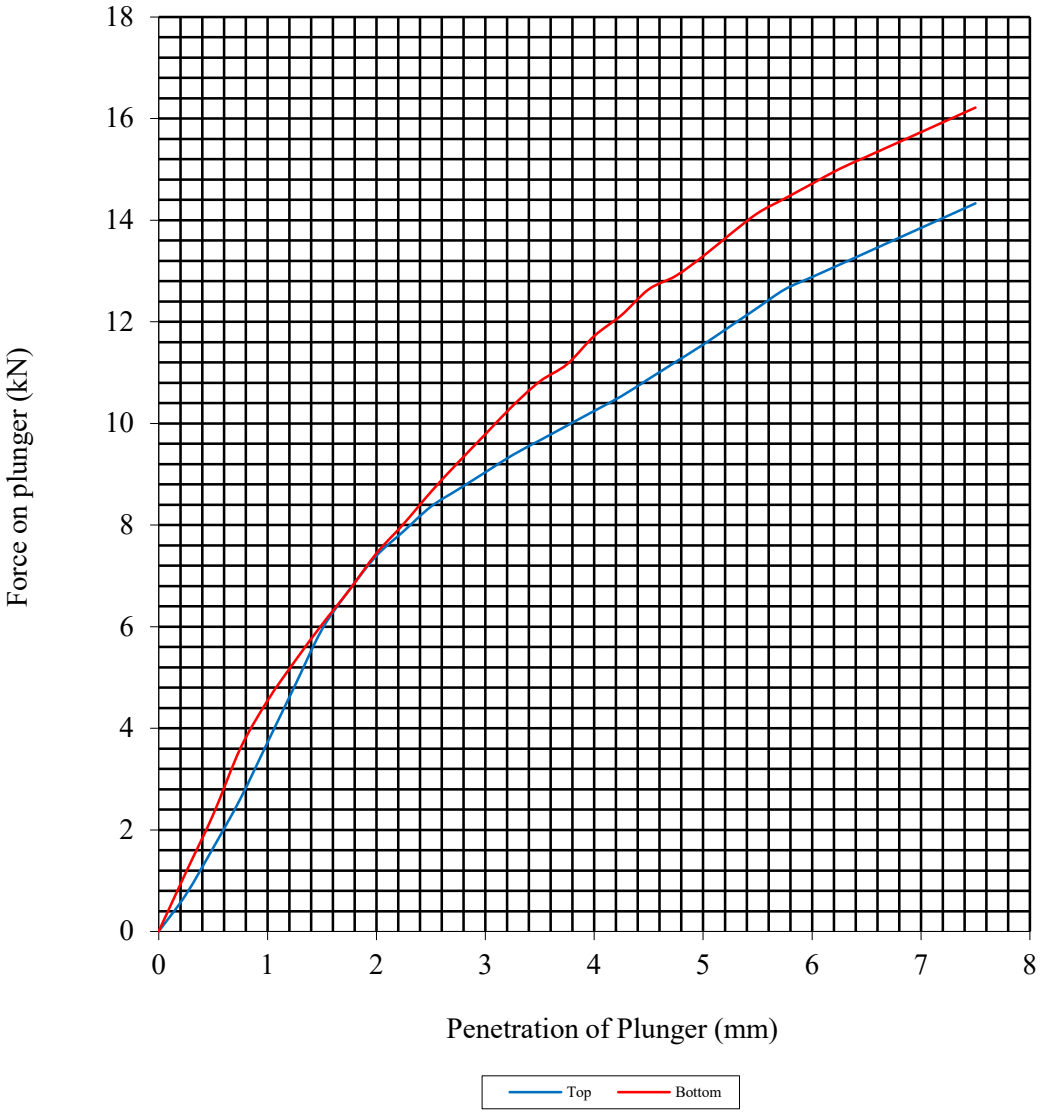
North West Bicester Eco Development

Contract No:
PSL20/5200
Client Ref:
C-13603

CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

Hole Number:	**TP83**	**Top Depth (m):**	**1.00**
Sample Number:	**3**	**Base Depth (m):**	**1.50**
Sample Type:	**B**		



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	9.6	Surcharge Kg:	4.20	Sample Top	12	Sample Top	63.3
Bulk Density Mg/m3:	2.23	Soaking Time hrs	96	Sample Bottom	12	Sample Bottom	66.5
Dry Density Mg/m3:	2.04	Swelling mm:	0.20	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			55				
Compaction Conditions		4.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No: PSL20/5200

Client Ref: C-13603

2531

ANALYTICAL TEST REPORT

Contract no: 90071

Contract name: North West Bicester Eco Development (C-13603)

Client reference: PSL20/5200

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 08 October 2020

Analysis started: 08 October 2020

Analysis completed: 15 October 2020

Report issued: 15 October 2020

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:
U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			90071-1	90071-2	90071-3	90071-4	90071-5	90071-6
Sample id			TP65	TP68	TP69	TP70	TP71	TP72
Depth (m)			1.00	1.20	1.50	1.50	0.90	1.10
Date sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
Test	**Method**	**Units**						
pH	CE004 U	units	9.5	8.9	8.9	8.7	8.4	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	15	2.1	1.4	1.3	1.3	1.0
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	5.6	2.9	2.4	4.8	1.5	1.1
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	2.0	<1	2.4	11	4.7	<1
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	371	74	25	27	12	17
Sulphate (total)	CE062 U	mg/kg SO_4	1591	727	666	914	545	899
Sulphur (total)	CE119	mg/kg S	593	297	283	361	207	366
Sulphur (total)	CE119	% w/w S	0.06	0.03	0.03	0.04	0.02	0.04
Total Organic Carbon (TOC)	CE072 U	% w/w C	-	-	-	-	-	-
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	-	-	-	-	-	-

Chemtech Environmental Limited

SOILS

Lab number			90071-7	90071-8	90071-9	90071-10
Sample id			TP76	TP77	TP82	TP83
Depth (m)			0.50	1.00	1.50-1.80	1.00-1.50
Date sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020
Test	**Method**	**Units**				
pH	CE004 U	units	8.6	8.5	8.6	8.6
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.7	2.0	1.0	2.4
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	3.5	22	2.2	2.0
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	1.2	4.0	1.5	5.1
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	25	42	35	13
Sulphate (total)	CE062 U	mg/kg SO_4	875	632	1630	1012
Sulphur (total)	CE119	mg/kg S	399	269	578	381
Sulphur (total)	CE119	% w/w S	0.04	0.03	0.06	0.04
Total Organic Carbon (TOC)	CE072 U	% w/w C	-	-	0.4	1.4
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	-	-	0.8	2.4

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	U	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	U	0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
90071-1	TP65	1.00	N	
90071-2	TP68	1.20	N	
90071-3	TP69	1.50	N	
90071-4	TP70	1.50	N	
90071-5	TP71	0.90	N	
90071-6	TP72	1.10	N	
90071-7	TP76	0.50	N	
90071-8	TP77	1.00	N	
90071-9	TP82	1.50-1.80	N	
90071-10	TP83	1.00-1.50	N	

LABORATORY REPORT

4043

Contract Number: PSL20/5201

Report Date: 14 October 2020

Client's Reference: C-13603

Client Name: Hydrock
Northern Assurance Buildings
9-21 Princess Street
Albert Square
Manchester
M2 4DN

For the attention of: Cameron Adams

Contract Title: North West Bicester Eco Development

Date Received: 30/9/2020
Date Commenced: 30/9/2020
Date Completed: 14/10/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

H Daniels (Senior Technician)	A Watkins (Director)	R Berriman (Quality Manager)
S Royle (Laboratory Manager)	S Eyre (Senior Technician)	L Knight (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP05	B2	B	0.40	1.40	Brown sandy slightly clayey slightly silty GRAVEL with many cobbles.

UKAS TESTING
4043

PSL
Professional Soils Laboratory

North West Bicester Eco Development

Contract No:
PSL20/5201
Client Ref:
C-13603

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP05	B2	B	0.40	1.40	11		2.65	39	20	19	56	Intermediate plasticity CI.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

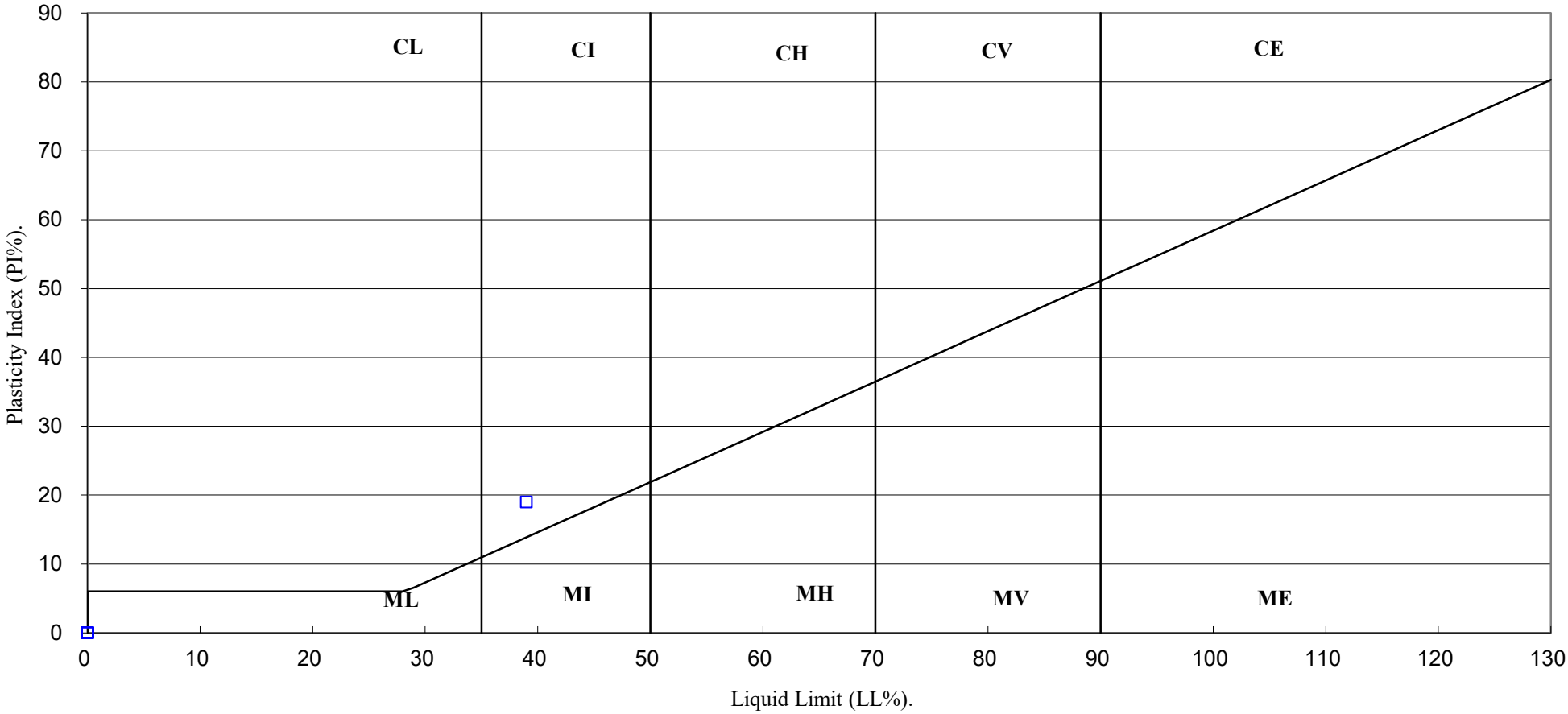
Contract No:

PSL20/5201

Client Ref:

C-13603

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



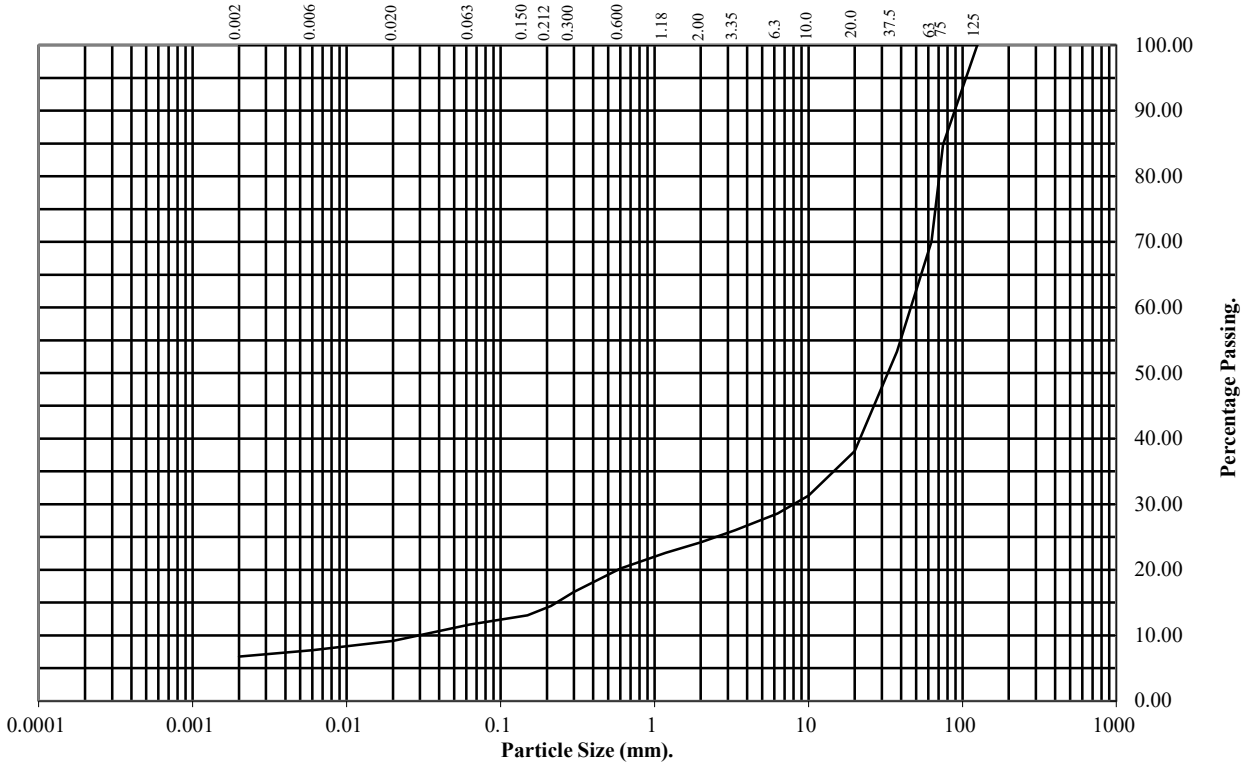
UKAS TESTING 4043	PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5201 Client Ref: C-13603

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP05**	**Top Depth (m):**	**0.40**
Sample Number:	**B2**	**Base Depth(m):**	**1.40**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	85
63	70
37.5	53
20	38
10	31
6.3	29
3.35	26
2	24
1.18	23
0.6	20
0.3	17
0.212	14
0.15	13
0.063	12

Particle Diameter	Percentage Passing
0.02	9
0.006	8
0.002	7

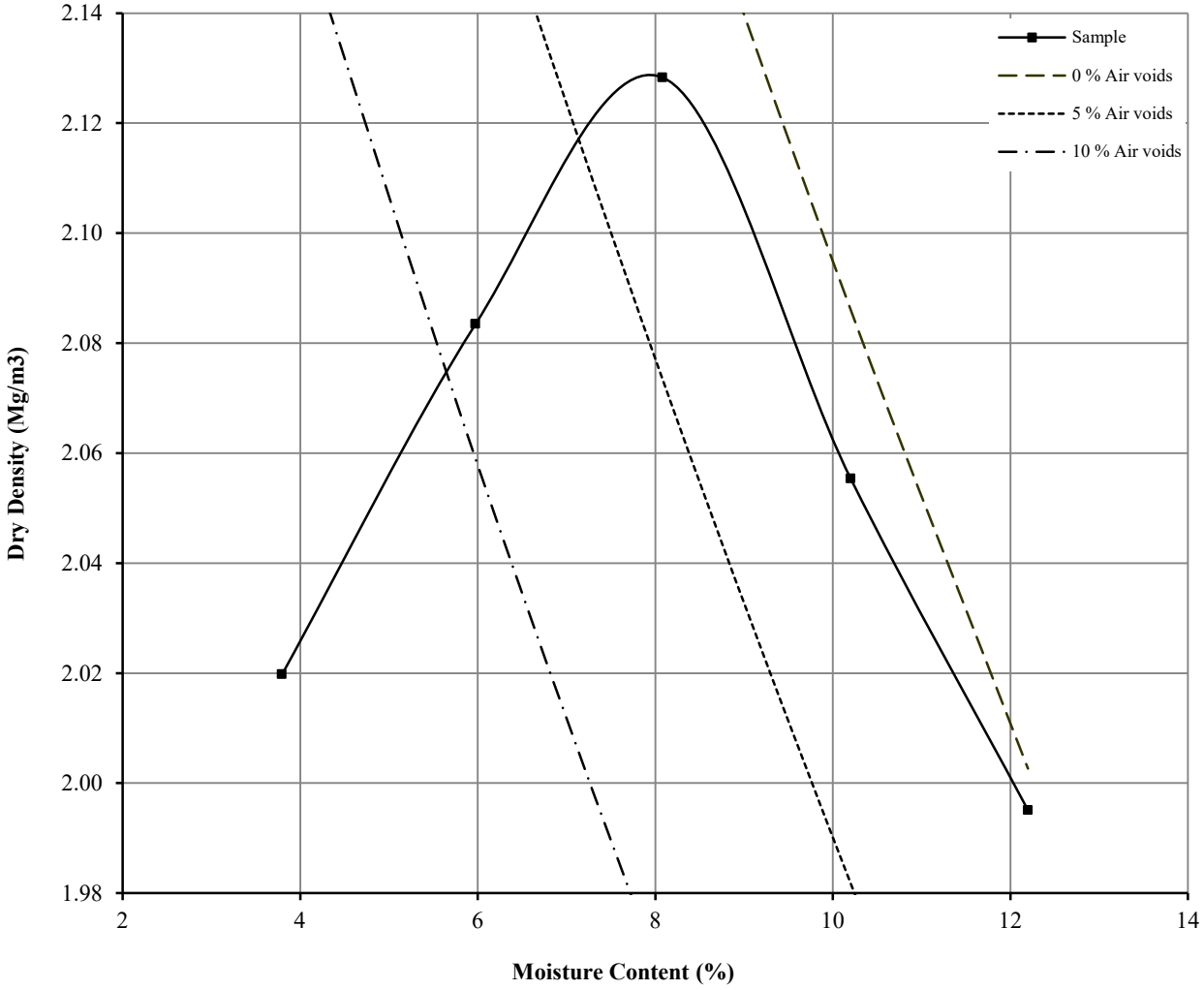
Soil Fraction	Total Percentage
Cobbles	30
Gravel	46
Sand	12
Silt	5
Clay	7

Remarks:
See Summary of Soil Descriptions

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.7 : 1990

Hole Number:	**TP05**	**Top Depth (m) :**	**0.40**
Sample Number:	**B2**	**Base Depth (m) :**	**1.40**
Sample Type:	**B**		

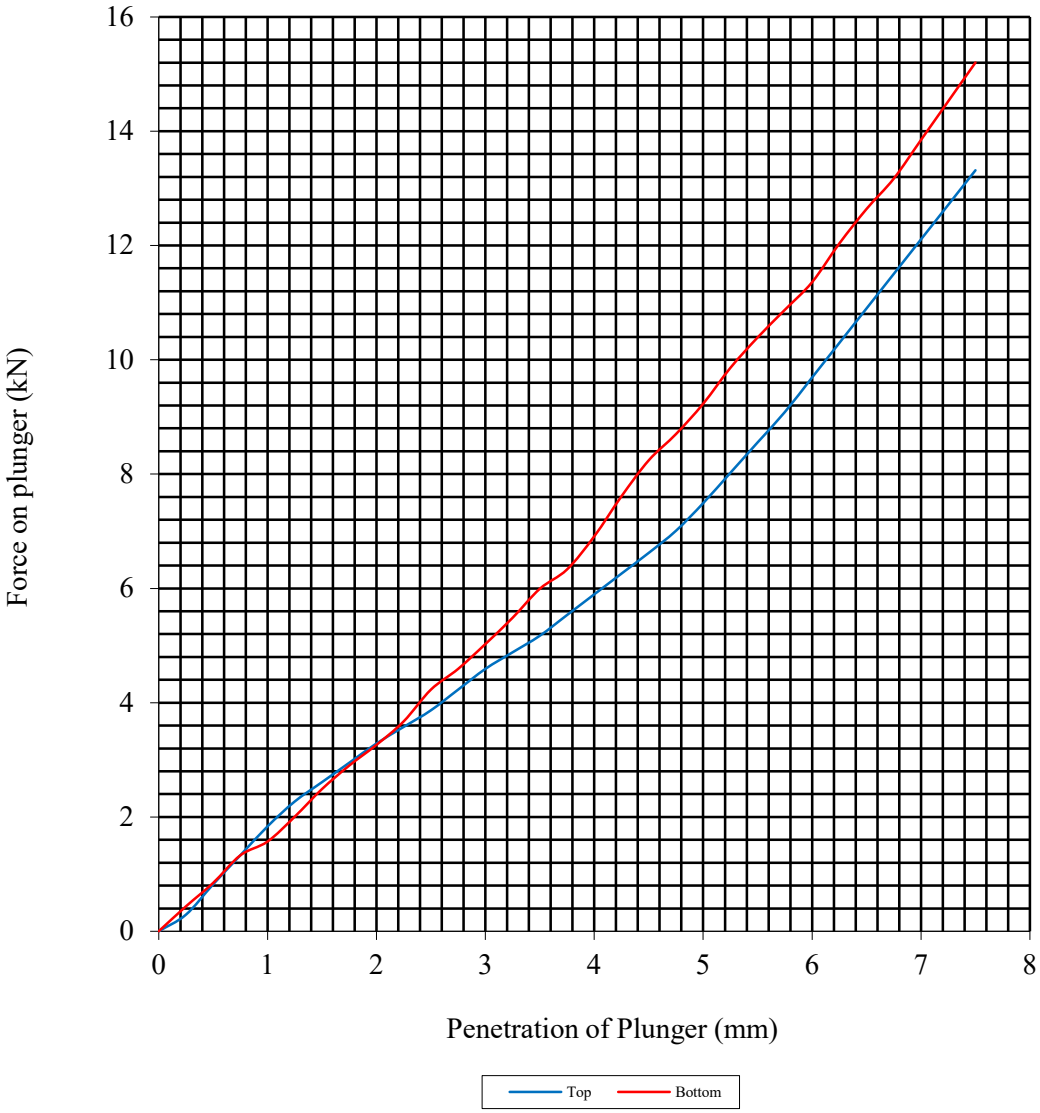


Initial Moisture Content:		8.1	Method of Compaction:	Vibro	Separate Samples
Particle Density (Mg/m3):	2.65	Measured	Material Retained on 37.5 mm Test Sieve (%):		47
Maximum Dry Density (Mg/m3):		2.13	Material Retained on 20.0 mm Test Sieve (%):		15
Optimum Moisture Content (%):		8			
Remarks See summary of soil descriptions.					

CALIFORNIA BEARING RATIO TEST

Non compliance with BS 1377 : Part 4 : 1990

Hole Number:	**TP05**	**Top Depth (m):**	**0.40**
Sample Number:	**B2**	**Base Depth (m):**	**1.40**
Sample Type:	**B**		



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.1	Surcharge Kg:	4.20	Sample Top	10	Sample Top	37.5
Bulk Density Mg/m3:	2.30	Soaking Time hrs	0	Sample Bottom	9.5	Sample Bottom	46.2
Dry Density Mg/m3:	2.13	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			62				
Compaction Conditions		Vibro					

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:
PSL20/5201
Client Ref:
C-13603

2531

ANALYTICAL TEST REPORT

Contract no: 90076

Contract name: North West Bicester Eco Development (C-13603)

Client reference: PSL20/5201

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 08 October 2020

Analysis started: 08 October 2020

Analysis completed: 15 October 2020

Report issued: 15 October 2020

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:
U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:
Karan Campbell
Director

Chemtech Environmental Limited

SOILS

Lab number			90076-1
Sample id			TP05
Depth (m)			0.40-1.40
Date sampled			07/10/2020
Test	**Method**	**Units**	
pH	CE004 U	units	8.5
Magnesium (2:1 water soluble)	CE061	mg/l Mg	6.0
Chloride (2:1 water soluble)	CE049 U	mg/l Cl	4.4
Nitrate (2:1 water soluble)	CE049 U	mg/l NO_3	29
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	27
Sulphate (total)	CE062 U	mg/kg SO_4	996
Sulphur (total)	CE119	mg/kg S	374
Sulphur (total)	CE119	% w/w S	0.04
Total Organic Carbon (TOC)	CE072 U	% w/w C	0.3
Estimate of OMC (calculated from TOC)	CE072 U	% w/w	0.4

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	U	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	U	0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
90076-1	TP05	0.40-1.40	N	

LABORATORY REPORT

4043

Contract Number: PSL20/5338

Report Date: 12 October 2020

Client's Reference: C-13603 sch 5

Client Name: Hydrock
Northern Assurance Buildings
9-21 Princess Street
Albert Square
Manchester
M2 4DN

For the attention of: Cameron Adams

Contract Title: North West Bicester Eco Development

Date Received: 5/10/2020
Date Commenced: 5/10/2020
Date Completed: 12/10/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
L Knight (Senior Technician)	S Eyre (Senior Technician)	S Royle (Laboratory Manager)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
RBH01	1	D	4.50	4.60	Grey CLAY.
RBH06	4	D	4.60	4.70	Grey slightly sandy CLAY.
RBH11	1	D	4.00		Grey slightly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
RBH01	1	D	4.50	4.60	31			71	30	41	100	Very high plasticity CV.
RBH06	4	D	4.60	4.70	31			62	27	35	100	High plasticity CH.
RBH11	1	D	4.00		26			67	28	39	98	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

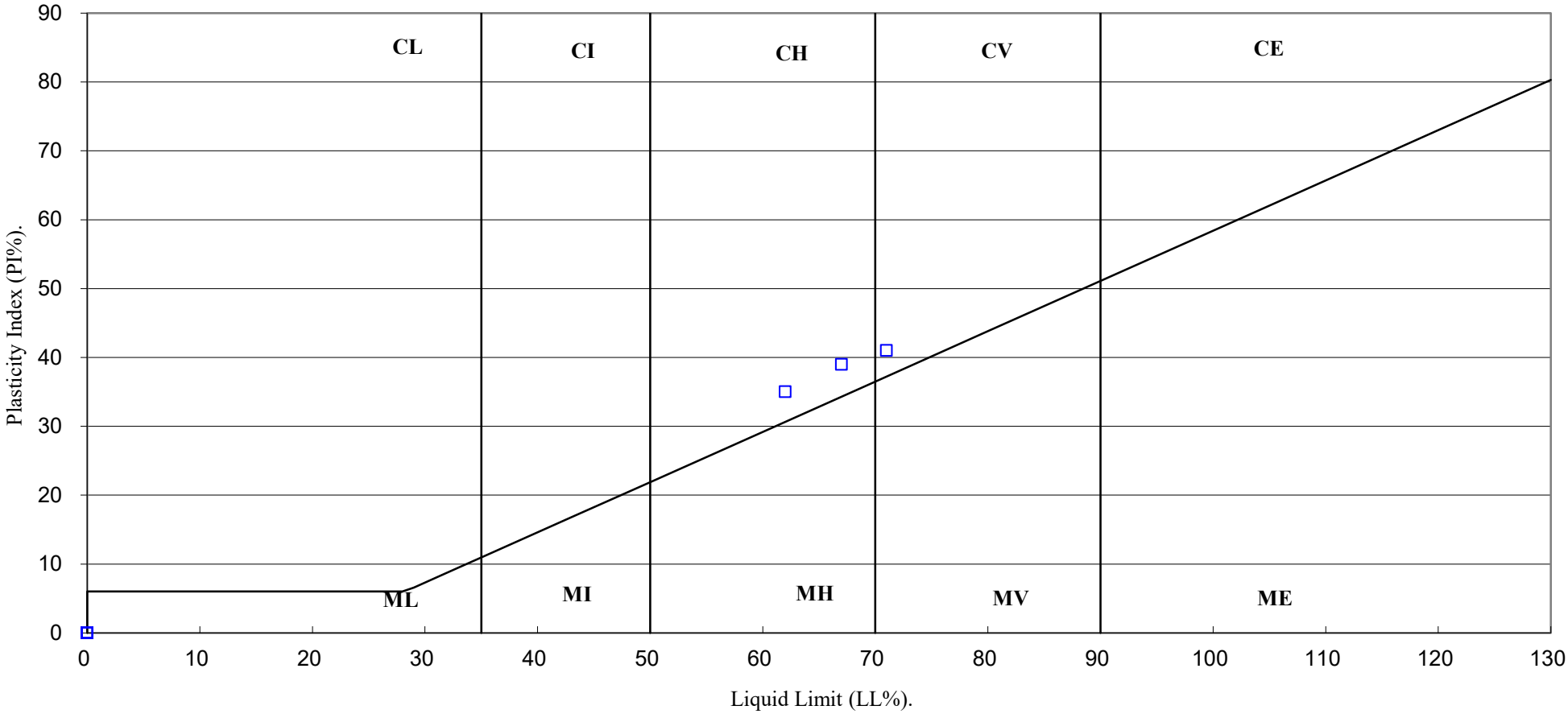
Contract No:

PSL20/5338

Client Ref:

C-13603

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	North West Bicester Eco Development	Contract No: PSL20/5338 Client Ref: C-13603

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
RBH04	3	C	4.23	4.52	90	180	2.0	2864	2.50	1.3	2.47	83.3	13.1	Brittle	09/10/20	
RBH05	4	C	4.70	5.00	90	191	2.1	2935	2.42	1.9	2.37	117.4	18.5	Brittle	09/10/20	
RBH08	3	C	4.30	5.00	90	176	2.0	2817	2.52	2.4	2.46	294.6	46.3	Brittle	09/10/20	
RBH09	3	C	4.67	5.00	90	179	2.0	2841	2.49	2.6	2.43	124.8	19.6	Brittle	09/10/20	
RBH14	1	C	4.00	4.49	90	184	2.0	2993	2.56	3.2	2.48	335.5	52.7	Brittle	09/10/20	
RBH14	3	C	4.70	4.90	90	195	2.2	3138	2.53	3.5	2.44	73.8	11.6	Brittle	09/10/20	

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:
PSL20/5338
Client Ref:
C-13603

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
RBH01	3.37	1	A	Perp	90	51	4590	5844.17	76.45	-	10.59	1.81	1.211	2.19	Valid	
RBH01	4.82	2	A	Perp	90	59	5310	6760.90	82.22	-	9.30	1.38	1.251	1.72	Valid	
RBH02	2.12	1	A	Perp	90	36	3240	4125.30	64.23	-	12.58	3.05	1.119	3.41	Valid	
RBH02	2.82	2	A	Perp	90	38	3420	4354.48	65.99	-	13.14	3.02	1.133	3.42	Valid	
RBH03	4.71	1	A	Perp	90	55	4950	6302.54	79.39	-	12.39	1.97	1.231	2.42	Valid	
RBH03	4.81	2	A	Perp	90	62	5580	7104.68	84.29	-	12.01	1.69	1.265	2.14	Valid	
RBH04	4.00	1	A	Perp	90	56	5040	6417.13	80.11	-	16.47	2.57	1.236	3.17	Valid	
RBH04	4.13	2	A	Perp	90	35	3150	4010.70	63.33	-	15.16	3.78	1.112	4.20	Valid	
RBH04	4.88	4	A	Perp	90	71	6390	8136.00	90.20	-	8.10	1.00	1.304	1.30	Valid	
RBH05	3.96	1	A	Perp	90	41	3690	4698.25	68.54	-	16.40	3.49	1.153	4.02	Valid	
RBH05	4.22	2	A	Perp	90	62	5580	7104.68	84.29	-	18.97	2.67	1.265	3.38	Valid	
RBH05	4.33	3	A	Perp	90	46	4140	5271.21	72.60	-	13.27	2.52	1.183	2.98	Valid	
RBH06	3.73	1	A	Perp	90	60	5400	6875.49	82.92	-	0.30	0.04	1.256	0.05	Valid	
RBH06	3.88	2	A	Perp	90	74	6660	8479.78	92.09	-	3.59	0.42	1.316	0.56	Valid	
RBH06	4.00	3	A	Perp	90	42	3780	4812.85	69.37	-	0.81	0.17	1.159	0.20	Valid	
RBH07	3.68	1	A	Perp	90	61	5490	6990.09	83.61	-	9.74	1.39	1.260	1.76	Valid	
RBH07	4.48	2	A	Perp	90	66	5940	7563.04	86.97	-	4.35	0.58	1.283	0.74	Valid	
RBH08	2.85	1	A	Perp	90	64	5760	7333.86	85.64	-	20.47	2.79	1.274	3.56	Valid	
RBH08	3.00	2	A	Perp	90	73	6570	8365.18	91.46	-	22.09	2.64	1.312	3.47	Valid	
RBH09	4.37	1	A	Perp	90	54	4860	6187.94	78.66	-	18.76	3.03	1.226	3.72	Valid	
RBH09	4.54	2	A	Perp	90	61	5490	6990.09	83.61	-	19.34	2.77	1.260	3.49	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:

PSL20/5338

Client Ref:

C-13603

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
RBH01	3.37	1	D	Par	-	90	8100	90.00	-	15.22	1.879	1.303	2.45	Valid	
RBH01	4.82	2	D	Par	-	90	8100	90.00	-	18.13	2.238	1.303	2.92	Valid	
RBH02	2.12	1	D	Par	-	90	8100	90.00	-	3.70	0.457	1.303	0.60	Valid	
RBH02	2.82	2	D	Par	-	90	8100	90.00	-	21.46	2.649	1.303	3.45	Valid	
RBH03	4.71	1	D	Par	-	90	8100	90.00	-	20.42	2.521	1.303	3.28	Valid	
RBH03	4.81	2	D	Par	-	90	8100	90.00	-	19.04	2.351	1.303	3.06	Valid	
RBH04	4.00	1	D	Par	-	90	8100	90.00	-	9.93	1.226	1.303	1.60	Valid	
RBH04	4.13	2	D	Par	-	90	8100	90.00	-	1.77	0.219	1.303	0.28	Valid	
RBH04	4.88	4	D	Par	-	90	8100	90.00	-	7.02	0.867	1.303	1.13	Valid	
RBH05	3.96	1	D	Par	-	90	8100	90.00	-	2.00	0.247	1.303	0.32	Valid	
RBH05	4.22	2	D	Par	-	90	8100	90.00	-	12.77	1.577	1.303	2.05	Valid	
RBH05	4.33	3	D	Par	-	90	8100	90.00	-	17.53	2.164	1.303	2.82	Valid	
RBH06	3.73	1	D	Par	-	90	8100	90.00	-	0.47	0.058	1.303	0.08	Valid	
RBH06	3.88	2	D	Par	-	90	8100	90.00	-	1.03	0.127	1.303	0.17	Valid	
RBH06	4.00	3	D	Par	-	90	8100	90.00	-	0.48	0.059	1.303	0.08	Valid	
RBH07	3.68	1	D	Par	-	90	8100	90.00	-	6.43	0.794	1.303	1.03	Valid	
RBH07	4.48	2	D	Par	-	90	8100	90.00	-	4.55	0.562	1.303	0.73	Valid	
RBH08	2.85	1	D	Par	-	90	8100	90.00	-	1.96	0.242	1.303	0.32	Valid	
RBH08	3.00	2	D	Par	-	90	8100	90.00	-	18.80	2.321	1.303	3.02	Valid	
RBH09	4.37	1	D	Par	-	90	8100	90.00	-	12.61	1.557	1.303	2.03	Valid	
RBH09	4.54	2	D	Par	-	90	8100	90.00	-	17.84	2.202	1.303	2.87	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:

PSL20/5338

Client Ref:

C-13603

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
RBH14	4.49	2	A	Perp	90	64	5760	7333.86	85.64	-	10.70	1.46	1.274	1.86	Valid	
RBH14	4.90	4	A	Perp	90	61	5490	6990.09	83.61	-	13.01	1.86	1.260	2.35	Valid	
RBH15	3.10	1	A	Perp	90	64	5760	7333.86	85.64	-	3.93	0.54	1.274	0.68	Valid	
RBH15	3.24	2	A	Perp	90	76	6840	8708.96	93.32	-	11.68	1.34	1.324	1.78	Valid	
RBH15	4.30	3	A	Perp	90	66	5940	7563.04	86.97	-	15.82	2.09	1.283	2.68	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

Contract No:

PSL20/5338

Client Ref:

C-13603

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
RBH14	4.49	2	D	Par	-	90	8100	90.00	-	9.02	1.114	1.303	1.45	Valid	
RBH14	4.90	4	D	Par	-	90	8100	90.00	-	12.31	1.520	1.303	1.98	Valid	
RBH15	3.10	1	D	Par	-	90	8100	90.00	-	1.09	0.135	1.303	0.18	Valid	
RBH15	3.24	2	D	Par	-	90	8100	90.00	-	16.63	2.053	1.303	2.67	Valid	
RBH15	4.30	3	D	Par	-	90	8100	90.00	-	14.60	1.802	1.303	2.35	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043

PSL Professional Soils Laboratory

North West Bicester Eco Development

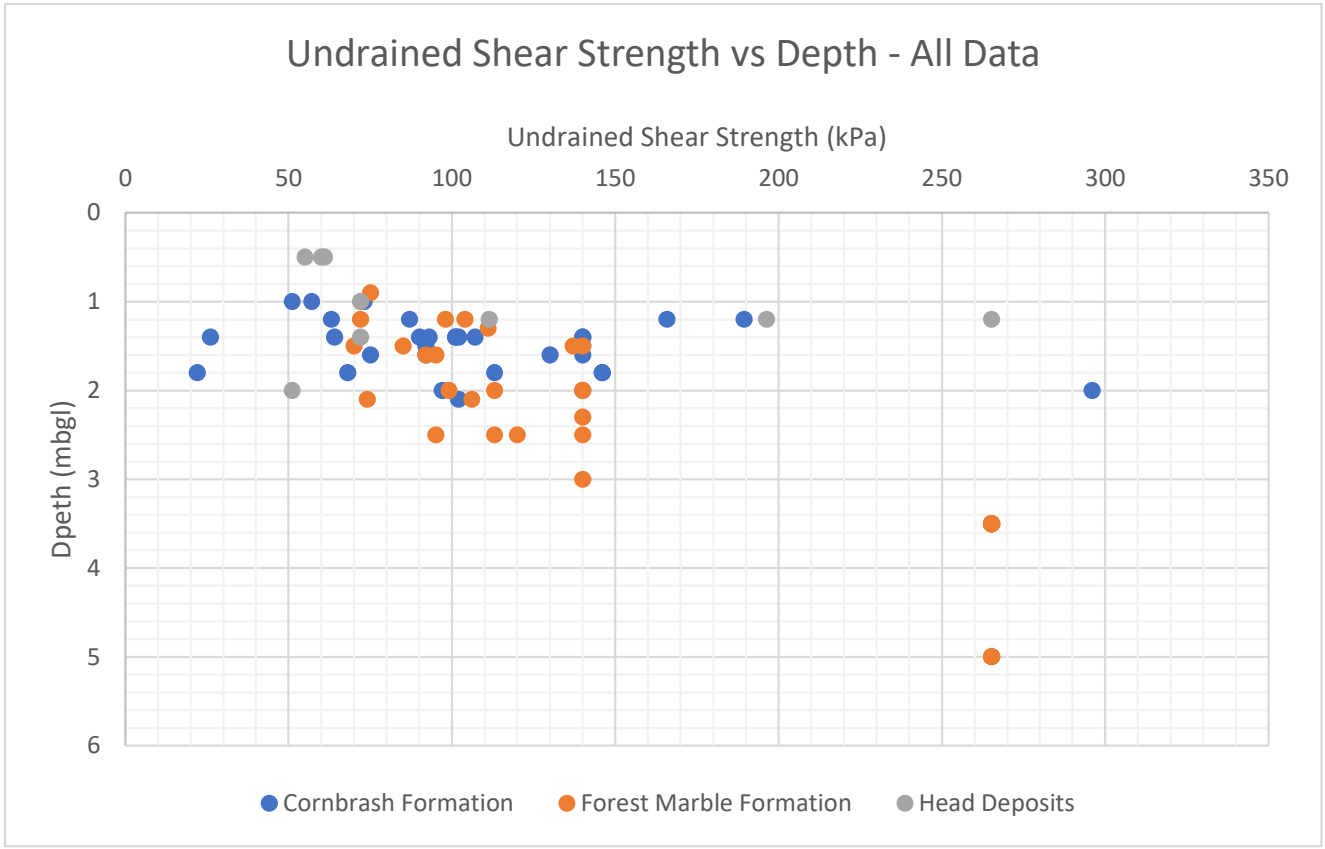
Contract No:

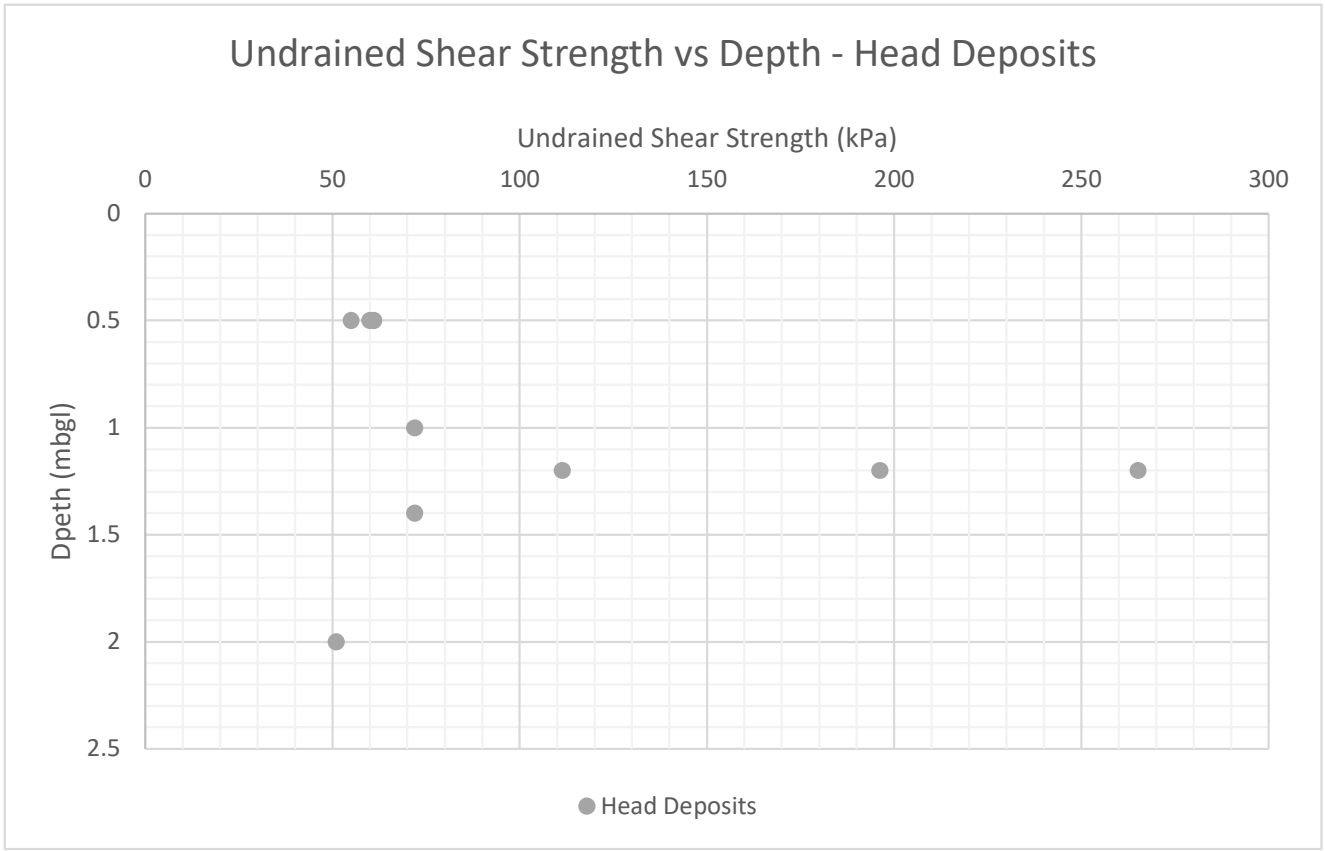
PSL20/5338

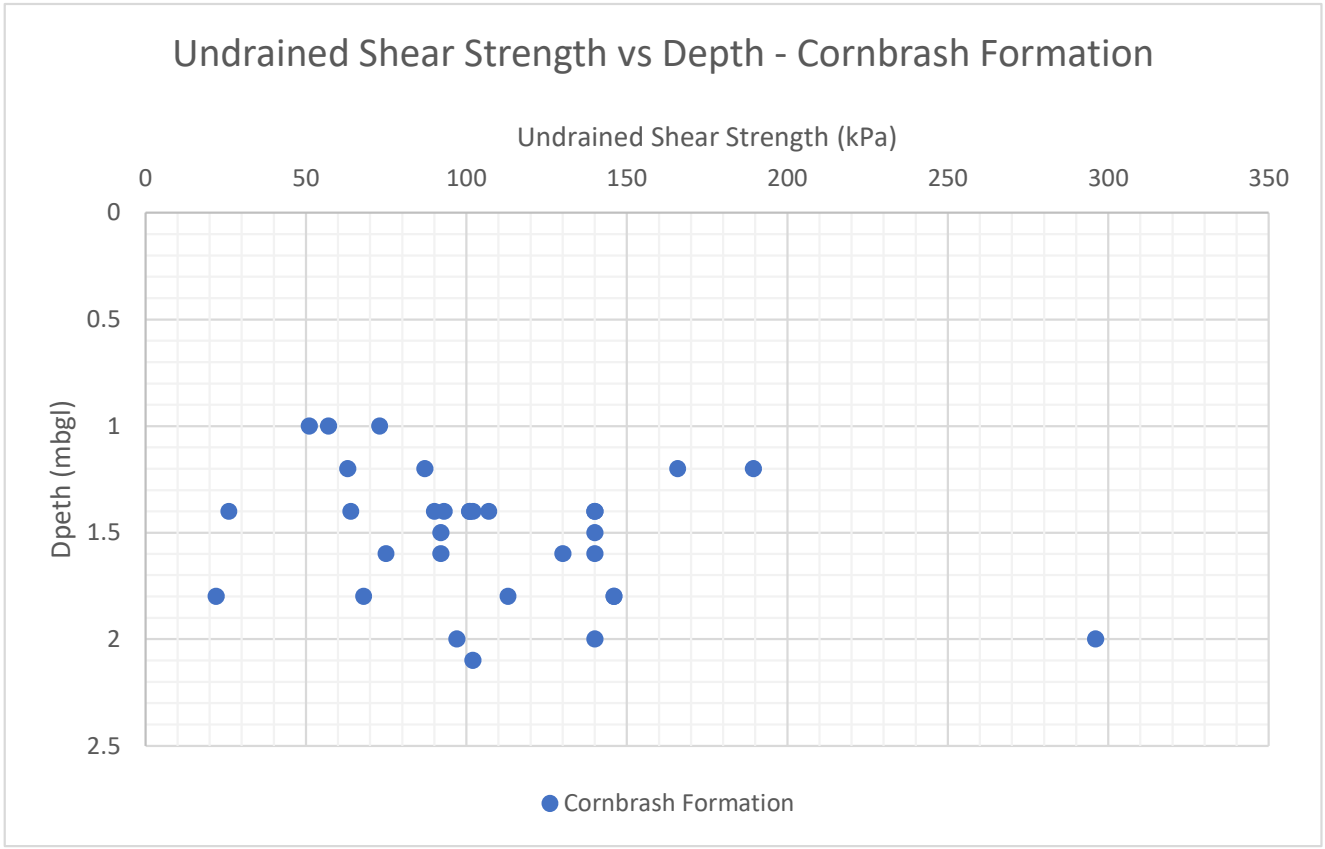
Client Ref:

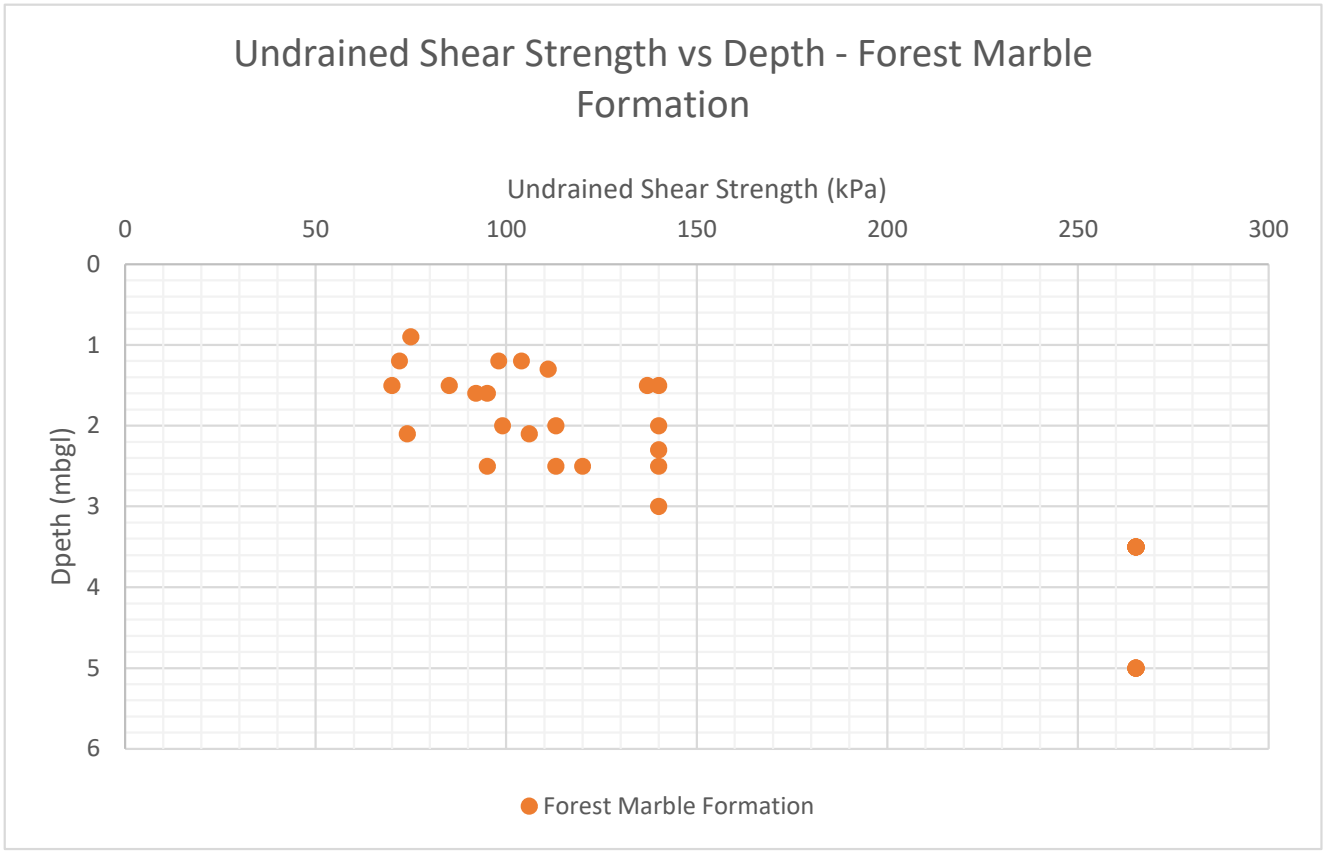
C-13603

Geotechnical Plots


Undrained Shear Strength vs Depth - All Data
Undrained Shear Strength (kPa)
0
50
100
150
200
250
300
350
Dpeth (mbgl)
0
1
2
3
4
5
6
Cornbrash Formation
Forest Marble Formation
Head Deposits


Undrained Shear Strength vs Depth - Head Deposits
Undrained Shear Strength (kPa)
0
50
100
150
200
250
300
Dpeth (mbgl)
0
0.5
1
1.5
2
2.5
Head Deposits


Undrained Shear Strength vs Depth - Cornbrash Formation
Undrained Shear Strength (kPa)
0
50
100
150
200
250
300
350
Dpeth (mbgl)
0
0.5
1
1.5
2
2.5
Cornbrash Formation


Undrained Shear Strength vs Depth - Forest Marble Formation
Undrained Shear Strength (kPa)
0
50
100
150
200
250
300
Dpeth (mbgl)
0
1
2
3
4
5
6
Forest Marble Formation

Client	**Firethorn Developments Ltd**	**Head Deposits**
Project	**NW Bicester Eco Development**	
Job number	**C-13603**	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	8	8	0
No. tests in 20% data set	2	2	
No. tests with suspected pyrite		0	
Maximum value	42	0.2	
Mean of highest two values	34	0	
Mean of highest 20%			
Characteristic Value	**34**	**0**	

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-1**	**DS-1**

If pyrite suspected, DS Class limited to **DS-1**

Is pyrite assumed to be present? **No** **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value (Maximum Level)	0	0

DS Class

pH data

	Soil	Water
Number of tests	8	0
No. tests in 20% data set	2	
Lowest pH	8.3	
Mean of lowest 20%	8.4	
Characteristic value	**8.4**	
Design value	**8.4**	

Number of soil pH results less than 5.5 0

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Natural ground

Mobile groundwater **AC-1 ***

* increase to AC-2z in flowing water (pure or with >15mg/l carbon dioxide)

Hydrock

Client Firethorn Developments Ltd	**Location or material to which this assessment applies**
Project NW Bicester Eco Development	
Job number C-13603	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	1	1	0
No. tests in 20% data set	0	0	
No. tests with suspected pyrite		0	
Maximum value	13	0.1	
Mean of highest two values	13	0	
Mean of highest 20%			
Characteristic Value	**13**	**0.1**	

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-1**	**DS-1**

If pyrite suspected, DS Class limited to **DS-1**

Is pyrite assumed to be present? **No** **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value (Maximum Level)	0	0

DS Class

pH data

	Soil	Water
Number of tests	1	0
No. tests in 20% data set	0	
Lowest pH	8.4	
Mean of lowest 20%		
Characteristic value	**8.4**	
Design value	**8.4**	

Number of soil pH results less than 5.5 0

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Natural ground

Mobile groundwater **AC-1 ***

* increase to AC-2z in flowing water (pure or with >15mg/l carbon dioxide)

Client	**Firethorn Developments Ltd**	**Cornbrash Formation**
Project	**NW Bicester Eco Development**	
Job number	**C-13603**	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	20	20	0
No. tests in 20% data set	4	4	
No. tests with suspected pyrite		0	
Maximum value	371	0.2	
Mean of highest two values	223	0	
Mean of highest 20%	100	0	
Characteristic Value	**100**	**0.2**	

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-1**	**DS-1**

If pyrite suspected, DS Class limited to **DS-1**

Is pyrite assumed to be present? **No** **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value (Maximum Level)	0	0

DS Class

pH data

	Soil	Water
Number of tests	20	0
No. tests in 20% data set	4	
Lowest pH	7.7	
Mean of lowest 20%	8.2	
Characteristic value	**8.2**	
Design value	**8.2**	

Number of soil pH results less than 5.5 0

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Natural ground

Mobile groundwater **AC-1 ***

* increase to AC-2z in flowing water (pure or with >15mg/l carbon dioxide)

Client	**Firethorn Developments Ltd**	**Forest Marble Formation**
Project	**NW Bicester Eco Development**	
Job number	**C-13603**	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	5	5	0
No. tests in 20% data set	1	1	
No. tests with suspected pyrite		0	
Maximum value	35	0.2	
Mean of highest two values	26	0	
Mean of highest 20%			
Characteristic Value	**26**	**0**	

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-1**	**DS-1**

If pyrite suspected, DS Class limited to **DS-1**

Is pyrite assumed to be present? **No** **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value (Maximum Level)	0	0

DS Class

pH data

	Soil	Water
Number of tests	5	0
No. tests in 20% data set	1	
Lowest pH	8.2	
Mean of lowest 20%	8.2	
Characteristic value	**8.2**	
Design value	**8.2**	

Number of soil pH results less than 5.5: 0

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Natural ground

Mobile groundwater **AC-1 ***

* increase to AC-2z in flowing water (pure or with >15mg/l carbon dioxide)

Appendix G

Site Monitoring Data and Ground Gas Risk Assessment

Site Monitoring Data

Hydrock

Site: N.W Bicester Eco Development
Job number: C-13603-C
Client: Review Partners

Notes: LEL = lower explosive limit = 5%v/v.
Where the flow is less than the limit of detection of the instrument, the detection limit is reported.
GSVs are rounded to 3 places.

Notes on site conditions:

20/09/20	Sunny weather condition
00/01/00	
00/01/00	
00/01/00	
00/01/00	
00/01/00	

Gas analyser:	GA507130
Equipment check OK:	OK
Service in date:	06/01/2021
Calibration check OK:	OK
Name of person monitoring:	Aidan Tomkins

		#####			
		#####			

Monitoring round		Borehole details					Pressure and flow					Gas concentrations								Local conditions
													CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		
Date	Time	Borehole	Single or dual gas tap	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	Notes on condition of borehole and surrounding ground
29/09/20	13:50	RO01	s	1.90		0.013	1007	S	0.00	0.30	0.30		0.0	0.0	0.0	0.0	0.5	0.5	19.9	19.9	Borehole is good condition
29/09/20	13:39	RO02	s	2.10		0.014	1007	S	-0.04	0.10	0.10		0.0	0.0	0.0	0.0	2.4	2.4	10.1	10.1	Borehole is good condition
29/09/20	14:12	RO03	s	1.10		0.013	1007	S	-0.05	0.00	0.00		0.0	0.0	0.0	0.0	0.6	0.6	19.4	19.4	Gas Bung Venting
29/09/20	14:19	RO04	s	1.90		0.013	1007	S	-0.05	0.00	0.00		0.0	0.0	0.0	0.0	2.4	2.4	10.1	10.1	Borehole is good condition
29/09/20	14:24	RO05	s	2.75		0.018	1008	S	-7.24	0.10	0.10		0.0	0.0	0.0	0.0	1.8	1.8	16.9	16.9	Borehole is good condition
29/09/20	13:24	RO06	s	1.85		0.012	1001	S	-0.05	0.00	0.00		0.0	0.0	0.0	0.0	1.0	0.3	19.6	19.9	Borehole is good condition
29/09/20	14:34	RO07	s	2.60		0.017	1007	S	0.04	0.00	0.00		0.0	0.0	0.0	0.0	2.4	2.4	19.3	19.3	Borehole is good condition
29/09/20	14:43	RO08	s	2.60		0.017	1008	S	-0.02	0.10	0.10		0.0	0.0	0.0	0.0	2.5	2.5	15.2	15.2	Borehole is good condition
29/09/20	14:52	RO09	s	5.00	D	0.033	1008	S	0.09	0.00	0.00		0.0	0.0	0.0	0.0	0.3	0.3	20.5	20.5	Gas Bung Venting
29/09/20	13:12	RO10	s	1.75		0.012	1008	S	0.07	0.00	0.00		0.0	0.0	0.0	0.0	1.5	1.5	16.6	16.6	Borehole is good condition
29/09/20	15:02	RO11	s	2.00		0.013	1008	S	-0.07	0.00	0.00		0.0	0.0	0.0	0.0	3.1	3.1	15.3	15.3	Borehole is good condition
29/09/20	15:11	RO12	s	2.35		0.016	1007	S	0.02	0.00	0.00		0.0	0.0	0.0	0.0	4.7	4.7	4.2	4.2	Borehole is good condition
29/09/20	15:15	RO13	s	2.70		0.018	1008	S	-0.04	0.00	0.00		0.0	0.0	0.0	0.0	3.6	3.6	17.7	17.7	Borehole is good condition
29/09/20	15:34	RO14	s	5.00	D	0.033	1008	S	0.14	0.10	0.10		0.0	0.0	0.0	0.0	2.0	2.0	18.2	18.2	Borehole is good condition
29/09/20	15:27	RO15	s	4.05		0.027	1008	S	-0.23	0.00	0.00		0.0	0.0	0.0	0.0	2.6	2.6	16.5	16.5	Gas Bung Venting

Hydrock

Site: Caversfield
Job number: C-13603
Client: Hydrock

Gas analyser: G505312
Equipment check OK: Y
Service in date: Y
Calibration check OK: Y
Name of person monitoring: W. Milburn

Notes on site conditions:

Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported (Highlighted in **blue**). GSVs are rounded to 3 places.

Monitoring round		Borehole details					Pressure and flow			Gas concentrations												Local conditions
											CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases		
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Atmospheric pressure (hPa)	Relative BH pressure (hPa)	Gas flow* (l/hr)	VOC (as ppm using PID)	Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	CO (PPM)	H_2S (PPM)	Notes on condition of borehole and surrounding ground
15/10/20	07:38	RBH01		5.10	1.10		1016	2.2	0.5	NA	ND	ND	ND	ND	1.0	1.0	20.2	20.2	5.0	ND	
15/10/20	07:43	RBH02		5.30	2.22		1016	71.9	19.4	NA	ND	ND	ND	ND	2.4	2.4	7.4	7.4	ND	ND	
15/10/20	07:47	RBH03		4.93	0.65		1016	74.2	20.1	NA	ND	ND	ND	ND	0.7	0.7	20.7	20.7	4.0	ND	
15/10/20	07:50	RBH04		4.92	0.98		1016	-0.1	ND	NA	ND	ND	ND	ND	0.2	0.1	20.9	20.9	ND	ND	
15/10/20	07:28	RBH05		4.63	1.73		1016	-0.1	ND	NA	ND	ND	ND	ND	1.2	1.2	19.5	19.5	1.0	ND	
15/10/20	07:24	RBH06		4.02	1.00		1016	-0.2	ND	NA	ND	ND	ND	ND	0.5	0.4	20.8	20.9	ND	ND	
15/10/20	07:20	RBH07		4.95	1.55		1016	-0.2	ND	NA	ND	ND	ND	ND	2.9	2.9	16.0	16.0	1.0	ND	
15/10/20	07:15	RBH08		4.55	2.49		1016	0.0	ND	NA	ND	ND	ND	ND	2.9	2.9	15.0	15.0	ND	ND	
15/10/20	07:10	RBH09		5.55	3.12		1016	-0.1	ND	NA	ND	ND	ND	ND	1.1	1.1	19.4	19.4	ND	ND	
15/10/20	07:01	RBH10		3.30	1.25		1015	0.0	ND	NA	ND	ND	ND	ND	0.6	0.5	20.2	20.2	ND	ND	
15/10/20	08:02	RBH11		4.43	1.48		1016	-4.3	-2.1	NA	ND	ND	ND	ND	4.1	4.1	13.4	13.4	ND	ND	
15/10/20	08:05	RBH12		3.54	1.20		1016	3.1	2.0	NA	ND	ND	ND	ND	4.2	4.2	7.7	7.7	2.0	ND	
15/10/20	08:09	RBH13		5.35	1.65		1016	-0.2	ND	NA	ND	ND	ND	ND	3.0	3.0	12.3	12.3	ND	ND	
15/10/20	08:13	RBH14		5.21	4.49		1016	-0.1	ND	NA	ND	ND	ND	ND	3.2	3.2	15.9	15.9	ND	ND	
15/10/20	08:19	RBH15		5.37	2.78		1017	-0.1	ND	NA	ND	ND	ND	ND	2.8	2.8	18.3	18.3	ND	ND	

Hydrock

Site: Caversfield
Job number: C-13603
Client: Hydrock

Gas analyser: G505312
Equipment check OK: Y
Service in date: Y
Calibration check OK: Y
Name of person monitoring: W. Milburn

Notes on site conditions:

Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported (Highlighted in **blue**). GSVs are rounded to 3 places.

Monitoring round		Borehole details					Pressure and flow			Gas concentrations												Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Atmospheric pressure (hPa)	Relative BH pressure (hPa)	Gas flow* (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases		Notes on condition of borehole and surrounding ground
											Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	CO (PPM)	H_2S (PPM)	
30/10/20	07:55	RBH01		5.10	0.89		1003	1.6	0.2	NA	ND	ND	ND	ND	1.2	1.2	19.8	19.8	3.0	ND	
30/10/20	07:50	RBH02		5.30	1.98		1003	52.5	16.3	NA	ND	ND	ND	ND	1.6	1.6	10.5	10.5	2.0	1	
30/10/20	07:43	RBH03		4.93	0.51		1003	8.4	0.1	NA	ND	ND	ND	ND	0.7	0.7	18.9	18.9	3.0	1	
30/10/20	07:39	RBH04		4.92	0.96		1003	0.1	ND	NA	ND	ND	ND	ND	0.2	0.1	20.0	20.0	ND	1	
30/10/20	07:31	RBH05		4.63	1.85		1003	-0.2	ND	NA	ND	ND	ND	ND	0.7	0.3	19.7	19.9	ND	1	
30/10/20	07:28	RBH06		4.02	0.85		1003	0.0	ND	NA	ND	ND	ND	ND	0.2	0.2	19.4	19.8	ND	1	
30/10/20	07:25	RBH07		4.95	1.45		1003	0.8	0.1	NA	ND	ND	ND	ND	2.1	2.1	18.0	18.0	ND	1	
30/10/20	07:21	RBH08		4.55	2.51		1003	-0.1	ND	NA	ND	ND	ND	ND	2.7	2.7	14.7	14.7	ND	1	
30/10/20	07:18	RBH09		5.55	3.09		1003	-0.1	ND	NA	ND	ND	ND	ND	1.8	1.8	18.6	18.6	ND	1	
30/10/20	07:14	RBH10		3.30	1.19		1004	0.0	ND	NA	ND	ND	ND	ND	0.5	0.5	19.8	19.9	ND	1	
30/10/20	06:55	RBH11		4.43	2.70		1003	3.4	2.5	NA	ND	ND	ND	ND	3.7	3.7	11.4	11.4	2.0	ND	
30/10/20	06:58	RBH12		3.54	1.09		1003	0.0	ND	NA	ND	ND	ND	ND	3.5	3.5	16.2	16.2	ND	1	
30/10/20	07:02	RBH13		5.35	1.52		1003	15.3	6.7	NA	ND	ND	ND	ND	3.7	3.7	13.2	13.2	ND	1	
30/10/20	07:06	RBH14		5.21	4.37		1003	-0.1	ND	NA	ND	ND	ND	ND	3.7	3.7	14.0	14.0	1.0	1	
30/10/20	07:10	RBH15		5.37	2.70		1003	-0.2	ND	NA	ND	ND	ND	ND	3.0	3.0	17.5	17.5	ND	1	

Hydrock

Site: Caversfield
Job number: C-13603
Client: Hydrock

Gas analyser: G500679
Equipment check OK: Y
Service in date: Y
Calibration check OK: Y
Name of person monitoring: W. Milburn

Notes on site conditions:

Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported (Highlighted in **blue**). GSVs are rounded to 3 places.

Monitoring round		Borehole details				Pressure and flow			Gas concentrations											Local conditions
										CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases		
Date	Time	Borehole	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Atmospheric pressure (hPa)	Relative BH pressure (hPa)	Gas flow* (l/hr)	VOC (as ppm using PID)	Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	CO (PPM)	H_2S (PPM)	Notes on condition of borehole and surrounding ground
12/11/20	11:54	RBH01	5.10	1.27		1006	0.7	0.1	NA	ND	ND	ND	ND	0.1	0.1	21.4	21.1	1.0	1	Bung removed on arrival - borehole casing not fixed in ground from first visit
12/11/20	11:50	RBH02	5.30	1.55		1006	-16.2	-3.7	NA	ND	ND	ND	ND	1.5	1.5	10.2	20.2	3.0	ND	
12/11/20	11:46	RBH03	4.93	0.55		1006	-10.8	-3.3	NA	ND	ND	ND	ND	0.6	0.6	19.6	19.6	4.0	1	
12/11/20	11:42	RBH04	4.92	0.98		1005	0.0	ND	NA	ND	ND	ND	ND	0.2	0.2	17.7	9.3	ND	ND	
12/11/20	11:39	RBH05	4.63	2.14		1006	0.0	ND	NA	ND	ND	ND	ND	1.7	1.7	19.3	19.3	1.0	1	
12/11/20	11:33	RBH06	4.02	1.05		1005	0.0	ND	NA	ND	ND	ND	ND	0.1	0.1	21.0	21.0	ND	ND	
12/11/20	11:31	RBH07	4.95	1.78		1006	0.0	ND	NA	ND	ND	ND	ND	3.4	3.4	14.2	14.2	1.0	ND	
12/11/20	11:26	RBH08	4.55	2.67		1006	-0.2	ND	NA	ND	ND	ND	ND	2.6	2.1	17.2	17.4	1.0	ND	
12/11/20	11:22	RBH09	5.55	3.15		1006	-0.1	ND	NA	ND	ND	ND	ND	1.8	1.8	18.5	18.5	1.0	1	
12/11/20	11:18	RBH10	3.30	1.28		1006	0.8	0.1	NA	ND	ND	ND	ND	0.7	0.6	20.7	20.8	1.0	ND	
12/11/20	11:09	RBH11	4.43	1.51		1005	0.2	ND	NA	ND	ND	ND	ND	4.2	4.2	13.5	13.5	2.0	ND	
12/11/20	11:08	RBH12	3.54	1.43		1003	-0.1	ND	NA	ND	ND	ND	ND	4.2	4.2	13.3	13.3	1.0	ND	
12/11/20	11:10	RBH13	5.35	2.03		1004	0.0	ND	NA	ND	ND	ND	ND	3.7	3.7	17.0	17.0	ND	ND	
12/11/20	11:12	RBH14	5.21	4.56		1005	-0.1	ND	NA	ND	ND	ND	ND	3.8	3.8	15.8	15.8	1.0	ND	
12/11/20	11:15	RBH15	5.37	2.83		1005	-0.1	ND	NA	ND	ND	ND	ND	2.7	2.7	17.5	17.5	1.0	ND	

Hydrock

Site: Caversfield
Job number: C-13603
Client: Hydrock

Gas analyser: G500679
Equipment check OK: Y
Service in date: Y
Calibration check OK: Y
Name of person monitoring: W. Milburn

Notes on site conditions:

Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported (Highlighted in **blue**). GSVs are rounded to 3 places.

Monitoring round		Borehole details					Pressure and flow			Gas concentrations												Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Atmospheric pressure (hPa)	Relative BH pressure (hPa)	Gas flow* (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CH_4 (%LEL)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases		Notes on condition of borehole and surrounding ground
											Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	CO (PPM)	H_2S (PPM)	
27/11/20	11:32	RBH01		5.10	1.55		1010	0.0	ND	NA	ND	ND	ND	ND	0.1	0.1	20.5	20.5	ND	ND	
27/11/20	11:36	RBH02		5.30	1.58		1010	-0.2	-4.0	NA	ND	ND	ND	ND	1.4	1.4	12.9	12.9	2.0	ND	
27/11/20	11:42	RBH03		4.93	0.76		1010	-12.2	-4.1	NA	ND	ND	ND	ND	0.7	0.7	18.6	18.6	2.0	ND	
27/11/20	11:46	RBH04		4.92	1.09		1010	0.0	ND	NA	ND	ND	ND	ND	0.4	0.4	13.8	13.8	ND	ND	
27/11/20	11:21	RBH05		4.63	2.31		1011	-0.1	ND	NA	ND	ND	ND	ND	2.4	2.4	18.0	18.0	ND	ND	
27/11/20	11:18	RBH06		4.02	1.11		1010	0.0	ND	NA	ND	ND	ND	ND	0.2	0.2	20.2	20.2	ND	ND	
27/11/20	11:16	RBH07		4.95	2.04		1010	-0.2	ND	NA	ND	ND	ND	ND	4.1	4.1	14.9	14.9	ND	ND	
27/11/20	11:14	RBH08		4.55	2.73		1011	0.0	ND	NA	ND	ND	ND	ND	3.5	3.5	13.8	13.8	ND	ND	
27/11/20	11:12	RBH09		5.55	3.15		1010	-0.1	ND	NA	ND	ND	ND	ND	1.6	1.6	18.7	18.7	ND	ND	
27/11/20	11:09	RBH10		3.30	1.88		1011	0.0	ND	NA	ND	ND	ND	ND	1.3	1.1	19.7	19.7	ND	ND	
27/11/20	10:58	RBH11		4.43	1.64		1010	0.0	ND	NA	ND	ND	ND	ND	4.2	4.2	12.3	12.3	ND	ND	
27/11/20	10:52	RBH12		3.54	1.71		1008	-0.1	ND	NA	ND	ND	ND	ND	4.2	4.2	13.3	13.3	ND	ND	
27/11/20	10:55	RBH13		5.35	2.36		1009	0.0	ND	NA	ND	ND	ND	ND	4.0	4.0	15.6	15.6	ND	ND	
27/11/20	11:01	RBH14		5.21	4.72		1010	0.0	ND	NA	ND	ND	ND	ND	3.9	3.9	14.0	14.7	ND	ND	
27/11/20	11:03	RBH15		5.37	2.97		1010	-0.2	ND	NA	ND	ND	ND	ND	2.7	2.7	17.3	17.3	ND	ND	

Ground Gas Risk Assessment

Ground Gas Risk Assessment

Hydrock

Job Number C-13603
Job Name NW Bicester
Client Firethorn Developments

Data All Data

Max CH4	Max C02	Worst Case Flow	Worst Case GSV Methane	Worst Case GSV CO_2
0.0	4.7	20.1	0.0000	0.9447

Number of Readings	75
Number of Monitoring Rounds	5
Number of Readings with Flow Rate	75

NHBC Assessment

	Methane		Carbon Dioxide	
	Max Value	GSV	Max Value	GSV
Green	75	75	75	75
Amber 1	0	0	0	0
Amber 2	0	0	0	0
Red	0	0	0	0

CIRIA C665 Assessment

	Methane		Carbon Dioxide	
	Max Value	GSV	Max Value	GSV
CS1	75	75	75	69
CS2	0	0	0	6
CS3	N/A	0	N/A	0
CS4	N/A	0	N/A	0
CS5	N/A	0	N/A	0
CS6	N/A	0	N/A	0

Location	Pressure Trend	Date	Relative Pressure (mb)	Flow Rate (l/hr)	Atmos. Pressure (m.bar)	CH_4 (% vol)		(%LEL)		CO_2 (% vol)		O_2 (% vol)		GSV – CH4	GSV – CO_2
						Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady		
RBH01	Rising	30/10/20	1.60	0.2	1003	0.0	0.0	0.0	0.0	1.2	1.2	19.8	19.8	0.0000	0.0024
RBH02	Rising	30/10/20	52.50	16.3	1003	0.0	0.0	0.0	0.0	1.6	1.6	10.5	10.5	0.0000	0.2608
RBH03	Rising	30/10/20	8.40	0.1	1003	0.0	0.0	0.0	0.0	0.7	0.7	18.9	18.9	0.0000	0.0007
RBH04	Rising	30/10/20	0.10	0.1	1003	0.0	0.0	0.0	0.0	0.2	0.1	20.0	20.0	0.0000	0.0001
RBH05	Rising	30/10/20	-0.20	0.1	1003	0.0	0.0	0.0	0.0	0.7	0.3	19.7	19.9	0.0000	0.0003
RBH06	Rising	30/10/20	0.00	0.1	1003	0.0	0.0	0.0	0.0	0.2	0.2	19.4	19.8	0.0000	0.0002
RBH07	Rising	30/10/20	0.80	0.1	1003	0.0	0.0	0.0	0.0	2.1	2.1	18.0	18.0	0.0000	0.0021
RBH08	Rising	30/10/20	-0.10	0.1	1003	0.0	0.0	0.0	0.0	2.7	2.7	14.7	14.7	0.0000	0.0027
RBH09	Rising	30/10/20	-0.10	0.1	1003	0.0	0.0	0.0	0.0	1.8	1.8	18.6	18.6	0.0000	0.0018
RBH10	Rising	30/10/20	0.00	0.1	1004	0.0	0.0	0.0	0.0	0.5	0.5	19.8	19.9	0.0000	0.0005
RBH11	Rising	30/10/20	3.40	2.5	1003	0.0	0.0	0.0	0.0	3.7	3.7	11.4	11.4	0.0000	0.0925
RBH12	Rising	30/10/20	0.00	0.1	1003	0.0	0.0	0.0	0.0	3.5	3.5	16.2	16.2	0.0000	0.0035
RBH13	Rising	30/10/20	15.30	6.7	1003	0.0	0.0	0.0	0.0	3.7	3.7	13.2	13.2	0.0000	0.2479
RBH14	Rising	30/10/20	-0.10	0.1	1003	0.0	0.0	0.0	0.0	3.7	3.7	14.0	14.0	0.0000	0.0037
RBH15	Rising	30/10/20	-0.20	0.1	1003	0.0	0.0	0.0	0.0	3.0	3.0	17.5	17.5	0.0000	0.0030
RBH01	Falling	15/10/20	2.20	0.5	1016	0.0	0.0	0.0	0.0	1.0	1.0	20.2	20.2	0.0000	0.0050
RBH02	Falling	15/10/20	71.90	19.4	1016	0.0	0.0	0.0	0.0	2.4	2.4	7.4	7.4	0.0000	0.4656
RBH03	Falling	15/10/20	74.20	20.1	1016	0.0	0.0	0.0	0.0	0.7	0.7	20.7	20.7	0.0000	0.1407
RBH04	Falling	15/10/20	-0.10	0.1	1016	0.0	0.0	0.0	0.0	0.2	0.1	20.9	20.9	0.0000	0.0001
RBH05	Falling	15/10/20	-0.10	0.1	1016	0.0	0.0	0.0	0.0	1.2	1.2	19.5	19.5	0.0000	0.0012
RBH06	Falling	15/10/20	-0.20	0.1	1016	0.0	0.0	0.0	0.0	0.5	0.4	20.8	20.9	0.0000	0.0004
RBH07	Falling	15/10/20	-0.20	0.1	1016	0.0	0.0	0.0	0.0	2.9	2.9	16.0	16.0	0.0000	0.0029
RBH08	Falling	15/10/20	0.00	0.1	1016	0.0	0.0	0.0	0.0	2.9	2.9	15.0	15.0	0.0000	0.0029
RBH09	Falling	15/10/20	-0.10	0.1	1016	0.0	0.0	0.0	0.0	1.1	1.1	19.4	19.4	0.0000	0.0011
RBH10	Falling	15/10/20	0.00	0.1	1015	0.0	0.0	0.0	0.0	0.6	0.5	20.2	20.2	0.0000	0.0005
RBH11	Falling	15/10/20	-4.30	0.1	1016	0.0	0.0	0.0	0.0	4.1	4.1	13.4	13.4	0.0000	0.0041
RBH12	Falling	15/10/20	3.10	2.0	1016	0.0	0.0	0.0	0.0	4.2	4.2	7.7	7.7	0.0000	0.0840
RBH13	Falling	15/10/20	-0.20	0.1	1016	0.0	0.0	0.0	0.0	3.0	3.0	12.3	12.3	0.0000	0.0030
RBH14	Falling	15/10/20	-0.10	0.1	1016	0.0	0.0	0.0	0.0	3.2	3.2	15.9	15.9	0.0000	0.0032
RBH15	Falling	15/10/20	-0.10	0.1	1017	0.0	0.0	0.0	0.0	2.8	2.8	18.3	18.3	0.0000	0.0028
RBH01	Rising	29/09/20	0.00	0.3	1007	0.0	0.0	0.0	0.0	0.5	0.5	19.9	19.9	0.0000	0.0015
RBH02	Rising	29/09/20	-0.04	0.1	1007	0.0	0.0	0.0	0.0	2.4	2.4	10.1	10.1	0.0000	0.0024
RBH03	Rising	29/09/20	-0.05	0.1	1007	0.0	0.0	0.0	0.0	0.6	0.6	19.4	19.4	0.0000	0.0006
RBH04	Rising	29/09/20	-0.05	0.1	1007	0.0	0.0	0.0	0.0	2.4	2.4	10.1	10.1	0.0000	0.0024
RBH05	Rising	29/09/20	-7.24	0.1	1008	0.0	0.0	0.0	0.0	1.8	1.8	16.9	16.9	0.0000	0.0018
RBH06	Rising	29/09/20	-0.05	0.1	1001	0.0	0.0	0.0	0.0	1.0	0.3	19.6	19.9	0.0000	0.0003
RBH07	Rising	29/09/20	0.04	0.1	1007	0.0	0.0	0.0	0.0	2.4	2.4	19.3	19.3	0.0000	0.0024
RBH08	Rising	29/09/20	-0.02	0.1	1008	0.0	0.0	0.0	0.0	2.5	2.5	15.2	15.2	0.0000	0.0025
RBH09	Rising	29/09/20	0.09	0.1	1008	0.0	0.0	0.0	0.0	0.3	0.3	20.5	20.5	0.0000	0.0003
RBH10	Rising	29/09/20	0.07	0.1	1008	0.0	0.0	0.0	0.0	1.5	1.5	16.6	16.6	0.0000	0.0015
RBH11	Rising	29/09/20	-0.07	0.1	1008	0.0	0.0	0.0	0.0	3.1	3.1	15.3	15.3	0.0000	0.0031
RBH12	Rising	29/09/20	0.02	0.1	1007	0.0	0.0	0.0	0.0	4.7	4.7	4.2	4.2	0.0000	0.0047
RBH13	Rising	29/09/20	-0.04	0.1	1008	0.0	0.0	0.0	0.0	3.6	3.6	17.7	17.7	0.0000	0.0036
RBH14	Rising	29/09/20	0.14	0.1	1008	0.0	0.0	0.0	0.0	2.0	2.0	18.2	18.2	0.0000	0.0020
RBH15	Rising	29/09/20	-0.23	0.1	1008	0.0	0.0	0.0	0.0	2.6	2.6	16.5	16.5	0.0000	0.0026
RBH01	Rising	12/11/20	0.70	0.1	1006	0.0	0.0	0.0	0.0	0.1	0.1	21.4	21.1	0.0000	0.0001
RBH02	Rising	12/11/20	-16.20	0.1	1006	0.0	0.0	0.0	0.0	1.5	1.5	10.2	20.2	0.0000	0.0015
RBH03	Rising	12/11/20	-10.80	0.1	1006	0.0	0.0	0.0	0.0	0.6	0.6	19.6	19.6	0.0000	0.0006
RBH04	Rising	12/11/20	0.00	0.1	1005	0.0	0.0	0.0	0.0	0.2	0.2	17.7	9.3	0.0000	0.0002
RBH05	Rising	12/11/20	0.00	0.1	1006	0.0	0.0	0.0	0.0	1.7	1.7	19.3	19.3	0.0000	0.0017
RBH06	Rising	12/11/20	0.00	0.1	1005	0.0	0.0	0.0	0.0	0.1	0.1	21.0	21.0	0.0000	0.0001
RBH07	Rising	12/11/20	0.00	0.1	1006	0.0	0.0	0.0	0.0	3.4	3.4	14.2	14.2	0.0000	0.0034
RBH08	Rising	12/11/20	-0.20	0.1	1006	0.0	0.0	0.0	0.0	2.6	2.1	17.2	17.4	0.0000	0.0021
RBH09	Rising	12/11/20	-0.10	0.1	1006	0.0	0.0	0.0	0.0	1.8	1.8	18.5	18.5	0.0000	0.0018
RBH10	Rising	12/11/20	0.80	0.1	1006	0.0	0.0	0.0	0.0	0.7	0.6	20.7	20.8	0.0000	0.0006
RBH11	Rising	12/11/20	0.20	0.1	1005	0.0	0.0	0.0	0.0	4.2	4.2	13.5	13.5	0.0000	0.0042
RBH12	Rising	12/11/20	-0.10	0.1	1003	0.0	0.0	0.0	0.0	4.2	4.2	13.3	13.3	0.0000	0.0042
RBH13	Rising	12/11/20	0.00	0.1	1004	0.0	0.0	0.0	0.0	3.7	3.7	17.0	17.0	0.0000	0.0037
RBH14	Rising	12/11/20	-0.10	0.1	1005	0.0	0.0	0.0	0.0	3.8	3.8	15.8	15.8	0.0000	0.0038
RBH15	Rising	12/11/20	-0.10	0.1	1005	0.0	0.0	0.0	0.0	2.7	2.7	17.5	17.5	0.0000	0.0027
RBH01	Falling	27/11/20	0.00	0.1	1010	0.0	0.0	0.0	0.0	0.1	0.1	20.5	20.5	0.0000	0.0001
RBH02	Falling	27/11/20	-0.20	0.1	1010	0.0	0.0	0.0	0.0	1.4	1.4	12.9	12.9	0.0000	0.0014
RBH03	Falling	27/11/20	-12.20	0.1	1010	0.0	0.0	0.0	0.0	0.7	0.7	18.6	18.6	0.0000	0.0007
RBH04	Falling	27/11/20	0.00	0.1	1010	0.0	0.0	0.0	0.0	0.4	0.4	13.8	13.8	0.0000	0.0004
RBH05	Falling	27/11/20	-0.10	0.1	1011	0.0	0.0	0.0	0.0	2.4	2.4	18.0	18.0	0.0000	0.0024
RBH06	Falling	27/11/20	0.00	0.1	1010	0.0	0.0	0.0	0.0	0.2	0.2	20.2	20.2	0.0000	0.0002
RBH07	Falling	27/11/20	-0.20	0.1	1010	0.0	0.0	0.0	0.0	4.1	4.1	14.9	14.9	0.0000	0.0041
RBH08	Falling	27/11/20	0.00	0.1	1011	0.0	0.0	0.0	0.0	3.5	3.5	13.8	13.8	0.0000	0.0035
RBH09	Falling	27/11/20	-0.10	0.1	1010	0.0	0.0	0.0	0.0	1.6	1.6	18.7	18.7	0.0000	0.0016
RBH10	Falling	27/11/20	0.00	0.1	1011	0.0	0.0	0.0	0.0	1.3	1.1	19.7	19.7	0.0000	0.0011
RBH11	Falling	27/11/20	0.00	0.1	1010	0.0	0.0	0.0	0.0	4.2	4.2	12.3	12.3	0.0000	0.0042

Ground Gas Risk Assessment

Hydrock

Location	Pressure Trend	Date	Relative Pressure (mb)	Flow Rate (l/hr)	Atmos. Pressure (m.bar)	CH_4 (% vol)		(%LEL)		CO_2 (% vol)		O_2 (% vol)		GSV – CH4	GSV – CO_2
						Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady		
RBH12	Falling	27/11/20	-0.10	0.1	1008	0.0	0.0	0.0	0.0	4.2	4.2	13.3	13.3	0.0000	0.0042
RBH13	Falling	27/11/20	0.00	0.1	1009	0.0	0.0	0.0	0.0	4.0	4.0	15.6	15.6	0.0000	0.0040
RBH14	Falling	27/11/20	0.00	0.1	1010	0.0	0.0	0.0	0.0	3.9	3.9	14.0	14.7	0.0000	0.0039
RBH15	Falling	27/11/20	-0.20	0.1	1010	0.0	0.0	0.0	0.0	2.7	2.7	17.3	17.3	0.0000	0.0027

Hydrock Bulk Gases Ternary Plot Analysis

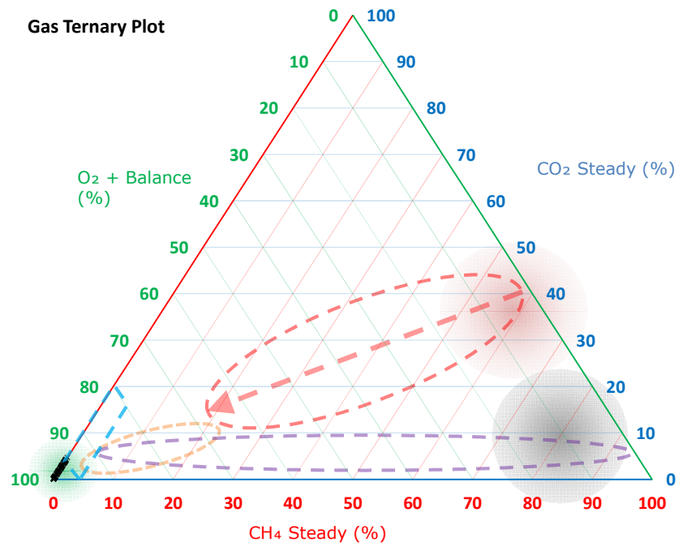
Client:	Firethorn Developments
Site Name:	NW Bicester
Contract Number:	C-13603
Assessment Date:	02/12/2020

Screened Strata:	All
Site Zone:	All

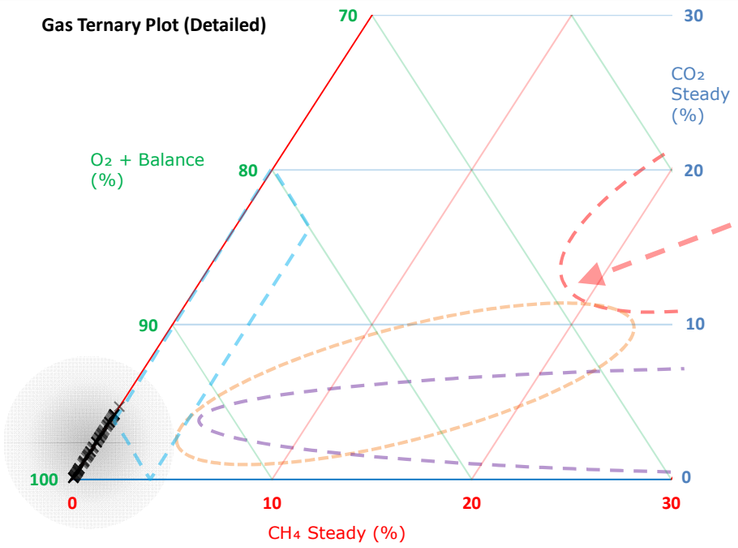
Locations

RBH01 | RBH02 | RBH03 | RBH04 | RBH05 | RBH06 | RBH07 | RBH08 | RBH09 | RBH10 | RBH11 | RBH12 | RBH13 | RBH14 | RBH15 | (blank)

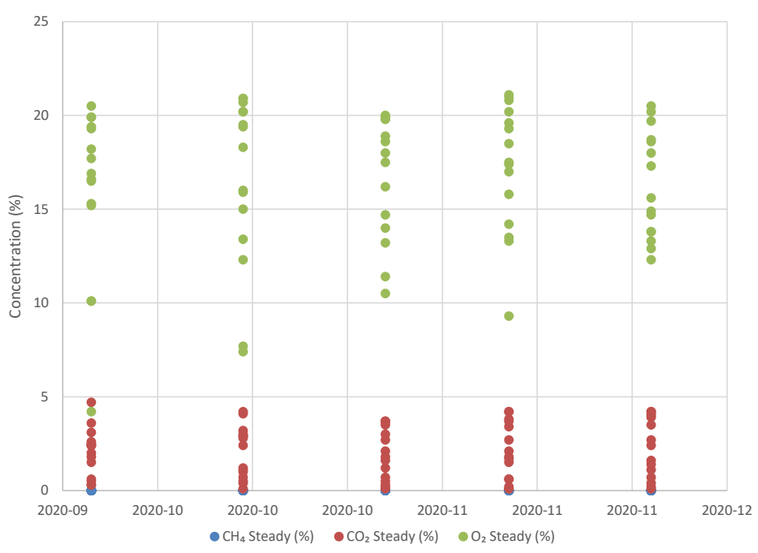
Gas Ternary Plot



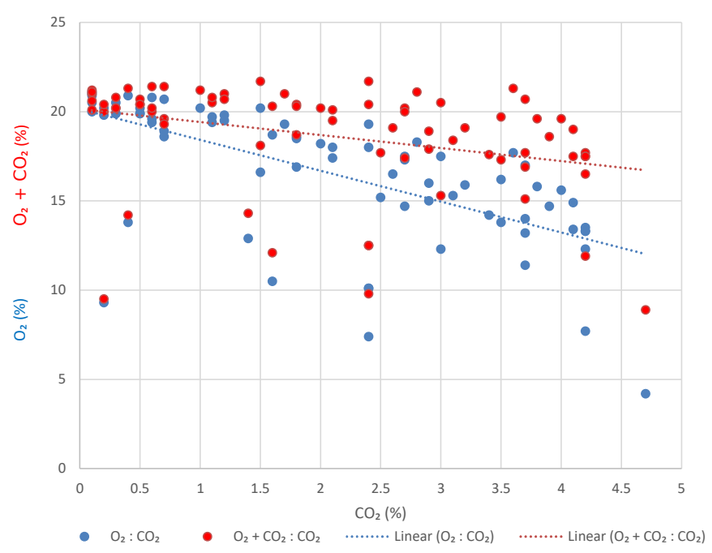
Gas Ternary Plot (Detailed)



Bulk Gases Time-Plot



CO_2 / O_2 relationship



Key:

	Indicative of landfill gas migration (assuming source composition 60% methane / 40% carbon dioxide) as it displaces air from the ground. Assumes no chemical changes. Below 20% methane and 13% carbon dioxide relationship for landfill gas migration unclear. Arrow shows direction of dilution with fresh air
	Microbial respiration of organic material in soil. Zero methane and low flow. (Direct consumption of oxygen to produce carbon dioxide)
	Potentially indicative of methane outgassing from groundwater to borehole headspace (Hydrock dataset).
	Potentially indicative of microbial degradation of LNAPL vapours in unsaturated zone. (Hydrock dataset)
	Indicative of a landfill gas source (e.g 60% CH_4 / 40% CO_2)
	Indicative of geogenic gas (e.g mine-workings)
	Fresh air

Additional Notes

A direct linear downwards relationship between CO_2 and O_2 indicates depletion of oxygen to produce carbon dioxide via microbial respiration using the following equation:
$CH_2O + O_2 \rightarrow CO_2 + H_2O$ In this scenerio CO_2 + O_2 should be around 21% (i.e. the O_2 concentration in the atmosphere)

There may also be trace amounts of methane up to about 3% caused by anaerobic decomposition in small anaerobic hotspots or the reduction of carbon dioxide by methanogens. Oxygen concentrations may be depleted but in this scenario oxygen deficient air is not likely to be emitted quickly from the ground and it does not pose a risk.

After: Wilson et al, 2018. Ground Gas Information Sheet No. 1
Hydrock datasets (methane outgassing / LNAPL vapour degradation)

Version: 1 09/07/2019

Appendix H

Contamination Test Results and Statistical Analysis

Contamination Test Results

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-29332

Replaces Analytical Report Number: 20-29332, issue no. 1

Client sampling date amended.

Project / Site name:	North-West Bicester Eco Development	**Samples received on:**	09/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	09/09/2020
Your order number:		**Analysis completed by:**	14/10/2020
Report Issue Number:	2	**Report issued on:**	14/10/2020
Samples Analysed:	10 soil samples		

Signed:

Will Fardon
Technical Reviewer (CS 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.

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616782	1616783	1616784	1616785
Sample Reference				TP21	TP06	TP17	TP16
Sample Number				4	4	4	4
Depth (m)				0.10	0.20	0.30	0.10
Date Sampled				04/09/2020	07/09/2020	07/09/2020	07/09/2020
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	%	N/A	NONE	18	16	12	12
Total mass of sample received	kg	0.001	NONE	1.5	1.5	0.5	1.5
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	8.1	8.1	8.1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.015	0.013	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.032	0.023	0.017	0.017
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	18	16	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.6	1.6	1.4	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	1.2	1.3	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	33	37	30	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	38	31	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	19	16	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	32	24	21
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	29	28	24	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	78	81	74	67
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	67	69	52	53

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616782	1616783	1616784	1616785
Sample Reference				TP21	TP06	TP17	TP16
Sample Number				4	4	4	4
Depth (m)				0.10	0.20	0.30	0.10
Date Sampled				04/09/2020	07/09/2020	07/09/2020	07/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616782	1616783	1616784	1616785
Sample Reference				TP21	TP06	TP17	TP16
Sample Number				4	4	4	4
Depth (m)				0.10	0.20	0.30	0.10
Date Sampled				04/09/2020	07/09/2020	07/09/2020	07/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
SVOCs TICs							
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616786	1616787	1616788	1616789
Sample Reference				TP22	TP23	TP11	TP01
Sample Number				4	4	4	4
Depth (m)				0.10	0.20	0.30	0.10
Date Sampled				07/09/2020	07/09/2020	07/09/2020	07/09/2020
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	%	N/A	NONE	19	15	21	16
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.5	1.5
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	7.8	7.9	7.8	7.6
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.014	0.016	0.03
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.031	0.032	0.03	0.024
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	15	15	16
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.7	1.4	1.6	1.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	2.2	1.6	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	37	29	34	31
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	30	34	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	17	18	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	30	23	29	22
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	32	24	25	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	86	68	71	74
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	74	58	67	61

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616786	1616787	1616788	1616789
Sample Reference				TP22	TP23	TP11	TP01
Sample Number				4	4	4	4
Depth (m)				0.10	0.20	0.30	0.10
Date Sampled				07/09/2020	07/09/2020	07/09/2020	07/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616786	1616787	1616788	1616789
Sample Reference				TP22	TP23	TP11	TP01
Sample Number				4	4	4	4
Depth (m)				0.10	0.20	0.30	0.10
Date Sampled				07/09/2020	07/09/2020	07/09/2020	07/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-
SVOCs TICs							
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616790	1616791
Sample Reference				TP12	TP13
Sample Number				4	4
Depth (m)				0.10	0.20
Date Sampled				08/09/2020	08/09/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	22	19
Total mass of sample received	kg	0.001	NONE	1.5	1.5
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
General Inorganics					
pH - Automated	pH Units	N/A	MCERTS	7.9	7.9
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.015	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.033	0.034
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	18
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.6	1.6
Boron (water soluble)	mg/kg	0.2	MCERTS	1	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	34	37
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	26	27
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	74	86
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	68

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616790	1616791
Sample Reference				TP12	TP13
Sample Number				4	4
Depth (m)				0.10	0.20
Date Sampled				08/09/2020	08/09/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	mg/kg	0.1	NONE	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-

Analytical Report Number: 20-29332
Project / Site name: North-West Bicester Eco Development

Lab Sample Number				1616790	1616791
Sample Reference				TP12	TP13
Sample Number				4	4
Depth (m)				0.10	0.20
Date Sampled				08/09/2020	08/09/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	None Detected	-

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

Analytical Report Number : 20-29332
Project / Site name: North-West Bicester Eco Development

* 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 *
1616782	TP21	4	0.1	Brown loam and sand with gravel.
1616783	TP06	4	0.2	Brown clay and sand with gravel.
1616784	TP17	4	0.3	Brown clay and sand with gravel.
1616785	TP16	4	0.1	Brown clay and sand with gravel.
1616786	TP22	4	0.1	Brown clay and sand with gravel.
1616787	TP23	4	0.2	Brown loam and sand with gravel.
1616788	TP11	4	0.3	Brown loam and sand with gravel.
1616789	TP01	4	0.1	Brown loam and sand with gravel.
1616790	TP12	4	0.1	Brown loam and sand with gravel.
1616791	TP13	4	0.2	Brown loam and sand with gravel.

Analytical Report Number : 20-29332
Project / Site name: North-West Bicester Eco Development

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
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	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
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
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE

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.

Hydrock Consultants Ltd

t: 01322 665566
f: 01322 661480
e:

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

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

Analytical Report Number : 20-29338

Project / Site name:	North-West Bicester Eco Development	**Samples received on:**	09/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	09/09/2020
Your order number:	po01889	**Analysis completed by:**	16/09/2020
Report Issue Number:	1	**Report issued on:**	16/09/2020
Samples Analysed:	10:1 WAC sample		

Signed:

Agnieszka Czerwińska
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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-29338**						
					Client:	**HYDROCK**	
Location	**North-West Bicester Eco Development**						
Lab Reference (Sample Number)	1616876 / 1616877				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	07/09/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP17 4						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	1.7				3%	5%	6%
Loss on Ignition (%) **	5.0				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mol / kg)	23				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0018			0.0148	0.5	2	25
Barium *	0.0100			0.0805	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0012			0.0095	0.5	10	70
Copper *	0.0044			0.035	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0034			0.028	0.4	10	40
Lead *	0.0027			0.022	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 *	0.0042			0.034	4	50	200
Chloride *	1.0			8.4	800	15000	25000
Fluoride	0.66			5.3	10	150	500
Sulphate *	3.2			26	1000	20000	50000
TDS*	99			800	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.99			64.4	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.50						
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.

Analytical Report Number : 20-29338
Project / Site name: North-West Bicester Eco Development

* 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 *
1616876	TP17	4	0.3	Brown clay and sand with gravel.

Analytical Report Number : 20-29338
Project / Site name: North-West Bicester Eco Development

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 electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 20-29338
Project / Site name: North-West Bicester Eco Development

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.
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.

TEST CERTIFICATE

Specification for Topsoil

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

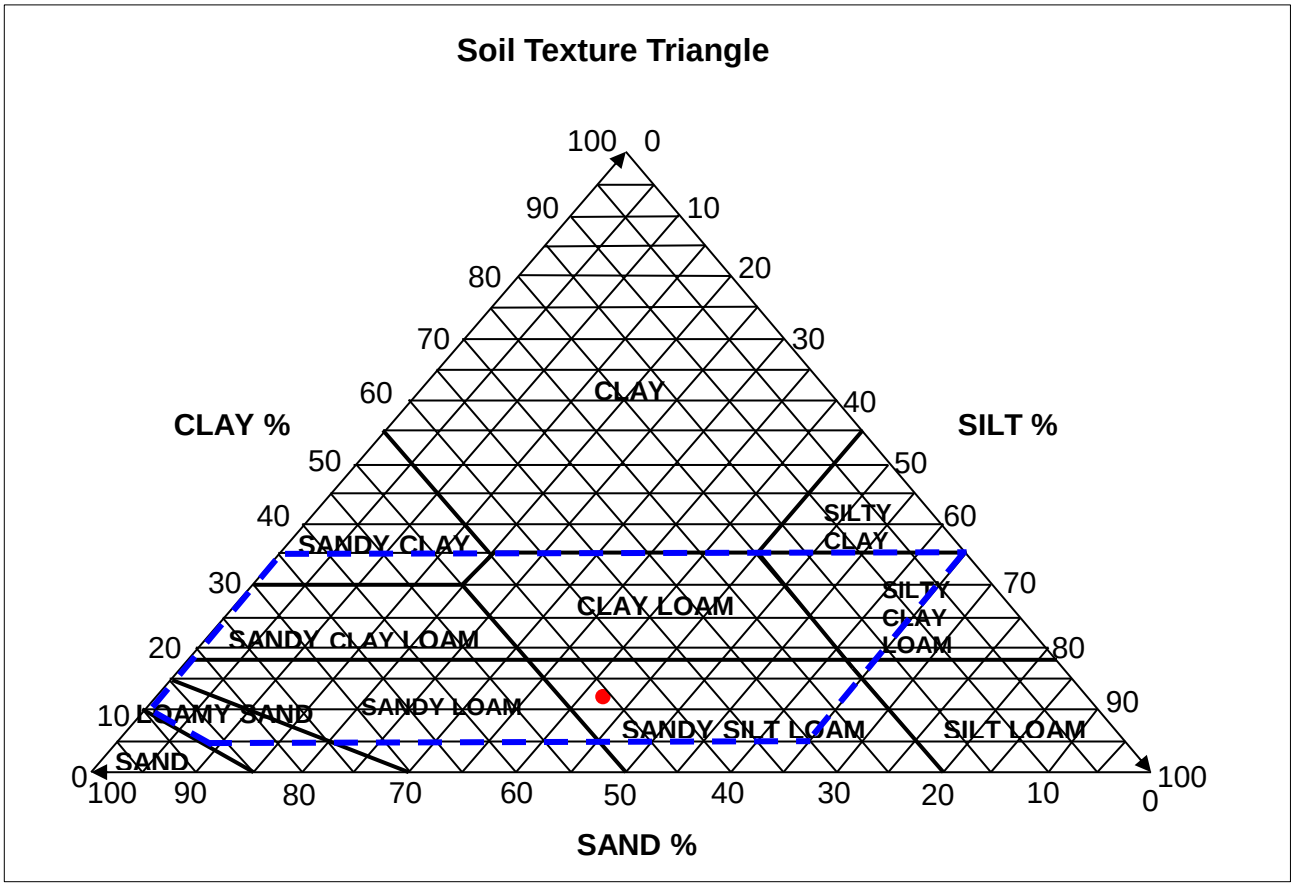
Tested in Accordance with: BS 3882: 2015

Client:	Hydrock Consultants Ltd	Client Reference:	C-13603
Client Address:	2-4 Hawthorne Park, Holdenby Road, Spratton, Northamptonshire, NN6 8LD	Job Number:	20-29409
		Date Sampled:	08/04/2020
		Date Received:	09/09/2020
Contact:	Cameron Adams	Date Tested:	14/09/2020
Site Address:	North-West Bicester Eo Development	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1617286	Depth Top [m]:	0.00
Hole No.:	TP13	Depth Base [m]:	0.30
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	SANDY SILT LOAM		



Sample Proportion	% dry mass
Sand	46.2
Silt	40.6
Clay	13.2

Remarks:

Signed:

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 18/09/2020

GF 286.7

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-29409

Project / Site name:	North-West Bicester Eo Development	**Samples received on:**	09/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	09/09/2020
Your order number:		**Analysis completed by:**	21/09/2020
Report Issue Number:	1	**Report issued on:**	21/09/2020
Samples Analysed:	1 soil sample		

Signed:

Joanna Wawrzeczko
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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Fail BS 3882		client	
Report No:	**20-29409**		**Hydrock Consultants Ltd**	
Location	North-West Bicester Eo Development			
Lab Reference (Sample Number)	1617286		01604842888	
Sampling Date	08/04/2020			
Sample ID	TP13			
Depth (m)	**0.00-0.30**		**Compliant with range (Y/N)**	

		unit	Result	Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY SILT LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	36.00	N	N	N	N	N	N
	>20mm	%m/m	21.00	N	N	N	N	N	N
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	8.20						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	8.10	Y	N	Y	Y	N	Y
Carbonate:		%m/m	7.20	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.13	N	N	N	-	-	-
	Extractable Phosphate (as P)	mg/l	22.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	164.00	Y	Y	Y	-	-	-
	Extractable Magnesium	mg/l	65.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	37.00	N	N	N	N	N	N
Conductivity		us/cm	1900.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	72.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	19.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	33.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Fail	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

Analytical Report Number : 20-29409
Project / Site name: North-West Bicester Eo Development

* 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 *
1617286	TP13	None Supplied	0.00-0.30	Brown loam and clay with gravel.

Analytical Report Number : 20-29409
Project / Site name: North-West Bicester Eo Development

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
Geotechnical Testing in Soil	See attached geotechnical report	See attached geotechnical report		W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Textural Classification Diagram	Textural classification Diagram	BS3882:2015		D	NONE
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition.	BS3882:2015	L01TS2015	W	NONE
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
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 &	L087-PL	D	NONE
Topsoil	See attached report.	BS 3882: 2015	PL	W	NONE
Mass loss on ignition (Topsoil - BS3882)	Determination of Loss on Ignition as per BS 3882:2015.	BS3882:2015	L047-PL	D	NONE
Carbonate (Topsoil - BS3882)	Determination of Carbonate as per BS 3882:2015.	BS3882:2015	L034-PL	D	NONE
Phosphorus as PO4 (BS3882/BS8601)	Determiation of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2015 & BS8601:2013	L082-PL	D	NONE
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L01TS	D	NONE
Nitrogen (TKN)	Determination of total nitrogen by Kjeldahl method.	BS3882:2007	L087-PL	D	NONE
Conductivity (BS3882/BS8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
pH (BS3882/BS8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
Extractable/Available Metals (BS3882/BS8601)	Determiation of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L028-PL	D	NONE

Analytical Report Number : 20-29409
Project / Site name: North-West Bicester Eo Development

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
Textural Classification (BS3882/BS8601)	Determination of the textural classifcation of soil following BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L01TS	D	NONE

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.

Analytical Report Number : 20-29409
Project / Site name: North-West Bicester Eo Development

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP13	None Supplied	S	1617286	c	Conductivity (BS3882/BS8601)	L099-PL	c
TP13	None Supplied	S	1617286	c	Kjeldahl nitrogen in soil	L087-PL	c
TP13	None Supplied	S	1617286	c	Nitrogen (TKN)	L087-PL	c
TP13	None Supplied	S	1617286	c	Phosphorus as PO4 (BS3882/BS8601)	L082-PL	c
TP13	None Supplied	S	1617286	c	pH (BS3882/BS8601)	L099-PL	c

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-30126

Project / Site name:	North-West Bicester Eco Development	**Samples received on:**	15/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	15/09/2020
Your order number:	PO01889	**Analysis completed by:**	22/09/2020
Report Issue Number:	1	**Report issued on:**	22/09/2020
Samples Analysed:	10:1 WAC sample		

Signed:

Agnieszka Czerwińska
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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-30126**						
					Client:	**HYDROCK**	
Location	**North-West Bicester Eco Development**						
Lab Reference (Sample Number)	1620619 / 1620620				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	04/08/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP05						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	2.1				3%	5%	6%
Loss on Ignition (%) **	5.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.4				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.8				--	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 *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0073			0.0631	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0011			0.0095	0.5	10	70
Copper *	0.012			0.10	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0056			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 *	0.013			0.12	4	50	200
Chloride *	1.0			8.8	800	15000	25000
Fluoride	0.39			3.4	10	150	500
Sulphate *	2.2			19	1000	20000	50000
TDS*	38			320	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.28			71.6	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.0						
Dry Matter (%)	85						
Moisture (%)	15						

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.

Analytical Report Number : 20-30126
Project / Site name: North-West Bicester Eco Development

* 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 *
1620619	TP05	None Supplied	0.2	Brown sandy clay.

Analytical Report Number : 20-30126
Project / Site name: North-West Bicester Eco Development

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 electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 20-30126
Project / Site name: North-West Bicester Eco Development

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.
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.

Analytical Report Number : 20-30126
Project / Site name: North-West Bicester Eco Development

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP05	None Supplied	S	1620619	c	Acid neutralisation capacity of soil	L046-PL	c
TP05	None Supplied	S	1620619	c	BTEX in soil (Monoaromatics)	L073B-PL	c
TP05	None Supplied	S	1620619	c	Loss on ignition of soil @ 450oC	L047-PL	c
TP05	None Supplied	S	1620619	c	Mineral Oil (Soil) C10 - C40	L076-PL	c
TP05	None Supplied	S	1620619	c	Organic matter (Automated) in soil	L009-PL	c
TP05	None Supplied	S	1620619	c	PCB's By GC-MS in soil	L027-PL	c
TP05	None Supplied	S	1620619	c	Speciated WAC-17 PAHs in soil	L064-PL	c
TP05	None Supplied	S	1620619	c	Total BTEX in soil (Poland)	L073-PL	c
TP05	None Supplied	S	1620619	c	Total organic carbon (Automated) in soil	L009-PL	c
TP05	None Supplied	S	1620619	c	pH at 20oC in soil	L005-PL	c

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-30257

Project / Site name:	North West Bicester Eco-Development	**Samples received on:**	15/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	16/09/2020
Your order number:	P002035	**Analysis completed by:**	23/09/2020
Report Issue Number:	1	**Report issued on:**	23/09/2020
Samples Analysed:	25 soil samples		

Signed:

Joanna Wawrzeczko
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.

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621267	1621268	1621269	1621270
Sample Reference				TP37	TP38	TP45	TP46
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.10	0.20
Date Sampled				14/09/2020	14/09/2020	14/09/2020	14/09/2020
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	%	N/A	NONE	18	11	15	17
Total mass of sample received	kg	0.001	NONE	0.99	1.2	1	0.96
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	7.8	8.2	8.1	9
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.016	0.015	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.04	0.013	0.024	0.041
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	11	19	23
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.6	0.88	1.6	1.7
Boron (water soluble)	mg/kg	0.2	MCERTS	3.3	0.5	0.6	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	31	14	29	31
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	15	29	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	13	21	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	31	7.5	22	30
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	26	14	25	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	80	48	70	77
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69	29	56	77

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621267	1621268	1621269	1621270
Sample Reference				TP37	TP38	TP45	TP46
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.10	0.20
Date Sampled				14/09/2020	14/09/2020	14/09/2020	14/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621267	1621268	1621269	1621270
Sample Reference				TP37	TP38	TP45	TP46
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.10	0.20
Date Sampled				14/09/2020	14/09/2020	14/09/2020	14/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621271	1621272	1621273	1621274
Sample Reference				TP49	TP48	TP57	TP50
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.10	0.20
Date Sampled				14/09/2020	14/09/2020	14/09/2020	14/09/2020
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	%	N/A	NONE	15	14	16	16
Total mass of sample received	kg	0.001	NONE	1	0.9	0.96	0.94
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	8.1	8	7.7	7.6
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.014	0.016	0.014
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.036	0.033	0.036	0.042
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	18	19	19
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.2	1.3	1.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	2.2	2.3	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	23	21	25	28
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	21	25	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	20	21	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	22	23	24
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	21	19	22	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	63	59	61	66
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	56	52	61	64

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621271	1621272	1621273	1621274
Sample Reference				TP49	TP48	TP57	TP50
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.10	0.20
Date Sampled				14/09/2020	14/09/2020	14/09/2020	14/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621271	1621272	1621273	1621274
Sample Reference				TP49	TP48	TP57	TP50
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.10	0.20
Date Sampled				14/09/2020	14/09/2020	14/09/2020	14/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621275	1621276	1621277	1621278
Sample Reference				TP56	TP54	TP43	TP44
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	0.10	0.60
Date Sampled				14/09/2020	15/09/2020	15/09/2020	15/09/2020
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	%	N/A	NONE	5	14	12	16
Total mass of sample received	kg	0.001	NONE	1	1.1	1	0.91
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	8.1	7.9	7.8	8.1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	0.017	0.014	0.018
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.0074	0.031	0.033	0.011
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.39	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.21	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.22	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.21	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.15	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.19	< 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	1.7	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.7	17	6.9	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.46	1.1	0.64	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.8	0.2	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	6.1	20	11	26
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	6.3	21	12	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.6	22	9.4	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	3	66	8.6	13
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	6.2	20	9.6	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	55	30	57
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	16	77	25	71

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621275	1621276	1621277	1621278
Sample Reference				TP56	TP54	TP43	TP44
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	0.10	0.60
Date Sampled				14/09/2020	15/09/2020	15/09/2020	15/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621275	1621276	1621277	1621278
Sample Reference				TP56	TP54	TP43	TP44
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	0.10	0.60
Date Sampled				14/09/2020	15/09/2020	15/09/2020	15/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	ND	-
SVOC % Match	%	N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621279	1621280	1621281	1621282
Sample Reference				TP53	TP18	TP24	TP25
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.10	0.30
Date Sampled				15/09/2020	10/09/2020	10/09/2020	10/09/2020
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	%	N/A	NONE	21	15	17	16
Total mass of sample received	kg	0.001	NONE	0.95	1.1	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	7.7	7.9	7.9	7.7
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.011	0.012	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.038	0.026	0.012	0.029
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	22	20	20
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	1.6	1.7	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	2	2.1	1.2	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	24	30	33	27
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	31	33	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	19	16	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	28	14	23
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	23	27	31	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	58	76	67	70
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	66	61	51	59

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621279	1621280	1621281	1621282
Sample Reference				TP53	TP18	TP24	TP25
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.10	0.30
Date Sampled				15/09/2020	10/09/2020	10/09/2020	10/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621279	1621280	1621281	1621282
Sample Reference				TP53	TP18	TP24	TP25
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.10	0.30
Date Sampled				15/09/2020	10/09/2020	10/09/2020	10/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621283	1621284	1621285	1621286
Sample Reference				TP27	TP30	TP31	TP32
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.20	0.30
Date Sampled				11/09/2020	11/09/2020	10/09/2020	10/09/2020
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	%	N/A	NONE	16	14	14	15
Total mass of sample received	kg	0.001	NONE	1.3	1.1	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	7.8	7.6	7.7	7.9
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.013	0.015	0.015	0.0096
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.029	0.044	0.035	0.023
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	21	19	20
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	1.4	1.4	1.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	1	1.2	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	24	34	24	26
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	34	25	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	21	21	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	64	20	25
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	25	29	23	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	69	78	69	73
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57	80	60	58

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621283	1621284	1621285	1621286
Sample Reference				TP27	TP30	TP31	TP32
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.20	0.30
Date Sampled				11/09/2020	11/09/2020	10/09/2020	10/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621283	1621284	1621285	1621286
Sample Reference				TP27	TP30	TP31	TP32
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.20	0.30
Date Sampled				11/09/2020	11/09/2020	10/09/2020	10/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND	-	-	-
SVOC % Match	%	N/A	NONE	0.00000	-	-	-

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

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621287	1621288	1621289	1621290
Sample Reference				TP33	TP34	TP35	TP39
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	0.30	0.20
Date Sampled				10/09/2020	11/09/2020	11/09/2020	10/09/2020
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	%	N/A	NONE	14	12	17	16
Total mass of sample received	kg	0.001	NONE	1.1	1.2	1.1	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	7.8	7.9	7.8	7.8
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.014	0.014	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.027	0.025	0.037	0.022
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	26	18	24	18
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	1.3	1.8	1.6
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.5	1.5	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	25	24	33	30
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	24	34	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	19	25	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	79	30	17
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	26	22	30	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	72	65	87	73
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58	53	78	75

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621287	1621288	1621289	1621290
Sample Reference				TP33	TP34	TP35	TP39
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	0.30	0.20
Date Sampled				10/09/2020	11/09/2020	11/09/2020	10/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs							
Aniline	mg/kg	0.1	NONE	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621287	1621288	1621289	1621290
Sample Reference				TP33	TP34	TP35	TP39
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	0.30	0.20
Date Sampled				10/09/2020	11/09/2020	11/09/2020	10/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621291
Sample Reference				TP41
Sample Number				None Supplied
Depth (m)				0.10
Date Sampled				10/09/2020
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	N/A	NONE	16
Total mass of sample received	kg	0.001	NONE	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
General Inorganics				
pH - Automated	pH Units	N/A	MCERTS	7.7
Free Cyanide	mg/kg	1	MCERTS	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.013
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.029
Total Phenols				
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.8
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2
Chromium (III)	mg/kg	1	NONE	32
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	82
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	77

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621291
Sample Reference				TP41
Sample Number				None Supplied
Depth (m)				0.10
Date Sampled				10/09/2020
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
SVOCs				
Aniline	mg/kg	0.1	NONE	-
Phenol	mg/kg	0.2	ISO 17025	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-
2-Methylphenol	mg/kg	0.3	MCERTS	-
Hexachloroethane	mg/kg	0.05	MCERTS	-
Nitrobenzene	mg/kg	0.3	MCERTS	-
4-Methylphenol	mg/kg	0.2	NONE	-
Isophorone	mg/kg	0.2	MCERTS	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-
Naphthalene	mg/kg	0.05	MCERTS	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-
4-Chloroaniline	mg/kg	0.1	NONE	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-
Dibenzofuran	mg/kg	0.2	MCERTS	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Azobenzene	mg/kg	0.3	MCERTS	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Carbazole	mg/kg	0.3	MCERTS	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-
Anthraquinone	mg/kg	0.3	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-

Analytical Report Number: 20-30257
Project / Site name: North West Bicester Eco-Development
Your Order No: P002035

Lab Sample Number				1621291
Sample Reference				TP41
Sample Number				None Supplied
Depth (m)				0.10
Date Sampled				10/09/2020
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-
SVOC % Match	%	N/A	NONE	-

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

Analytical Report Number : 20-30257
Project / Site name: North West Bicester Eco-Development

* 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 *
1621267	TP37	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621268	TP38	None Supplied	0.5	Brown loam and sand with gravel and vegetation.
1621269	TP45	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621270	TP46	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621271	TP49	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621272	TP48	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621273	TP57	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621274	TP50	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621275	TP56	None Supplied	0.4	Brown clay and loam with gravel.
1621276	TP54	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621277	TP43	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621278	TP44	None Supplied	0.6	Brown loam and sand with gravel and vegetation.
1621279	TP53	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621280	TP18	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621281	TP24	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
1621282	TP25	None Supplied	0.3	Brown loam and sand with gravel and vegetation.
1621283	TP27	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621284	TP30	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621285	TP31	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621286	TP32	None Supplied	0.3	Brown loam and sand with gravel and vegetation.
1621287	TP33	None Supplied	0.3	Brown loam and sand with gravel and vegetation.
1621288	TP34	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621289	TP35	None Supplied	0.3	Brown loam and sand with gravel and vegetation.
1621290	TP39	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
1621291	TP41	None Supplied	0.1	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 20-30257
Project / Site name: North West Bicester Eco-Development

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
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	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
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
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE

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.

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-30261

Project / Site name:	North West Bicester Eco-Development	**Samples received on:**	15/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	16/09/2020
Your order number:	P002035	**Analysis completed by:**	23/09/2020
Report Issue Number:	1	**Report issued on:**	23/09/2020
Samples Analysed:	2 10:1 WAC samples		

Signed: 

Agnieszka Czerwińska
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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-30261**						
					Client:	**HYDROCK**	
Location	**North West Bicester Eco-Development**						
Lab Reference (Sample Number)	1621307 / 1621308				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	14/09/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP49						
Depth (m)	0.10						
Solid Waste Analysis							
TOC (%)**	3.6				3%	5%	6%
Loss on Ignition (%) **	8.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.8				--	>6	--
Acid Neutralisation Capacity (mol / kg)	4.2				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0034			0.0290	0.5	2	25
Barium *	0.0099			0.0849	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0011			0.0090	0.5	10	70
Copper *	0.0074			0.063	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0032			0.028	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 *	0.0053			0.045	4	50	200
Chloride *	0.20			1.7	800	15000	25000
Fluoride	0.52			4.5	10	150	500
Sulphate *	1.6			13	1000	20000	50000
TDS*	79			670	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.80			75.4	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.90						
Dry Matter (%)	92						
Moisture (%)	8.3						

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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-30261**						
					Client:	**HYDROCK**	
Location	**North West Bicester Eco-Development**						
Lab Reference (Sample Number)	1621309 / 1621310				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	15/09/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP44						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	1.2				3%	5%	6%
Loss on Ignition (%) **	3.1				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mol / kg)	16				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0012			< 0.0110	0.5	2	25
Barium *	0.0086			0.0698	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0014			0.011	0.5	10	70
Copper *	0.0030			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 *	0.0029			0.023	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 *	0.0042			0.034	4	50	200
Chloride *	0.31			2.5	800	15000	25000
Fluoride	0.31			2.5	10	150	500
Sulphate *	2.1			17	1000	20000	50000
TDS*	62			500	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	3.73			30.3	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.91						
Dry Matter (%)	84						
Moisture (%)	16						

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 discrepencies 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.

Analytical Report Number : 20-30261
Project / Site name: North West Bicester Eco-Development

* 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 *
1621307	TP49	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
1621309	TP44	None Supplied	0.6	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 20-30261
Project / Site name: North West Bicester Eco-Development

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 electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 20-30261
Project / Site name: North West Bicester Eco-Development

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.
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.

TEST CERTIFICATE

Specification for Topsoil

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

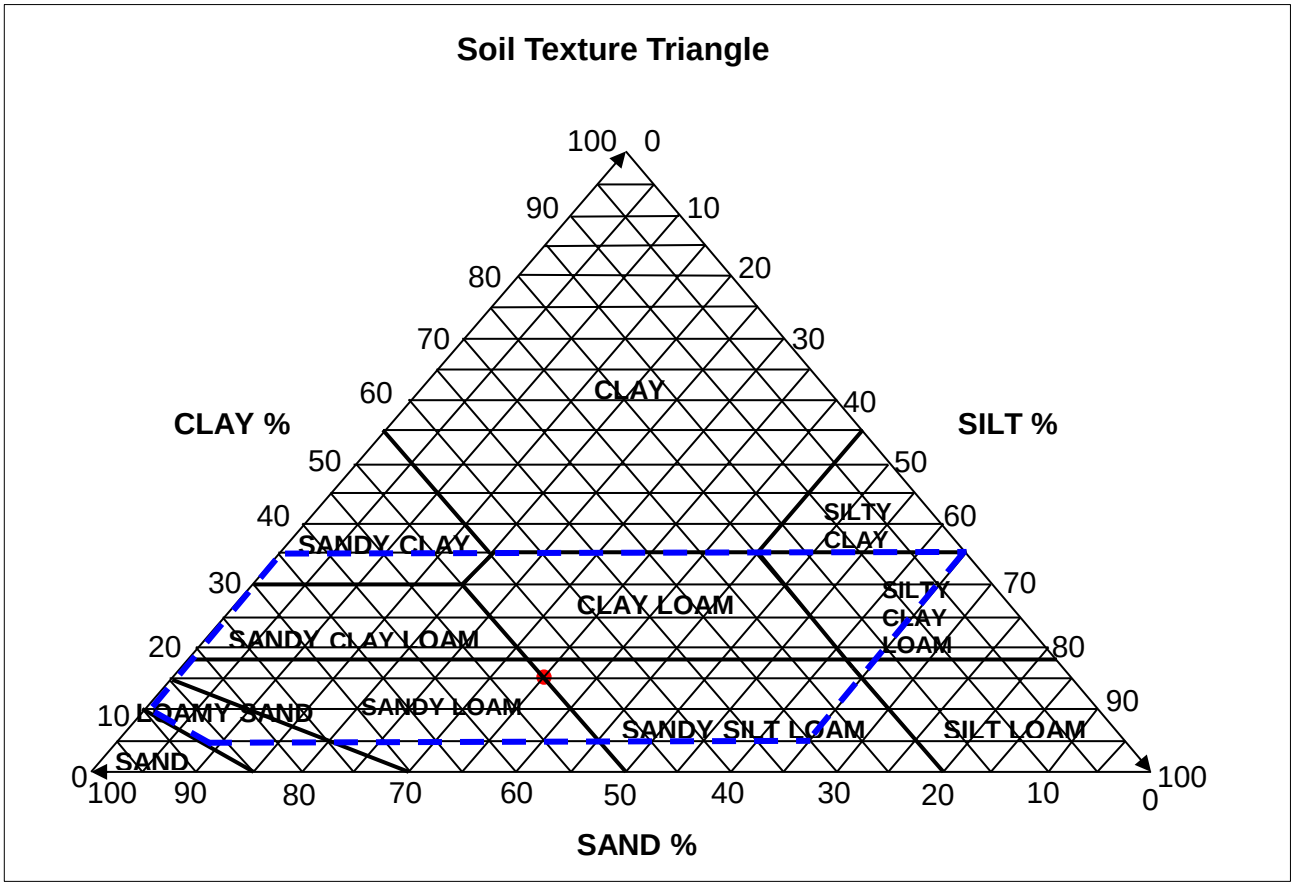
Tested in Accordance with: BS 3882: 2015

Client:	Hydrock Consultants Ltd	Client Reference:	C-13603
Client Address:	2-4 Hawthorne Park, Holdenby Road, Spratton, Northamptonshire, NN6 8LD	Job Number:	20-30423
		Date Sampled:	14/09/2020
		Date Received:	15/09/2020
Contact:	Cameron Adams	Date Tested:	21/09/2020
Site Address:	NW Bicester Eco-Development	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1622052	Depth Top [m]:	0.20
Hole No.:	TP37	Depth Base [m]:	0.30
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	SANDY LOAM		



Sample Proportion	% dry mass
Sand	50.2
Silt	33.5
Clay	16.3

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 23/09/2020

GF 286.7

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-30423

Project / Site name:	NW Bicester Eco-Development	**Samples received on:**	15/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	16/09/2020
Your order number:	P002035	**Analysis completed by:**	23/09/2020
Report Issue Number:	1	**Report issued on:**	23/09/2020
Samples Analysed:	1 soil sample		

Signed:

Agnieszka Czerwińska
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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Fail BS 3882		client	
Report No:	**20-30423**		**Hydrock Consultants Ltd**	
Location	NW Bicester Eco-Development			
Lab Reference (Sample Number)	1622052		01604842888	
Sampling Date	14/09/2020			
Sample ID	TP37			
Depth (m)	**0.20-0.30**			

		unit	Result	Compliant with range (Y/N)					
				Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	46.00	N	N	N	N	N	N
	>20mm	%m/m	39.00	N	N	N	N	N	N
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	9.80						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	7.90	Y	N	Y	Y	N	Y
Carbonate:		%m/m	14.00	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.25	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	51.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	534.00	Y	Y	Y	-	-	-
	Extractable Magnesium	mg/l	130.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	23.00	N	N	N	Y	Y	N
Conductivity		us/cm	1700.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	77.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	26.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	30.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Fail	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

Analytical Report Number : 20-30423
Project / Site name: NW Bicester Eco-Development

* 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 *
1622052	TP37	None Supplied	0.20-0.30	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 20-30423
Project / Site name: NW Bicester Eco-Development

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
Geotechnical Testing in Soil	See attached geotechnical report	See attached geotechnical report		W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Textural Classification Diagram	Textural classification Diagram	BS3882:2015		D	NONE
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition.	BS3882:2015	L01TS2015	W	NONE
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
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 &	L087-PL	D	NONE
Topsoil	See attached report.	BS 3882: 2015	PL	W	NONE
Mass loss on ignition (Topsoil - BS3882)	Determination of Loss on Ignition as per BS 3882:2015.	BS3882:2015	L047-PL	D	NONE
Carbonate (Topsoil - BS3882)	Determination of Carbonate as per BS 3882:2015.	BS3882:2015	L034-PL	D	NONE
Phosphorus as PO4 (BS3882/BS8601)	Determiation of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2015 & BS8601:2013	L082-PL	D	NONE
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L01TS	D	NONE
Nitrogen (TKN)	Determination of total nitrogen by Kjeldahl method.	BS3882:2007	L087-PL	D	NONE
Conductivity (BS3882/BS8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
pH (BS3882/BS8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
Extractable/Available Metals (BS3882/BS8601)	Determiation of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L028-PL	D	NONE

Analytical Report Number : 20-30423
Project / Site name: NW Bicester Eco-Development

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
Textural Classification (BS3882/BS8601)	Determination of the textural classifcation of soil following BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L01TS	D	NONE

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.

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-31833

Project / Site name:	North-west bicester eco development	**Samples received on:**	18/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	22/09/2020
Your order number:	PO02101	**Analysis completed by:**	28/09/2020
Report Issue Number:	1	**Report issued on:**	28/09/2020
Samples Analysed:	5 soil samples		

Signed: 

Agnieszka Czerwińska
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.

Analytical Report Number: 20-31833
Project / Site name: North-west bicester eco development
Your Order No: PO02101

Lab Sample Number				1629783	1629784	1629785	1629786
Sample Reference				TP88	TP87	TP82	TP71
Sample Number				4	4	4	4
Depth (m)				0.50	0.10	0.70	0.20
Date Sampled				21/09/2020	21/09/2020	16/09/2020	16/09/2020
Time Taken				1200	1200	1200	1200
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	%	N/A	NONE	18	17	7.5	15
Total mass of sample received	kg	0.001	NONE	1	1.2	0.6	0.6
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	8.2	8	8.6	7.8
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.011	0.014	0.0097	0.011
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.028	0.042	0.0086	0.046
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	21	16	19
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.94	0.99	0.69	1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	1.5	0.3	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	21	24	18	23
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	24	18	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	17	9.3	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	52	32	11	30
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	24	26	19	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	45	58	39	54
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	97	79	39	87
SVOCs							
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1

Analytical Report Number: 20-31833
Project / Site name: North-west bicester eco development
Your Order No: PO02101

Lab Sample Number				1629783	1629784	1629785	1629786
Sample Reference				TP88	TP87	TP82	TP71
Sample Number				4	4	4	4
Depth (m)				0.50	0.10	0.70	0.20
Date Sampled				21/09/2020	21/09/2020	16/09/2020	16/09/2020
Time Taken				1200	1200	1200	1200
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05

SVOCs TICs

Analytical Report Number: 20-31833
Project / Site name: North-west bicester eco development
Your Order No: PO02101

Lab Sample Number				1629783	1629784	1629785	1629786
Sample Reference				TP88	TP87	TP82	TP71
Sample Number				4	4	4	4
Depth (m)				0.50	0.10	0.70	0.20
Date Sampled				21/09/2020	21/09/2020	16/09/2020	16/09/2020
Time Taken				1200	1200	1200	1200
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
SVOCs TICs Compound Name		N/A	NONE	-	ND	-	ND
SVOC % Match	%	N/A	NONE	-	-	-	-

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

Analytical Report Number: 20-31833
Project / Site name: North-west bicester eco development
Your Order No: PO02101

Lab Sample Number				1629787
Sample Reference				TP65
Sample Number				4
Depth (m)				0.20
Date Sampled				18/09/2020
Time Taken				1200
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	N/A	NONE	15
Total mass of sample received	kg	0.001	NONE	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
General Inorganics				
pH - Automated	pH Units	N/A	MCERTS	8.1
Free Cyanide	mg/kg	1	MCERTS	< 1
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.0065
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.031
Total Phenols				
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	20
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.96
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2
Chromium (III)	mg/kg	1	NONE	24
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	60
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	53
SVOCs				
Aniline	mg/kg	0.1	NONE	< 0.1

Analytical Report Number: 20-31833
Project / Site name: North-west bicester eco development
Your Order No: PO02101

Lab Sample Number				1629787
Sample Reference				TP65
Sample Number				4
Depth (m)				0.20
Date Sampled				18/09/2020
Time Taken				1200
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Phenol	mg/kg	0.2	ISO 17025	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

SVOCs TICs

Analytical Report Number: 20-31833
Project / Site name: North-west bicester eco development
Your Order No: PO02101

Lab Sample Number				1629787
Sample Reference				TP65
Sample Number				4
Depth (m)				0.20
Date Sampled				18/09/2020
Time Taken				1200
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
SVOCs TICs Compound Name		N/A	NONE	ND
SVOC % Match	%	N/A	NONE	-

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

Analytical Report Number : 20-31833
Project / Site name: North-west bicester eco development

* 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 *
1629783	TP88	4	0.5	Brown loam and clay with gravel and vegetation.
1629784	TP87	4	0.1	Brown loam and clay with gravel and vegetation.
1629785	TP82	4	0.7	Brown clay and sand with gravel and vegetation.
1629786	TP71	4	0.2	Brown loam and clay with gravel and vegetation.
1629787	TP65	4	0.2	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 20-31833
Project / Site name: North-west bicester eco development

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
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	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
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
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 20-31833
Project / Site name: North-west bicester eco development

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

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.

Sample Deviation Report

Analytical Report Number : 20-31833
Project / Site name: North-west bicester eco development

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP71	4	S	1629786	c	Free cyanide in soil	L080-PL	c
TP82	4	S	1629785	c	Free cyanide in soil	L080-PL	c

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-31851

Project / Site name:	North-west bicester eco development	**Samples received on:**	18/09/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	23/09/2020
Your order number:	PO02101	**Analysis completed by:**	29/09/2020
Report Issue Number:	1	**Report issued on:**	29/09/2020
Samples Analysed:	3 10:1 WAC samples		

Signed: [redacted]

Agnieszka Czerwińska
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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-31851**						
					Client:	**HYDROCK**	
Location	**North-west bicester eco development**						
Lab Reference (Sample Number)	1629856 / 1629857				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	21/09/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP88 4						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	2.8				3%	5%	6%
Loss on Ignition (%) **	7.2				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.7				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.83				--	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 *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0069			0.0567	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0005			0.0040	0.5	10	70
Copper *	0.0050			0.041	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0044			0.037	0.4	10	40
Lead *	0.0033			0.027	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 *	0.0036			0.030	4	50	200
Chloride *	1.8			15	800	15000	25000
Fluoride	0.17			1.4	10	150	500
Sulphate *	3.0			24	1000	20000	50000
TDS*	78			640	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.11			66.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	82						
Moisture (%)	18						

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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-31851**						
					Client:	**HYDROCK**	
Location	**North-west bicester eco development**						
Lab Reference (Sample Number)	1629858 / 1629859				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	16/09/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP82 4						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	2.3				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.3				--	>6	--
Acid Neutralisation Capacity (mol / kg)	1.1				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0055			0.0496	0.5	2	25
Barium *	0.0116			0.104	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0010			0.0086	0.5	10	70
Copper *	0.0053			0.048	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0046			0.041	0.4	10	40
Lead *	0.0028			0.025	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 *	0.0068			0.061	4	50	200
Chloride *	1.6			15	800	15000	25000
Fluoride	0.27			2.4	10	150	500
Sulphate *	2.3			21	1000	20000	50000
TDS*	88			790	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.89			70.6	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.60						
Dry Matter (%)	93						
Moisture (%)	7.5						

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 discrepencies 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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**20-31851**						
					Client:	**HYDROCK**	
Location	**North-west bicester eco development**						
Lab Reference (Sample Number)	1629860 / 1629861				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	18/09/2020				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP65 4						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	3.1				3%	5%	6%
Loss on Ignition (%) **	7.7				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mol / kg)	0.46				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0052			0.0425	0.5	2	25
Barium *	0.0130			0.106	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0015			0.013	0.5	10	70
Copper *	0.018			0.14	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0059			0.048	0.4	10	40
Lead *	0.0047			0.039	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 *	0.0070			0.057	4	50	200
Chloride *	1.5			12	800	15000	25000
Fluoride	0.33			2.7	10	150	500
Sulphate *	2.9			23	1000	20000	50000
TDS*	87			710	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	11.2			90.9	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	85						
Moisture (%)	15						

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 discrepencies 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.

Analytical Report Number : 20-31851
Project / Site name: North-west bicester eco development

* 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 *
1629856	TP88	4	0.5	Brown loam and clay with gravel and vegetation.
1629858	TP82	4	0.7	Brown clay and sand with gravel and vegetation.
1629860	TP65	4	0.2	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 20-31851
Project / Site name: North-west bicester eco development

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 electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 20-31851
Project / Site name: North-west bicester eco development

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.
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.

TEST CERTIFICATE

Specification for Topsoil

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

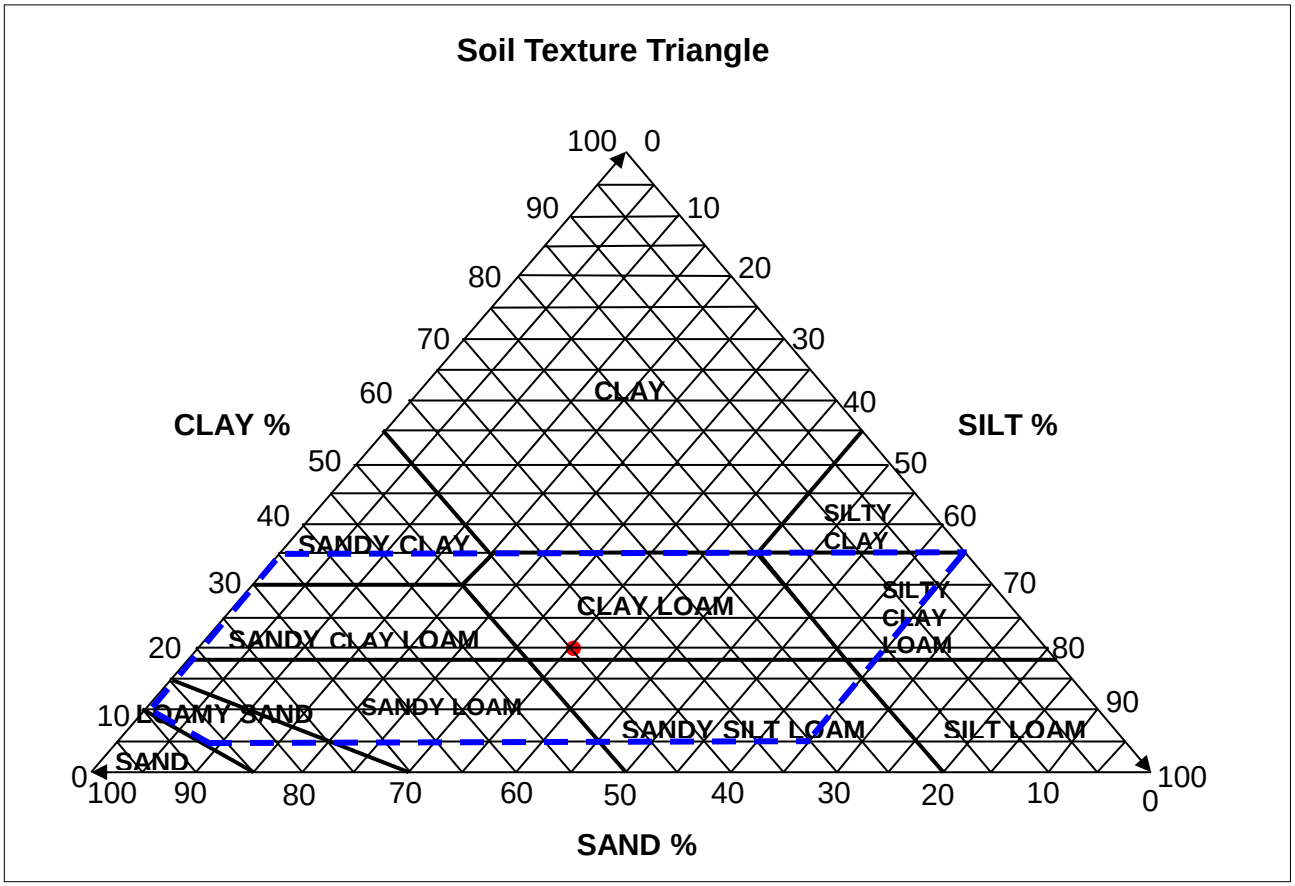
Tested in Accordance with: BS 3882: 2015

Client:	Hydrock Consultants Ltd	Client Reference:	C 13603
Client Address:	2-4 Hawthorne Park, Holdenby Road, Spratton, Northamptonshire, NN6 8LD	Job Number:	20-32308
		Date Sampled:	16/09/2020
		Date Received:	18/09/2020
Contact:	Cameron Adams	Date Tested:	29/03/2020
Site Address:	North-West Bicester Eco Development	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1632012	Depth Top [m]:	0.10
Hole No.:	TP85	Depth Base [m]:	0.30
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	CLAY LOAM		



Sample Proportion	% dry mass
Sand	45.1
Silt	33.9
Clay	21.0

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 06/10/2020

GF 286.7

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Trevor Hill
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford
WD18 8YS

14th October 2020
Our Ref: TOHA/20/9693/SS
Your Ref: PO12870 20-32308

Dear Sirs

Topsoil Analysis Report: North-West Bicester Eco Development

We have completed a review of the i2 Analytical Ltd report *20-32308* for the sample referenced *TP85,* and have pleasure reporting our findings.

The purpose of the review was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, the sample has been assessed to determine its compliance with the horticultural requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).*

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, analysis of potential contaminants (human health and the environment) is required in relation to site history and end-use of the topsoil. In this instance, no human health contaminants have been tested.

This report presents the interpretation of laboratory results of analysis submitted to our office, and it should be considered 'indicative' of the topsoil source. The report should therefore not be used by third parties as a means of verification testing, validation testing or for waste designation purposes.

VISUAL EXAMINATION

The following photographic image of the sample was provided by Trevor Hill of i2 Analytical Ltd on 08/10/2020.

Plate 1: Sample TP85

From the supplied image, the sample may be described as brown (Munsell Colour 10YR 4/3), with a moderately developed, fine to medium sub-angular blocky structure. No observable deleterious materials or roots or rhizomes of pernicious weeds appear to be present within the photograph.

ANALYTICAL SCHEDULE

The sample was submitted to i2 Analytical Ltd for a range of physical and chemical tests to confirm the composition and fertility of the soil. The following parameters were determined:

- particle size analysis;
- stone content;
- pH and electrical conductivity value;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- phytotoxic contaminants (Cu, Ni, Zn);
- visible contaminants (>2mm, plastics, sharps).

The results of analysis are attached in the form of an i2 Analytical Ltd Test Certificate at the end of this document.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *clay loam* texture class, which is usually considered suitable for general landscape applications provided the soil's physical condition is satisfactory.

Such soils usually have good water and nutrient retention capacities, but they are also prone to structural degradation and compaction during handling, and especially when plastic in consistency. Any damage to the structural condition of this soil is likely to reduce its drainage and aeration properties.

The stone content of the sample was moderate and, as such, stones are unlikely to constitute a limitation for planting purposes.

pH and Electrical Conductivity values

The sample was strongly alkaline in reaction (pH 8.0), with a pH value that would be considered suitable for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity value by $CaSO_4$ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The sample was adequately supplied with organic matter and all major plant nutrients.

The C:N ratio was high (26:1) and exceeded the maximum upper limit set by *BS3882:2015 - Table 1* (20:1). This could cause 'nitrogen lock up' and result in growth restriction in sensitive plants in particular. This can usually be remedied by a suitable fertiliser application.

Phytotoxic Contaminants

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

CONCLUSIONS

The purpose of the review was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, the sample has been assessed to determine its compliance with the horticultural requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

From the visual examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline clay loam with a moderately developed structure and moderate stone content. The sample was adequately supplied with organic matter and all major plant. The C:N ratio was high. Of the phytotoxic contaminants determined, none exceeded their respective guideline values.

To conclude based on our findings, the topsoil has a reduced potential for re-use in general landscape applications on account of its high C:N ratio and potential for nitrogen lock-up. This can usually be remedied by a suitable fertiliser application. Species with a wide pH tolerance or those known to prefer alkaline soils should be selected for planting, turfing and seeding and the physical condition maintained.

The sample was largely compliant with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil)* with the exception of the C:N ratio (26:1) which exceeded the maximum specified value (20:1).

RECOMMENDATIONS

Fertilisers for Planting

To address the C:N ratio imbalance and to help promote effective plant establishment, we recommend applying and incorporating the compound, controlled release fertiliser *ICL Osmocote PrePlant* (17%N:9%P_2O_5:10%K_2O:2%MgO+TE) at a rate of 70 g/m^2 for planting beds and/or 180 g/tree pit, and to a depth of 200mm.

Fertiliser for Amenity Grass Establishment

To address the C:N ratio imbalance and to help promote effective grass establishment, we recommend applying and incorporating the pre-seeding grass fertiliser *ICL Sportsmaster Pre-seeder* (8%N:12%P_2O_5:8%K_2O+3%MgO) prior to seeding or turfing at a rate of 35 g/m^2 and to a depth of 100mm.

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, respreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

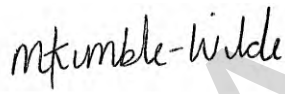
It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

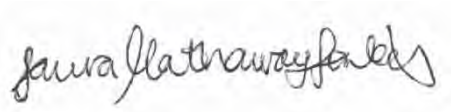
Further details on soil handling are provided in Annex A of *BS3882:2015.*

_____

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

Yours faithfully





Tilly Kimble-Wilde
BSc MSc
Graduate Soil Scientist

Laura Hathaway-Jenkins
BSc MSc EngD MISoilSci CSci
Senior Associate

For & on behalf of Tim O'Hare Associates LLP

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-32308

Project / Site name:	North-West Bicester Eco Development	**Samples received on:**	18/09/2020
Your job number:	C 13603	**Samples instructed on/ Analysis started on:**	25/09/2020
Your order number:	PO02101	**Analysis completed by:**	06/10/2020
Report Issue Number:	1	**Report issued on:**	06/10/2020
Samples Analysed:	1 soil sample		

Signed: [redacted]

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Fail BS 3882		client	
Report No:	**20-32308**			**Hydrock Consultants Ltd**
Location	North-West Bicester Eco Development			
Lab Reference (Sample Number)	1632012			01604842888
Sampling Date	16/09/2020			
Sample ID	TP85			
Depth (m)	**0.10-0.30**			

				Compliant with range (Y/N)					
		unit	**Result**	**Multi-P**	**Acid**	**Calc**	**Low-F**	**Low-F(a)**	**Low-F(c)**
Soil texture	<2mm fraction	%m/m	CLAY LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	21.00	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	9.80						
	Clay 5-20%		-	-	-	-	-	-	-
	Clay 20-35%		Y	Y	Y	Y	Y	Y	Y
Soil pH:		pH	8.00	Y	N	Y	Y	N	Y
Carbonate:		%m/m	13.00	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.22	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	62.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	419.00	Y	Y	Y	-	-	-
	Extractable Magnesium	mg/l	150.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	26.00	N	N	N	Y	Y	N
Conductivity		us/cm	1600.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	75.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	19.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	25.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Fail	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

Analytical Report Number : 20-32308
Project / Site name: North-West Bicester Eco Development

* 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 *
1632012	TP85	None Supplied	0.10-0.30	Brown loam with gravel and vegetation.

Analytical Report Number : 20-32308
Project / Site name: North-West Bicester Eco Development

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
Geotechnical Testing in Soil	See attached geotechnical report	See attached geotechnical report		W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Textural Classification Diagram	Textural classification Diagram	BS3882:2015		D	NONE
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition.	BS3882:2015	L01TS2015	W	NONE
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
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 &	L087-PL	D	NONE
Topsoil	See attached report.	BS 3882: 2015	PL	W	NONE
Mass loss on ignition (Topsoil - BS3882)	Determination of Loss on Ignition as per BS 3882:2015.	BS3882:2015	L047-PL	D	NONE
Carbonate (Topsoil - BS3882)	Determination of Carbonate as per BS 3882:2015.	BS3882:2015	L034-PL	D	NONE
Phosphorus as PO4 (BS3882/BS8601)	Determiation of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2015 & BS8601:2013	L082-PL	D	NONE
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L01TS	D	NONE
Nitrogen (TKN)	Determination of total nitrogen by Kjeldahl method.	BS3882:2007	L087-PL	D	NONE
Conductivity (BS3882/BS8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
pH (BS3882/BS8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
Extractable/Available Metals (BS3882/BS8601)	Determiation of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L028-PL	D	NONE

Analytical Report Number : 20-32308
Project / Site name: North-West Bicester Eco Development

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
Textural Classification (BS3882/BS8601)	Determination of the textural classifcation of soil following BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L01TS	D	NONE

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.

TEST CERTIFICATE

Specification for Topsoil

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

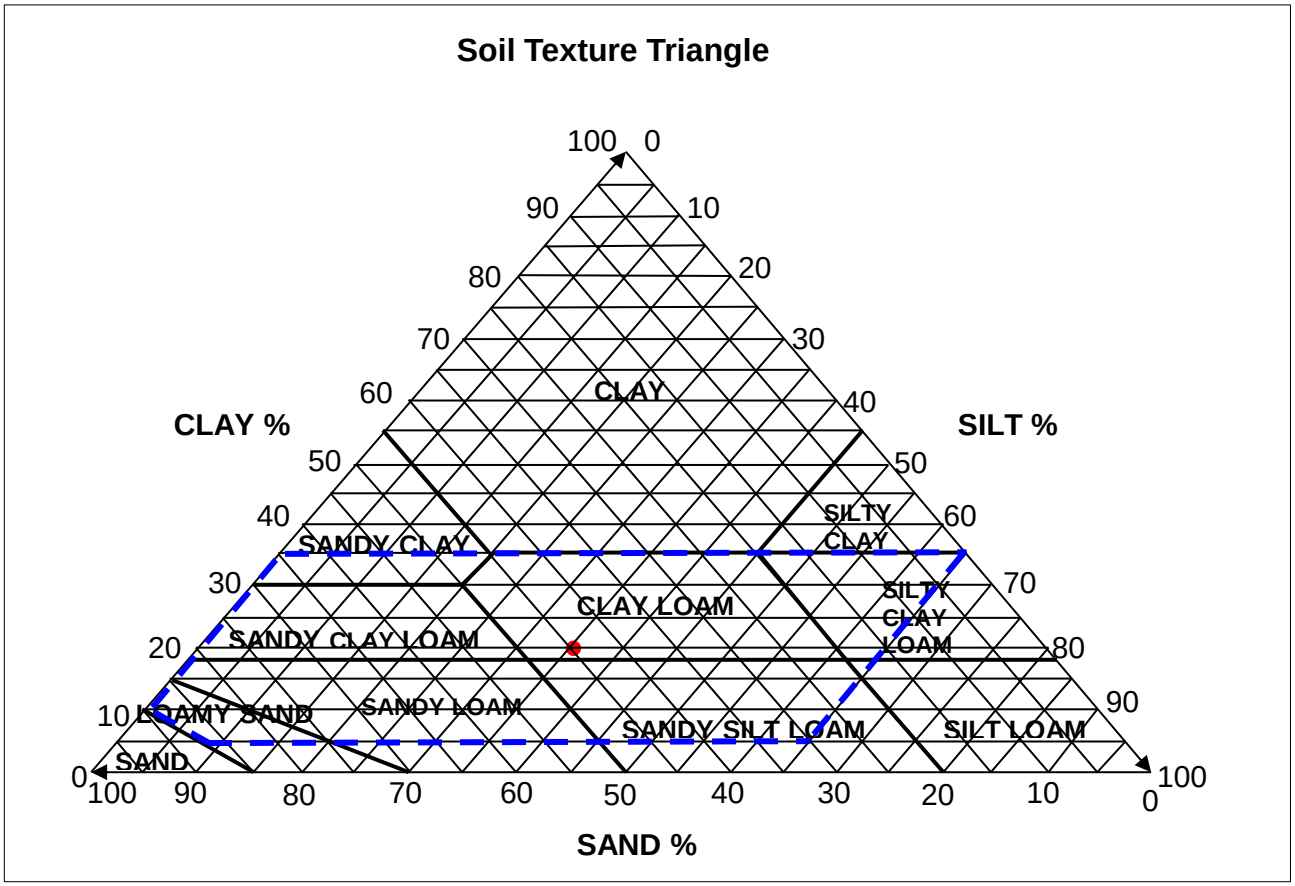
Tested in Accordance with: BS 3882: 2015

Client:	Hydrock Consultants Ltd	Client Reference:	C 13603
Client Address:	2-4 Hawthorne Park, Holdenby Road, Spratton, Northamptonshire, NN6 8LD	Job Number:	20-32308
		Date Sampled:	16/09/2020
		Date Received:	18/09/2020
Contact:	Cameron Adams	Date Tested:	29/03/2020
Site Address:	North-West Bicester Eco Development	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1632012	Depth Top [m]:	0.10
Hole No.:	TP85	Depth Base [m]:	0.30
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	CLAY LOAM		



Sample Proportion	% dry mass
Sand	45.1
Silt	33.9
Clay	21.0

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 06/10/2020

GF 286.7

Cameron Adams
Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e: cameronadams@hydrock.com

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

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

Analytical Report Number : 20-32308

Project / Site name:	North-West Bicester Eco Development	**Samples received on:**	18/09/2020
Your job number:	C 13603	**Samples instructed on/ Analysis started on:**	25/09/2020
Your order number:	PO02101	**Analysis completed by:**	06/10/2020
Report Issue Number:	1	**Report issued on:**	06/10/2020
Samples Analysed:	1 soil sample		

Signed: [redacted]

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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.

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Fail BS 3882		client	
Report No:	**20-32308**			**Hydrock Consultants Ltd**
Location	North-West Bicester Eco Development			
Lab Reference (Sample Number)	1632012			01604842888
Sampling Date	16/09/2020			
Sample ID	TP85			
Depth (m)	**0.10-0.30**			

				Compliant with range (Y/N)					
		unit	**Result**	**Multi-P**	**Acid**	**Calc**	**Low-F**	**Low-F(a)**	**Low-F(c)**
Soil texture	<2mm fraction	%m/m	CLAY LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	21.00	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	9.80						
	Clay 5-20%		-	-	-	-	-	-	-
	Clay 20-35%		Y	Y	Y	Y	Y	Y	Y
Soil pH:		pH	8.00	Y	N	Y	Y	N	Y
Carbonate:		%m/m	13.00	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.22	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	62.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	419.00	Y	Y	Y	-	-	-
	Extractable Magnesium	mg/l	150.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	26.00	N	N	N	Y	Y	N
Conductivity		us/cm	1600.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	75.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	19.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	25.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Fail	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

Analytical Report Number : 20-32308
Project / Site name: North-West Bicester Eco Development

* 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 *
1632012	TP85	None Supplied	0.10-0.30	Brown loam with gravel and vegetation.

Analytical Report Number : 20-32308
Project / Site name: North-West Bicester Eco Development

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
Geotechnical Testing in Soil	See attached geotechnical report	See attached geotechnical report		W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Textural Classification Diagram	Textural classification Diagram	BS3882:2015		D	NONE
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition.	BS3882:2015	L01TS2015	W	NONE
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
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 &	L087-PL	D	NONE
Topsoil	See attached report.	BS 3882: 2015	PL	W	NONE
Mass loss on ignition (Topsoil - BS3882)	Determination of Loss on Ignition as per BS 3882:2015.	BS3882:2015	L047-PL	D	NONE
Carbonate (Topsoil - BS3882)	Determination of Carbonate as per BS 3882:2015.	BS3882:2015	L034-PL	D	NONE
Phosphorus as PO4 (BS3882/BS8601)	Determiation of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2015 & BS8601:2013	L082-PL	D	NONE
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L01TS	D	NONE
Nitrogen (TKN)	Determination of total nitrogen by Kjeldahl method.	BS3882:2007	L087-PL	D	NONE
Conductivity (BS3882/BS8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
pH (BS3882/BS8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
Extractable/Available Metals (BS3882/BS8601)	Determiation of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L028-PL	D	NONE

Analytical Report Number : 20-32308
Project / Site name: North-West Bicester Eco Development

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
Textural Classification (BS3882/BS8601)	Determination of the textural classifcation of soil following BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L01TS	D	NONE

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.

Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

t: 01604842888
f: 01604842666
e:

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

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

Analytical Report Number : 20-43466

Project / Site name:	North-West Bicester Eco Development	**Samples received on:**	25/11/2020
Your job number:	C-13603	**Samples instructed on/ Analysis started on:**	26/11/2020
Your order number:	PO02101	**Analysis completed by:**	01/12/2020
Report Issue Number:	1	**Report issued on:**	01/12/2020
Samples Analysed:	11 soil samples		

Signed: 

Agnieszka Czerwińska
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.

Analytical Report Number: 20-43466
Project / Site name: North-West Bicester Eco Development
Your Order No: PO02101

Lab Sample Number				1695890	1695891	1695892	1695893
Sample Reference				TP81	TP88	TP86	TP83
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	0.10	0.10
Date Sampled				25/11/2020	25/11/2020	25/11/2020	25/11/2020
Time Taken				am	am	am	am
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	69	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	10	30	29
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.5
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	8.2	8.4	8.2	8.4
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.014	0.012	0.021	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.027	0.0091	0.048	0.053
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.46	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.65	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.69	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.43	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.29	< 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	2.52	< 0.80	< 0.80	< 0.80

Analytical Report Number: 20-43466
Project / Site name: North-West Bicester Eco Development
Your Order No: PO02101

Lab Sample Number				1695890	1695891	1695892	1695893
Sample Reference				TP81	TP88	TP86	TP83
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	0.10	0.10
Date Sampled				25/11/2020	25/11/2020	25/11/2020	25/11/2020
Time Taken				am	am	am	am
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	20	8.2	15	17
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.91	0.44	1	1
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	1	3.8	2.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	25	8.1	26	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	8.9	26	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	60	9.2	19	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	46	12	26	25
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	25	11	22	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	48	21	48	47
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	30	88	78

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

Analytical Report Number: 20-43466
Project / Site name: North-West Bicester Eco Development
Your Order No: PO02101

Lab Sample Number				1695894	1695895	1695896	1695897
Sample Reference				TP77	TP60	TP79	TP63
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.50	0.10	0.30
Date Sampled				25/11/2020	25/11/2020	25/11/2020	25/11/2020
Time Taken				am	am	am	am
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	39	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	9.5	24	18
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.5	1.5
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	8.1	8.1	7.5	8.2
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.018	0.015	0.018	0.016
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.039	0.019	0.055	0.028
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80

Analytical Report Number: 20-43466
Project / Site name: North-West Bicester Eco Development
Your Order No: PO02101

Lab Sample Number				1695894	1695895	1695896	1695897
Sample Reference				TP77	TP60	TP79	TP63
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.50	0.10	0.30
Date Sampled				25/11/2020	25/11/2020	25/11/2020	25/11/2020
Time Taken				am	am	am	am
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	9.1	19	19
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.81	0.44	1.1	0.85
Boron (water soluble)	mg/kg	0.2	MCERTS	2.3	1	2.8	1.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	19	13	26	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	13	27	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	7.1	22	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19	12	30	24
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	18	11	28	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	43	40	57	55
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	62	31	97	52

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

Analytical Report Number: 20-43466
Project / Site name: North-West Bicester Eco Development
Your Order No: PO02101

Lab Sample Number				1695898	1695899	1695900
Sample Reference				TP72	TP74	TP80
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	0.20
Date Sampled				25/11/2020	25/11/2020	25/11/2020
Time Taken				am	am	am
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	12	18	26
Total mass of sample received	kg	0.001	NONE	1.5	1.2	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	7.8	7.9	7.4
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.017	0.014	0.017
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.019	0.035	0.043
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.41
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.39
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.19
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.18
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	1.6

Analytical Report Number: 20-43466
Project / Site name: North-West Bicester Eco Development
Your Order No: PO02101

Lab Sample Number				1695898	1695899	1695900
Sample Reference				TP72	TP74	TP80
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	0.20
Date Sampled				25/11/2020	25/11/2020	25/11/2020
Time Taken				am	am	am
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	21	21
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.56	0.96	1.2
Boron (water soluble)	mg/kg	0.2	MCERTS	1	2.6	3.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	13	24	30
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	24	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10	15	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	25	32
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	26	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	62	70
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	62	96

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

Analytical Report Number : 20-43466
Project / Site name: North-West Bicester Eco Development

* 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 *
1695890	TP81	None Supplied	0.4	Brown loam and clay with vegetation and gravel
1695891	TP88	None Supplied	0.4	Brown loam and clay with stones and vegetation.
1695892	TP86	None Supplied	0.1	Brown loam and clay with vegetation and gravel
1695893	TP83	None Supplied	0.1	Brown loam and clay with vegetation and gravel
1695894	TP77	None Supplied	0.1	Brown loam and clay with vegetation and stones.
1695895	TP60	None Supplied	0.5	Brown loam and clay with gravel and vegetation.
1695896	TP79	None Supplied	0.1	Brown loam and clay with vegetation and gravel
1695897	TP63	None Supplied	0.3	Brown loam and clay with vegetation and gravel
1695898	TP72	None Supplied	0.3	Brown loam and clay with vegetation and gravel
1695899	TP74	None Supplied	0.1	Brown loam and clay with vegetation and gravel
1695900	TP80	None Supplied	0.2	Brown loam and clay with vegetation and gravel

Analytical Report Number : 20-43466
Project / Site name: North-West Bicester Eco Development

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
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	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
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
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' 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.

Statistical Analysis

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	Soil Type	MG	MG	MG	MG
							Location & Depth	TP81	TP88	TP88	TP54
								0.4	0.4	0.5	0.2
Arsenic	1	4	8.2	20	0	37		20	8.2	18	17
Beryllium	0.06	4	0.44	1.1	0	73		0.91	0.44	0.94	1.1
Boron	0.2	4	0.8	2.7	0	300		2.7	1	0.9	0.8
Cadmium	0.2	4	0.2	0.2	0	14		0.2	0.2	0.2	0.2
Chromium (III)	1	4	8.1	25	0	890		25	8.1	21	20
Chromium (VI)	1.2	4	1.2	1.2	0	6.1		1.2	1.2	1.2	1.2
Copper	1	4	9.2	60	0	2500		60	9.2	24	22
Lead	2	4	12	66	0	200		46	12	52	66
Mercury, inorganic	0.3	4	0.3	0.3	0	170		0.3	0.3	0.3	0.3
Nickel	2	4	11	25	0	130		25	11	24	20
Selenium	1	4	1	1	0	360		1	1	1	1
Vanadium	1	4	21	55	0	410		48	21	45	55
Zinc	2	4	30	130	0	3900		130	30	97	77
Cyanide (free)	1	4	1	1	0	790		1	1	1	1
Phenol (total)	1	4	1	1	0	290		1	1	1	1
Acenaphthene	0.05	4	0.05	0.05	0	220		0.05	0.05	0.05	0.05
Acenaphthylene	0.05	4	0.05	0.05	0	180		0.05	0.05	0.05	0.05
Anthracene	0.05	4	0.05	0.05	0	2400		0.05	0.05	0.05	0.05
Benz(a)anthracene	0.05	4	0.05	0.43	0	4.2		0.43	0.05	0.05	0.21
Benzo(a)pyrene	0.05	4	0.05	0.19	0	1.5		0.05	0.05	0.05	0.19
Benzo(b)fluoranthene	0.05	4	0.05	0.21	0	7.6		0.05	0.05	0.05	0.21
Benzo(ghi)perylene	0.05	4	0.05	0.05	0	64		0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	4	0.05	0.15	0	12		0.05	0.05	0.05	0.15
Chrysene	0.05	4	0.05	0.29	0	7.7		0.29	0.05	0.05	0.22
Dibenz(a,h)anthracene	0.05	4	0.05	0.05	0	1.1		0.05	0.05	0.05	0.05
Fluoranthene	0.05	4	0.05	0.65	0	290		0.65	0.05	0.05	0.33
Fluorene	0.05	4	0.05	0.05	0	170		0.05	0.05	0.05	0.05
Indeno(1,2,3,cd)pyrene	0.05	4	0.05	0.05	0	4.3		0.05	0.05	0.05	0.05
Naphthalene	0.05	4	0.05	0.05	0	2.2		0.05	0.05	0.05	0.05
Phenanthrene	0.05	4	0.05	0.46	0	97		0.46	0.05	0.05	0.05
Pyrene	0.05	4	0.05	0.69	0	620		0.69	0.05	0.05	0.39
Asbestos identified	Y/N							N	N	N	N
FOC (dimensionless)	0.023775	(mean)						0.027	0.0091	0.028	0.031
SOM (calculated)	4.10%	(mean)						4.65%	1.57%	4.83%	5.34%
pH (su)	8.2	(mean)						8.2	8.4	8.2	7.9

Risk parameter: Human health - residential with plant uptake (1%SOM)
Data set: Made Ground
Client: Firethrorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-31833-1, 20-30257-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	Soil Type	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
									Location & Depth	TP86	TP83	TP77	TP79	TP72	TP74	TP80	TP21	TP06	TP16	TP22	TP23	TP01	TP12	TP13
										0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2
Arsenic	1	35	6.9	23	0	37	18.915582	POTENTIALLY SUITABLE FOR USE		15	17	15	19	11	21	21	16	18	13	16	15	16	13	18
Beryllium	0.06	35	0.56	1.8	0	73	1.4143648	POTENTIALLY SUITABLE FOR USE		1	1	0.81	1.1	0.56	0.96	1.2	1.6	1.6	1.3	1.7	1.4	1.5	1.6	1.6
Boron	0.2	35	0.2	3.8	0	300	1.7544472	POTENTIALLY SUITABLE FOR USE		3.8	2.3	2.3	2.8	1	2.6	3.8	1.2	1.2	1	0.9	2.2	1.3	1	0.6
Cadmium	0.2	35	0.2	0.4	0	14	0.2153771	POTENTIALLY SUITABLE FOR USE		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Chromium (III)	1	35	11	37	0	890	29.009884	POTENTIALLY SUITABLE FOR USE		26	25	19	26	13	24	30	33	37	29	37	29	31	34	37
Chromium (VI)	1.2	35	1.2	1.2	0	6.1	1.2	POTENTIALLY SUITABLE FOR USE		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1	35	9.4	29	0	2500	20.297954	POTENTIALLY SUITABLE FOR USE		19	19	15	22	10	15	23	18	19	17	20	17	19	18	19
Lead	2	35	8.6	79	0	200	30.349009	POTENTIALLY SUITABLE FOR USE		26	25	19	30	15	25	32	28	32	21	30	23	22	26	27
Mercury, inorganic	0.3	35	0.3	0.3	0	170	0.3	POTENTIALLY SUITABLE FOR USE		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel	2	35	9.6	32	0	130	26.084568	POTENTIALLY SUITABLE FOR USE		22	23	18	28	14	26	30	29	28	23	32	24	27	27	31
Selenium	1	35	1	1	0	360	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	35	30	86	0	410	69.307194	POTENTIALLY SUITABLE FOR USE		48	47	43	57	35	62	70	78	81	67	86	68	74	74	86
Zinc	2	35	25	97	0	3900	69.927732	POTENTIALLY SUITABLE FOR USE		88	78	62	97	38	62	96	67	69	53	74	58	61	68	68
Cyanide (free)	1	35	1	1	0	790	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Phenol (total)	2	35	1	1	0	290	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Acenaphthene	0.05	35	0.05	0.05	0	220	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	35	0.05	0.05	0	180	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Anthracene	0.05	35	0.05	0.05	0	2400	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benz(a)anthracene	0.05	35	0.05	0.39	0	4.2	0.0761411	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.39	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(a)pyrene	0.05	35	0.05	0.05	0	1.5	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(b)fluoranthene	0.05	35	0.05	0.18	0	7.6	0.0599951	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.18	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(ghi)perylene	0.05	35	0.05	0.05	0	64	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	35	0.05	0.05	0	12	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Chrysene	0.05	35	0.05	0.19	0	7.7	0.060764	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.19	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dibenz(a,h)anthracene	0.05	35	0.05	0.05	0	1.1	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluoranthene	0.05	35	0.05	0.43	0	290	0.0792166	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.43	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluorene	0.05	35	0.05	0.05	0	170	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Indeno(1,2,3,cd)pyrene	0.05	35	0.05	0.05	0	4.3	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Naphthalene	0.05	35	0.05	0.05	0	2.2	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Phenanthrene	0.05	35	0.05	0.41	0	97	0.0776789	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.41	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Pyrene	0.05	35	0.05	0.05	0	620	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Asbestos identified	Y/N									N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.033771	(mean)								0.048	0.053	0.039	0.055	0.019	0.035	0.043	0.032	0.023	0.017	0.031	0.032	0.024	0.033	0.034
SOM (calculated)	5.82%	(mean)								8.28%	9.14%	6.72%	9.48%	3.28%	6.03%	7.41%	5.52%	3.97%	2.93%	5.34%	5.52%	4.14%	5.69%	5.86%
pH (su)	7.9	(mean)								8.2	8.4	8.1	7.5	7.8	7.9	7.4	8	8.1	8.1	7.8	7.9	7.6	7.9	7.9

Risk parameter: Human health - residential with plant uptake (1%SOM)

Data set: Topsoil

Client: Firethorn Developments

Site: NW Bicester

Job no.: C-13603

Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.

Values in red are equal to, or greater than, the generic assessment criterion (GAC).

MG denotes Made Ground

NAT denotes natural ground

TS denotes Topsoil

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	Soil Type	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
									Location & Depth	TP37	TP45	TP46	TP49	TP48	TP57	TP50	TP43	TP53	TP18	TP24	TP27	TP30	TP31	TP34
										0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Arsenic	1	35	6.9	23	0	37	18.915582	POTENTIALLY SUITABLE FOR USE		23	19	23	18	18	19	19	6.9	19	22	20	19	21	19	18
Beryllium	0.06	35	0.56	1.8	0	73	1.4143648	POTENTIALLY SUITABLE FOR USE		1.6	1.6	1.7	1.3	1.2	1.3	1.5	0.64	1.4	1.6	1.7	1.4	1.4	1.4	1.3
Boron	0.2	35	0.2	3.8	0	300	1.7544472	POTENTIALLY SUITABLE FOR USE		3.3	0.6	0.3	0.3	2.2	2.3	0.6	0.2	2	2.1	1.2	0.8	1	1.2	0.5
Cadmium	0.2	35	0.2	0.4	0	14	0.2153771	POTENTIALLY SUITABLE FOR USE		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2
Chromium (III)	1	35	11	37	0	890	29.009884	POTENTIALLY SUITABLE FOR USE		31	29	31	23	21	25	28	11	24	30	33	24	34	24	24
Chromium (VI)	1.2	35	1.2	1.2	0	6.1	1.2	POTENTIALLY SUITABLE FOR USE		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1	35	9.4	29	0	2500	20.297954	POTENTIALLY SUITABLE FOR USE		25	21	29	21	20	21	22	9.4	18	19	16	19	21	21	19
Lead	2	35	8.6	79	0	200	30.349009	POTENTIALLY SUITABLE FOR USE		31	22	30	20	22	23	24	8.6	24	28	14	21	64	20	79
Mercury, inorganic	0.3	35	0.3	0.3	0	170	0.3	POTENTIALLY SUITABLE FOR USE		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel	2	35	9.6	32	0	130	26.084568	POTENTIALLY SUITABLE FOR USE		26	25	27	21	19	22	24	9.6	23	27	31	25	29	23	22
Selenium	1	35	1	1	0	360	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	35	30	86	0	410	69.307194	POTENTIALLY SUITABLE FOR USE		80	70	77	63	59	61	66	30	58	76	67	69	78	69	65
Zinc	2	35	25	97	0	3900	69.927732	POTENTIALLY SUITABLE FOR USE		69	56	77	56	52	61	64	25	66	61	51	57	80	60	53
Cyanide (free)	1	35	1	1	0	790	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Phenol (total)	2	35	1	1	0	290	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Acenaphthene	0.05	35	0.05	0.05	0	220	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	35	0.05	0.05	0	180	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Anthracene	0.05	35	0.05	0.05	0	2400	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benz(a)anthracene	0.05	35	0.05	0.39	0	4.2	0.0761411	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(a)pyrene	0.05	35	0.05	0.05	0	1.5	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(b)fluoranthene	0.05	35	0.05	0.18	0	7.6	0.0599951	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(ghi)perylene	0.05	35	0.05	0.05	0	64	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	35	0.05	0.05	0	12	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Chrysene	0.05	35	0.05	0.19	0	7.7	0.060764	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dibenz(a,h)anthracene	0.05	35	0.05	0.05	0	1.1	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluoranthene	0.05	35	0.05	0.43	0	290	0.0792166	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluorene	0.05	35	0.05	0.05	0	170	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Indeno(1,2,3,cd)pyrene	0.05	35	0.05	0.05	0	4.3	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Naphthalene	0.05	35	0.05	0.05	0	2.2	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Phenanthrene	0.05	35	0.05	0.41	0	97	0.0776789	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Pyrene	0.05	35	0.05	0.05	0	620	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Asbestos identified	Y/N									N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.033771	**(mean)**								0.04	0.024	0.041	0.036	0.033	0.036	0.042	0.033	0.038	0.026	0.012	0.029	0.044	0.035	0.025
SOM (calculated)	5.82%	**(mean)**								6.90%	4.14%	7.07%	6.21%	5.69%	6.21%	7.24%	5.69%	6.55%	4.48%	2.07%	5.00%	7.59%	6.03%	4.31%
pH (su)	7.9	**(mean)**								7.8	8.1	9	8.1	8	7.7	7.6	7.8	7.7	7.9	7.9	7.8	7.6	7.7	7.9

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Topsoil
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	Soil Type	TS	TS	TS	TS	TS
									Location & Depth	TP39	TP41	TP87	TP71	TP65
										0.2	0.1	0.1	0.2	0.2
Arsenic	1	35	6.9	23	0	37	18.915582	POTENTIALLY SUITABLE FOR USE		18	22	21	19	20
Beryllium	0.06	35	0.56	1.8	0	73	1.4143648	POTENTIALLY SUITABLE FOR USE		1.6	1.8	0.99	1	0.96
Boron	0.2	35	0.2	3.8	0	300	1.7544472	POTENTIALLY SUITABLE FOR USE		1	0.7	1.5	0.8	1.1
Cadmium	0.2	35	0.2	0.4	0	14	0.2153771	POTENTIALLY SUITABLE FOR USE		0.2	0.2	0.2	0.2	0.2
Chromium (III)	1	35	11	37	0	890	29.009884	POTENTIALLY SUITABLE FOR USE		30	32	24	23	24
Chromium (VI)	1.2	35	1.2	1.2	0	6.1	1.2	POTENTIALLY SUITABLE FOR USE		1.2	1.2	1.2	1.2	1.2
Copper	1	35	9.4	29	0	2500	20.297954	POTENTIALLY SUITABLE FOR USE		24	26	17	20	12
Lead	2	35	8.6	79	0	200	30.349009	POTENTIALLY SUITABLE FOR USE		17	25	32	30	21
Mercury, inorganic	0.3	35	0.3	0.3	0	170	0.3	POTENTIALLY SUITABLE FOR USE		0.3	0.3	0.3	0.3	0.3
Nickel	2	35	9.6	32	0	130	26.084568	POTENTIALLY SUITABLE FOR USE		27	28	26	25	25
Selenium	1	35	1	1	0	360	1			1	1	1	1	1
Vanadium	1	35	30	86	0	410	69.307194	POTENTIALLY SUITABLE FOR USE		73	82	58	54	60
Zinc	2	35	25	97	0	3900	69.927732	POTENTIALLY SUITABLE FOR USE		75	77	79	87	53
Cyanide (free)	1	35	1	1	0	790	1			1	1	1	1	1
Phenol (total)	2	35	1	1	0	290	1			1	1	1	1	1
Acenaphthene	0.05	35	0.05	0.05	0	220	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	35	0.05	0.05	0	180	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Anthracene	0.05	35	0.05	0.05	0	2400	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Benz(a)anthracene	0.05	35	0.05	0.39	0	4.2	0.0761411	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Benzo(a)pyrene	0.05	35	0.05	0.05	0	1.5	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Benzo(b)fluoranthene	0.05	35	0.05	0.18	0	7.6	0.0599951	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Benzo(ghi)perylene	0.05	35	0.05	0.05	0	64	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	35	0.05	0.05	0	12	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Chrysene	0.05	35	0.05	0.19	0	7.7	0.060764	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Dibenz(a,h)anthracene	0.05	35	0.05	0.05	0	1.1	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Fluoranthene	0.05	35	0.05	0.43	0	290	0.0792166	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Fluorene	0.05	35	0.05	0.05	0	170	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Indeno(1,2,3,cd)pyrene	0.05	35	0.05	0.05	0	4.3	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Naphthalene	0.05	35	0.05	0.05	0	2.2	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Phenanthrene	0.05	35	0.05	0.41	0	97	0.0776789	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Pyrene	0.05	35	0.05	0.05	0	620	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05
Asbestos identified	Y/N									N	N	N	N	N
FOC (dimensionless)	0.033771	**(mean)**								0.022	0.029	0.042	0.046	0.031
SOM (calculated)	5.82%	**(mean)**								3.79%	5.00%	7.24%	7.93%	5.34%
pH (su)	7.9	**(mean)**								7.8	7.7	8	7.8	8.1

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Topsoil
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
									Location & Depth	TP60	TP63	TP82	TP38	TP56	TP44	TP25	TP32	TP33	TP35	TP17	TP11
										0.5	0.3	0.7	0.5	0.4	0.6	0.3	0.3	0.3	0.3	0.3	0.3
Arsenic	1	12	4.7	26	0	37	19.466837	POTENTIALLY SUITABLE FOR USE		9.1	19	16	11	4.7	15	20	20	26	24	16	15
Beryllium	0.06	12	0.44	1.8	0	73	1.4027269	POTENTIALLY SUITABLE FOR USE		0.44	0.85	0.69	0.88	0.46	1.4	1.4	1.5	1.5	1.8	1.4	1.6
Boron	0.2	12	0.3	1.8	0	300	1.2771508	POTENTIALLY SUITABLE FOR USE		1	1.5	0.3	0.5	0.6	0.6	1.8	0.7	0.8	1.5	1.3	1.6
Cadmium	0.2	12	0.2	0.2	0	14	0.2	POTENTIALLY SUITABLE FOR USE		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Chromium (III)	1	12	6.1	34	0	890	27.187812	POTENTIALLY SUITABLE FOR USE		13	21	18	14	6.1	26	27	26	25	33	30	34
Chromium (VI)	1.2	12	1.2	1.2	0	6.1	1.2	POTENTIALLY SUITABLE FOR USE		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1	12	7.1	25	0	2500	17.839409	POTENTIALLY SUITABLE FOR USE		7.1	13	9.3	13	7.6	11	19	20	20	25	16	18
Lead	2	12	3	30	0	200	23.03653	POTENTIALLY SUITABLE FOR USE		12	24	11	7.5	3	13	23	25	20	30	24	29
Mercury, inorganic	0.3	12	0.3	0.3	0	170	0.3	POTENTIALLY SUITABLE FOR USE		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel	2	12	6.2	30	0	130	24.815462	POTENTIALLY SUITABLE FOR USE		11	22	19	14	6.2	24	25	27	26	30	24	25
Selenium	1	12	1	1	0	360	1			1	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	12	27	87	0	410	68.747538	POTENTIALLY SUITABLE FOR USE		40	55	39	48	27	57	70	73	72	87	74	71
Zinc	2	12	16	78	0	3900	60.471765	POTENTIALLY SUITABLE FOR USE		31	52	39	29	16	71	59	58	58	78	52	67
Cyanide (free)	1	12	1	1	0	790	1			1	1	1	1	1	1	1	1	1	1	1	1
Phenol (total)	1	12	1	1	0	290	1			1	1	1	1	1	1	1	1	1	1	1	1
Acenaphthene	0.05	12	0.05	0.05	0	220	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	12	0.05	0.05	0	180	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Anthracene	0.05	12	0.05	0.05	0	2400	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benz(a)anthracene	0.05	12	0.05	0.05	0	4.2	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(a)pyrene	0.05	12	0.05	0.05	0	1.5	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(b)fluoranthene	0.05	12	0.05	0.05	0	7.6	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(ghi)perylene	0.05	12	0.05	0.05	0	64	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	12	0.05	0.05	0	12	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Chrysene	0.05	12	0.05	0.05	0	7.7	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dibenz(a,h)anthracene	0.05	12	0.05	0.05	0	1.1	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluoranthene	0.05	12	0.05	0.05	0	290	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluorene	0.05	12	0.05	0.05	0	170	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Indeno(1,2,3,cd)pyrene	0.05	12	0.05	0.05	0	4.3	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Naphthalene	0.05	12	0.05	0.05	0	2.2	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Phenanthrene	0.05	12	0.05	0.05	0	97	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Pyrene	0.05	12	0.05	0.05	0	620	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Asbestos identified	Y/N									N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.020833	**(mean)**								0.019	0.028	0.0086	0.013	0.0074	0.011	0.029	0.023	0.027	0.037	0.017	0.03
SOM (calculated)	3.59%	**(mean)**								3.28%	4.83%	1.48%	2.24%	1.28%	1.90%	5.00%	3.97%	4.65%	6.38%	2.93%	5.17%
pH (su)	8.0	**(mean)**								8.1	8.2	8.6	8.2	8.1	8.1	7.7	7.9	7.8	7.8	8.1	7.8

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Natural soils
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	MG	MG	MG	MG								
	All values in mg/kg unless otherwise stated					Location & Depth	TP81	TP88	TP88	TP54								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.4**	**0.4**	**0.5**	**0.2**								
Arsenic	1	4	8.2	20	0	250	20	8.2	18	17								
Boron	0.2	4	0.8	2.7	0	3	2.7	1	0.9	0.8								
Chromium (III)	1	4	8.1	25	0	400	25	8.1	21	20								
Chromium (VI)	1.2	4	1.2	1.2	0	25	1.2	1.2	1.2	1.2								
Copper	1	4	9.2	60	0	135	60	9.2	24	22								
Nickel	2	4	11	25	0	75	25	11	24	20								
Zinc	2	4	30	130	0	300	130	30	97	77								
	Mean																	
pH (su)	8.2						8.2	8.4	8.2	7.9								

Risk parameter: **Plant life pH 7**
Data set: Made Ground
Client: Firethrorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-31833-1, 20-30257-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	Soil Type	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
									Location & Depth	TP86	TP83	TP77	TP79	TP72	TP74	TP80	TP21	TP06	TP16	TP22	TP23	TP01	TP12	TP13
										0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2
Arsenic	1	35	6.9	23	0	250	18.91558	POTENTIALLY SUITABLE FOR USE		15	17	15	19	11	21	21	16	18	13	16	15	16	13	18
Boron	0.2	35	0.2	3.8	3	3	1.754447	POTENTIALLY SUITABLE FOR USE		3.8	2.3	2.3	2.8	1	2.6	3.8	1.2	1.2	1	0.9	2.2	1.3	1	0.6
Chromium (III)	1	35	11	37	0	400	29.00988	POTENTIALLY SUITABLE FOR USE		26	25	19	26	13	24	30	33	37	29	37	29	31	34	37
Chromium (VI)	1.2	35	1.2	1.2	0	25	1.2	POTENTIALLY SUITABLE FOR USE		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1	35	9.4	29	0	135	20.29795	POTENTIALLY SUITABLE FOR USE		19	19	15	22	10	15	23	18	19	17	20	17	19	18	19
Nickel	2	35	9.6	32	0	75	26.08457	POTENTIALLY SUITABLE FOR USE		22	23	18	28	14	26	30	29	28	23	32	24	27	27	31
Zinc	2	35	25	97	0	300	69.92773	POTENTIALLY SUITABLE FOR USE		88	78	62	97	38	62	96	67	69	53	74	58	61	68	68
	Mean																							
pH (su)	7.9									8.2	8.4	8.1	7.5	7.8	7.9	7.4	8	8.1	8.1	7.8	7.9	7.6	7.9	7.9

Risk parameter: Plant life pH 7
Data set: Topsoil
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground
TS denotes Topsoil

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

All values in mg/kg unless otherwise stated								Soil Type	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
								Location & Depth	TP37	TP45	TP46	TP49	TP48	TP57	TP50	TP43	TP53	TP18	TP24	TP27	TP30	TP31	TP34	TP39
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**US_{95}**	**Result of Significance Test**	**0.2**	**0.1**	**0.2**	**0.1**	**0.2**	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.1**	**0.2**
Arsenic	1	35	6.9	23	0	250	18.91558	POTENTIALLY SUITABLE FOR USE	23	19	23	18	18	19	19	6.9	19	22	20	19	21	19	18	18
Boron	0.2	35	0.2	3.8	3	3	1.754447	POTENTIALLY SUITABLE FOR USE	3.3	0.6	0.3	0.3	2.2	2.3	0.6	0.2	2	2.1	1.2	0.8	1	1.2	0.5	1
Chromium (III)	1	35	11	37	0	400	29.00988	POTENTIALLY SUITABLE FOR USE	31	29	31	23	21	25	28	11	24	30	33	24	34	24	24	30
Chromium (VI)	1.2	35	1.2	1.2	0	25	1.2	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1	35	9.4	29	0	135	20.29795	POTENTIALLY SUITABLE FOR USE	25	21	29	21	20	21	22	9.4	18	19	16	19	21	21	19	24
Nickel	2	35	9.6	32	0	75	26.08457	POTENTIALLY SUITABLE FOR USE	26	25	27	21	19	22	24	9.6	23	27	31	25	29	23	22	27
Zinc	2	35	25	97	0	300	69.92773	POTENTIALLY SUITABLE FOR USE	69	56	77	56	52	61	64	25	66	61	51	57	80	60	53	75
	Mean																							
pH (su)	7.9								7.8	8.1	9	8.1	8	7.7	7.6	7.8	7.7	7.9	7.9	7.8	7.6	7.7	7.9	7.8

Risk parameter: **Plant life pH 7**
Data set: Topsoil
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

All values in mg/kg unless otherwise stated								Soil Type	TS	TS	TS	TS
								Location & Depth	TP41	TP87	TP71	TP65
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**US_{95}**	**Result of Significance Test**	**0.1**	**0.1**	**0.2**	**0.2**
Arsenic	1	35	6.9	23	0	250	18.91558	POTENTIALLY SUITABLE FOR USE	22	21	19	20
Boron	0.2	35	0.2	3.8	3	3	1.754447	POTENTIALLY SUITABLE FOR USE	0.7	1.5	0.8	1.1
Chromium (III)	1	35	11	37	0	400	29.00988	POTENTIALLY SUITABLE FOR USE	32	24	23	24
Chromium (VI)	1.2	35	1.2	1.2	0	25	1.2	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2
Copper	1	35	9.4	29	0	135	20.29795	POTENTIALLY SUITABLE FOR USE	26	17	20	12
Nickel	2	35	9.6	32	0	75	26.08457	POTENTIALLY SUITABLE FOR USE	28	26	25	25
Zinc	2	35	25	97	0	300	69.92773	POTENTIALLY SUITABLE FOR USE	77	79	87	53
	Mean											
pH (su)	7.9								7.7	8	7.8	8.1

Risk parameter: **Plant life pH 7**
Data set: Topsoil
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
									Location & Depth	TP60	TP63	TP82	TP38	TP56	TP44	TP25	TP32	TP33	TP35	TP17	TP11
										0.5	0.3	0.7	0.5	0.4	0.6	0.3	0.3	0.3	0.3	0.3	0.3
Arsenic	1	12	4.7	26	0	250	19.46684	POTENTIALLY SUITABLE FOR USE		9.1	19	16	11	4.7	15	20	20	26	24	16	15
Boron	0.2	12	0.3	1.8	0	3	1.277151	POTENTIALLY SUITABLE FOR USE		1	1.5	0.3	0.5	0.6	0.6	1.8	0.7	0.8	1.5	1.3	1.6
Chromium (III)	1	12	6.1	34	0	400	27.18781	POTENTIALLY SUITABLE FOR USE		13	21	18	14	6.1	26	27	26	25	33	30	34
Chromium (VI)	1.2	12	1.2	1.2	0	25	1.2	POTENTIALLY SUITABLE FOR USE		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1	12	7.1	25	0	135	17.83941	POTENTIALLY SUITABLE FOR USE		7.1	13	9.3	13	7.6	11	19	20	20	25	16	18
Nickel	2	12	6.2	30	0	75	24.81546	POTENTIALLY SUITABLE FOR USE		11	22	19	14	6.2	24	25	27	26	30	24	25
Zinc	2	12	16	78	0	300	60.47177	POTENTIALLY SUITABLE FOR USE		31	52	39	29	16	71	59	58	58	78	52	67
	Mean																				
pH (su)	8.0									8.1	8.2	8.6	8.2	8.1	8.1	7.7	7.9	7.8	7.8	8.1	7.8

Risk parameter: Plant life pH 7
Data set: Natural soils
Client: Firethorn Developments
Site: NW Bicester
Job no.: C-13603
Lab. report no(s).: 20-43466-1, 20-29332-2, 20-30257-1, 20-31833-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground