

Appendix V CBR by Plate Test

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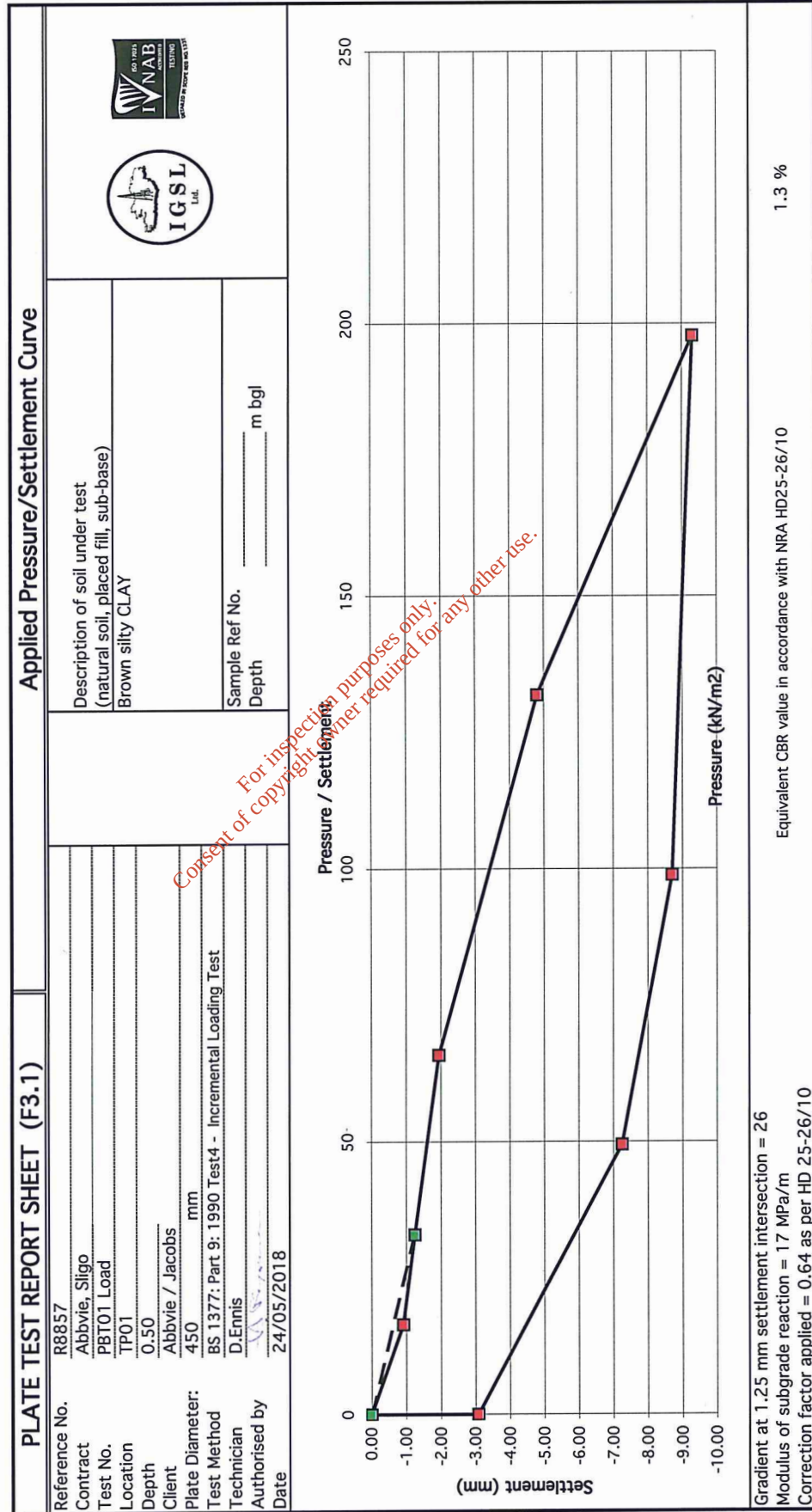
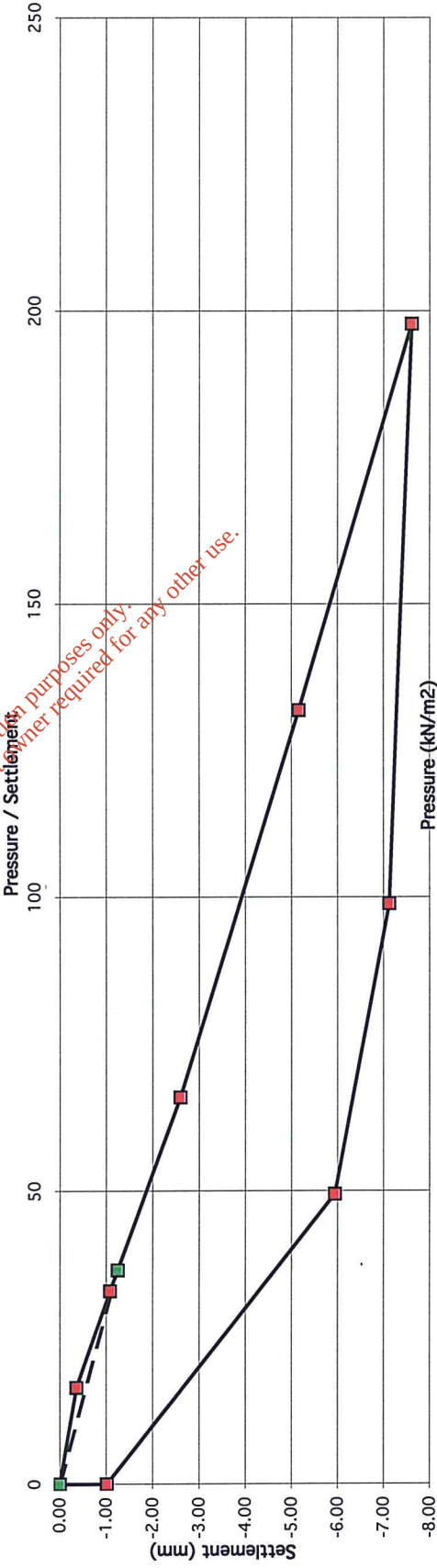


PLATE TEST REPORT SHEET (F3.1)		Applied Pressure/Settlement Curve	
Reference No. R8857	Contract Abbvie, Sligo	Description of soil under test (natural soil, placed fill, sub-base) Brown silty CLAY	 
Test No. PBT01 Reload	Location TP01	Sample Ref No. Depth m bgl	
Depth 0.50	Client Abbvie / Jacobs		
Plate Diameter: 450 mm	Test Method BS 1377: Part 9: 1990 Test4 - Incremental Loading Test	 Pressure / Settlement Settlement (mm) Pressure (kN/m²)	
Technician D. Ennis	Authorised by		
Date 24/05/2018			
Gradient at 1.25 mm settlement intersection = 29 Modulus of subgrade reaction = 19 MPa/m Correction factor applied = 0.64 as per HD 25-26/10		Equivalent CBR value in accordance with NRA HD25-26/10 1.6 %	

Appendix VI Laboratory Results

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IGSL Ltd Materials Laboratory Unit J5, M7 Business Park Newhall, Naas Co. Kildare 045 846176		Test Report															
Determination of Moisture Content, Liquid & Plastic Limits		Tested in accordance with BS1377:Part 2:1990, clauses 3.2*, 4.3, 4.4 & 5.3															
Report No.	R90764	Contract No.	20974	Contract Name:	Abbvie , Sligo												
Customer	Jacobs																
Samples Received:	25/06/18	Date Tested:	05/07/18														
BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS9930)	Description				
TP01	AA81371	0.4	A18/5681	B	33	50	29	21	93	WS	4.4	M I	Mottled brown slightly sandy gravelly SILT with root hairs				
TP01	AA81372	1.2	A18/5682	B	29	45	28	17	46	WS	4.4	M I	Orange slightly sandy, gravelly, SILT				
TP02	AA81381	1.0	A18/5684	B	36	43	25	18	79	WS	4.4	C I	Mottled brown slightly sandy, gravelly, CLAY				
TP02	AA81382	1.8	A18/5685	B	43	57	29	28	90	WS	4.4	C H	Mottled brown slightly sandy, slightly gravelly, CLAY				
TP03	AA81375	0.8	A18/5686	B	47	45	23	18	72	WS	4.4	M I	Mottled grey/brown/orange slightly gravelly CLAY				
TP03	AA81376	1.6	A18/5687	B	34	37	23	14	95	WS	4.4	C I	Brown slightly sandy, gravelly, CLAY				
TP03	AA81376	1.9	A18/5688	B	17	29	20	9	51	WS	4.4	C L	Brown slightly sandy, gravelly, CLAY				
BH01	AA96081	2.0	A18/5689	B	12	26	21	5	19	WS	4.4	M L	Brownery sandy very gravelly CLAY				
BH01	AA96082	3.5	A18/5690	B	7.3	20	NP	NP	27	WS	4.4		Brown silty, sandy, GRAVEL with many cobbles				
BH02	AA96076	2.0	A18/5691	B	10	40	25	15	33	WS	4.4	C I	Brown sandy gravelly CLAY				
BH02	AA96078	4.0	A18/5692	B	7.3	22	17	5	25	WS	4.4	M L	Brown silty, sandy, GRAVEL with many cobbles				
BH03	AA96072	3.0	A18/5693	B	7.2	28	NP	NP	6.4	WS	4.4		Brown sandy slightly clayey GRAVEL				
BH04	AA91005	2.0	A18/5694	B	19	29	19	10	44	WS	4.4	C L	Grey/brown very sandy gravelly CLAY				
Notes: Preparation: WS - Wet sieved AR - As received NP - Non plastic Liquid Limit 4.3 Cone Penetrometer definitive method Clause: 4.4 Cone Penetrometer one point method																	
Remarks: NOTE: *Clause 3.2 of BS1377 is a "withdrawn" standard due to publication of ISO17892-1:2014 Opinions and interpretations are outside the scope of accreditation. The results relate to the specimens tested. Any remaining material will be retained for one month.																	
IGSL Ltd Materials Laboratory										Persons authorized to approve reports		Approved by		Date		Page	
										H Byrne (Laboratory Manager)		19/7/18		1 of 1			

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



Contract No:	20974	Report No.	R91282
Contract:	AbbVie, Sligo		
BH/TP:	TP01		
Sample No.	AA81372	Lab. Sample No.	A18/5682
Sample Type:	B		
Depth (m)	1.20	Customer:	Jacobs
Date Received	25/06/2018	Date Testing started	05/07/2018
Description:	Orange slightly sandy, gravelly, SILT		
Remarks	ISO 17025 UKAS 1351 TESTING REGISTERED IN SCOTLAND NO. 1351		

particle size	% passing	COBBLES	GRAVEL	SAND	SILT/CLAY
75	100				
63	100				
50	100				
37.5	98				
28	98				
20	90				
14	83				
10	78				
6.3	71				
5	68				
3.35	62				
2	55				
1.18	50				
0.6	44				
0.425	42				
0.3	39				
0.15	35				
0.063	30				
0.037	27				
0.026	24				
0.017	19				
0.010	15				
0.007	14				
0.005	11				
0.002	7				

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TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



Contract No:	20974	Report No.	R91389
Contract:	AbbVie , Sligo		
BH/TP :	TP02		
Sample No.	AA81382	Lab. Sample No.	A18/5685
Sample Type:	B		
Depth (m)	1.80	Customer:	Jacobs
Date Received	25/06/2018	Date Testing started	05/07/2018
Description:	Mottled brown slightly sandy, slightly gravelly, CLAY		
Remarks	Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 For inspection purposes only. Consent of copyright owner required for any other use.		

particle size	% passing	COBBLES	GRAVEL	SAND	SILT/CLAY
75	100				
63	100				
50	100				
37.5	97				
28	97				
20	97				
14	96				
10	95				
6.3	94				
5	93				
3.35	92				
2	91				
1.18	88				
0.6	81				
0.425	78				
0.3	74				
0.15	67				
0.063	59				
0.037	51				
0.027	46				
0.017	40				
0.010	33				
0.007	29				
0.005	25				
0.002	16				

IGSL Ltd Materials Laboratory		Approved by:	Date:	Page no:
		<i>H Byrne</i>	20/07/18	1 of 1
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)				

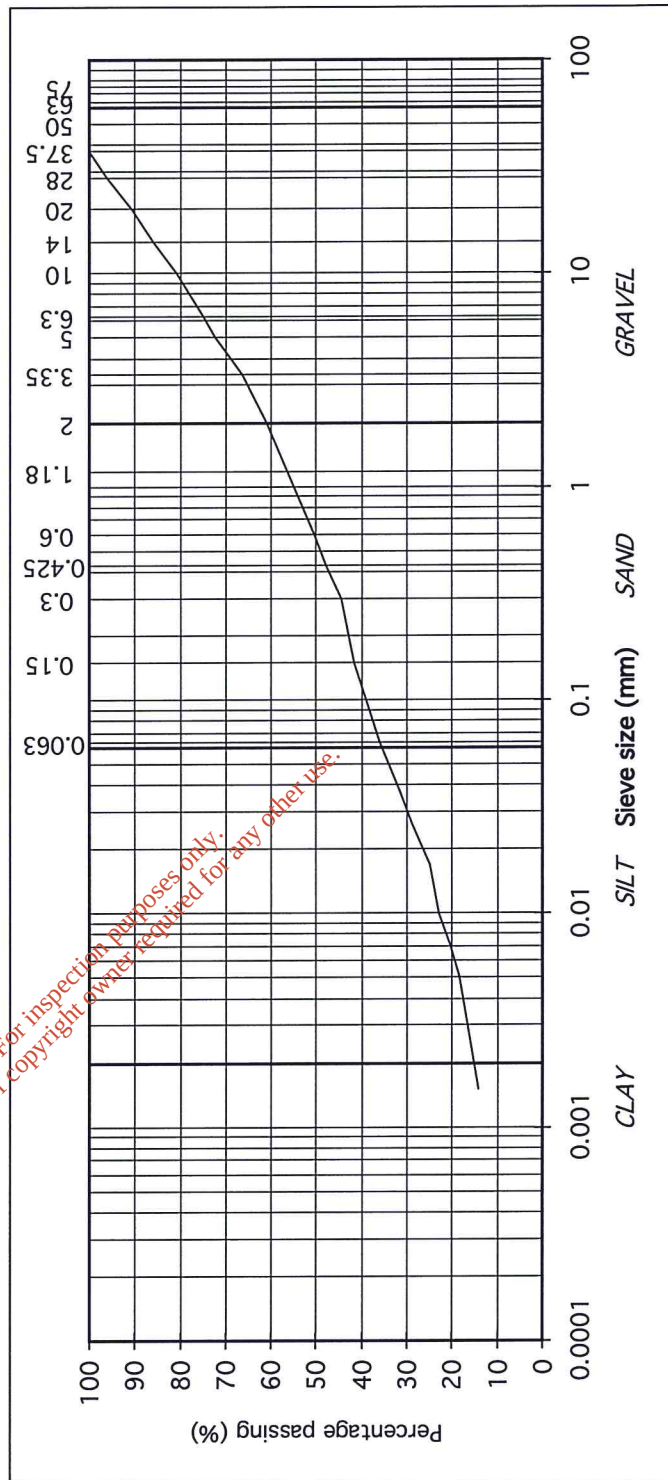
TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



particle size	% passing	Contract No: 20974	Report No. R92183
75	100	Contract: AbbVie , Sligo	
63	100	BH/TP : TP03	
50	100	Sample No. AA81376	Lab. Sample No. A18/5687
37.5	100	Sample Type: B	
28	96	Depth (m) 1.60	Customer: Jacobs
20	91	Date Received 25/06/2018	Date Testing started 04/07/2018
14	86	Description: Brown slightly sandy, gravelly, CLAY	
10	81	Remarks	
6.3	75		
5	72		
3.35	66		
2	61		
1.18	56		
0.6	50		
0.425	48		
0.3	45		
0.15	42		
0.063	36		
0.037	31		
0.027	29		
0.017	25		
0.010	23		
0.007	20		
0.005	18		
0.002	14		



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)				

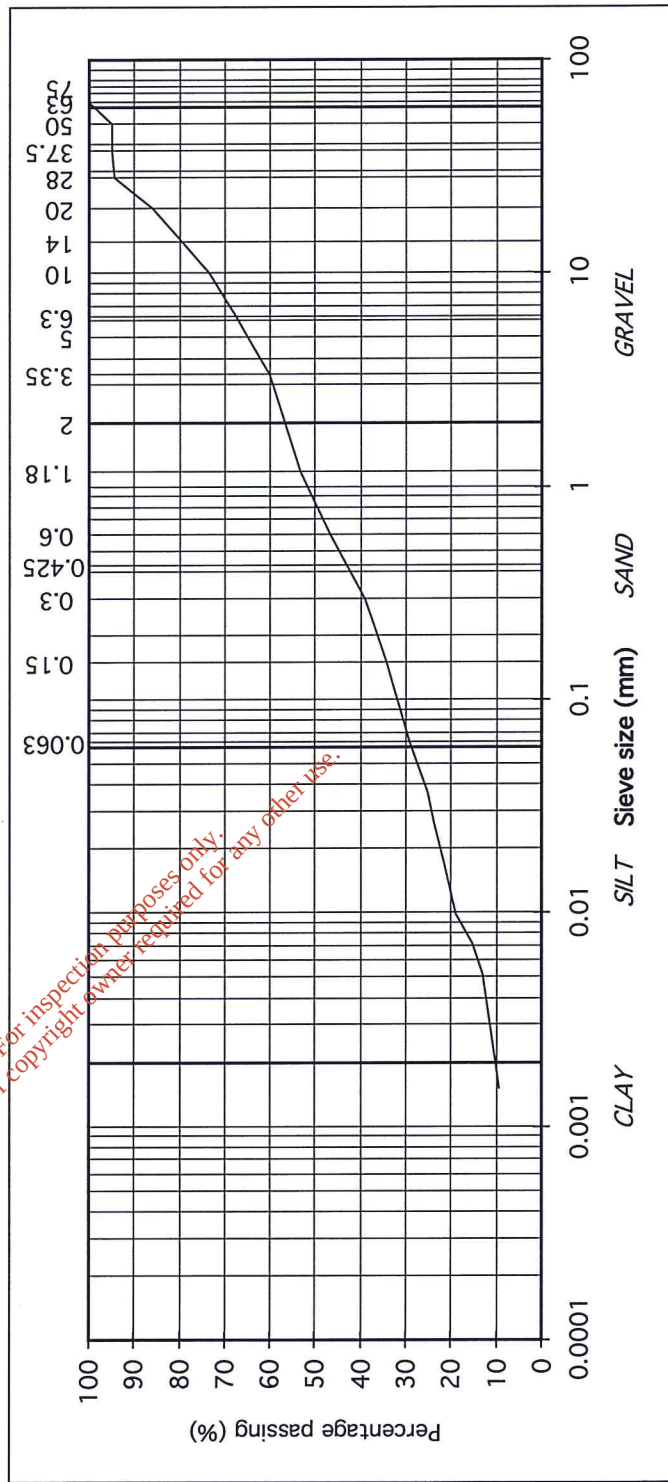
TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



particle size	% passing	Contract No: 20974	Report No. R91284
75	100	Contract: AbbVie , Sligo	
63	100	BH/TP : TP03	
50	95	Sample No. AA81376	Lab. Sample No. A18/5688
37.5	95	Sample Type: B	
28	94	Depth (m) 1.90	Customer: Jacobs
20	86	Date Received 25/06/2018	Date Testing started 04/07/2018
14	79	Description: Brown slightly sandy, gravelly, CLAY	
10	73	Remarks	
6.3	67		
5	65		
3.35	60		
2	57		
1.18	53		
0.6	47		
0.425	43		
0.3	39		
0.15	34		
0.063	29		
0.037	25		
0.026	24		
0.017	21		
0.010	19		
0.007	15		
0.005	13		
0.002	9		



IGSL Ltd Materials Laboratory		Approved by: <i>H Barrett</i>	Date: 19/07/18	Page no: 1 of 1
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)				

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



Contract No:	20974	Report No.	R91390
Contract:	AbbVie, Sligo		
BH/TP:	BH01		
Sample No.	AA96082	Lab. Sample No.	A18/5690
Sample Type:	B		
Depth (m)	3.50	Customer:	Jacobs
Date Received	25/06/2018	Date Testing started	05/07/2018
Description:	Brown silty, sandy, GRAVEL with many cobbles		
Remarks	Consent of Copyright owner required for any other use. For inspection purposes only. Sample size did not meet the requirements of BS1377 Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016		

particle size	% passing	COBBLES	GRAVEL	SAND	SILT/CLAY
75	71				
63	71				
50	61				
37.5	56				
28	52				
20	44				
14	40				
10	36				
6.3	31				
5	30				
3.35	28				
2	26				
1.18	24				
0.6	20				
0.425	19				
0.3	17				
0.15	14				
0.063	10				

IGSL Ltd Materials Laboratory		Approved by:	Date:	Page no:
		<i>H Barrett</i>	20/07/18	1 of 1
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)				

ISO 17025
INAB
ALCANTARA
TESTING

DETAILED IN SCOPE REF. NO. 1331

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

(note: Sedimentation stage not accredited)

particle size	% passing	Contract No:	Report No.
75	86	20974	R91546
63	77	AbbVie , Sligo	
50	68	BH02	
37.5	52	AA96072	A18/5692
28	47	Lab. Sample No.	
20	40	Sample Type:	
14	36	Depth (m)	4.00
10	33	Date Received	25/06/2018
6.3	29	Description:	Brown silty, sandy, GRAVEL with many cobbles
5	27	Customer:	Jacobs
3.35	24	Date Testing started	04/07/2018
2	21		
1.18	18		
0.6	15		
0.425	13		
0.3	12		
0.15	10		
0.063	8		

COBBLES

GRAVEL

SAND

SILT/CLAY

Contract No:

Contract:

BH/TP :

Sample No.

Sample Type:

Depth (m)

Date Received

Description:

Report No.

AbbVie , Sligo

BH02

AA96072

Lab. Sample No.

4.00

25/06/2018

Brown silty, sandy, GRAVEL with many cobbles

Customer:

Date Testing started

Jacobs

04/07/2018

Remarks

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

70

60

50

40

30

20

10

0

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

SILT

SAND

GRAVEL

100

90

80

IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	19/07/18	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)



Contract No:	20974	Report No.	R92185
Contract:	AbbVie , Sligo		
BH/TP :	BH04		
Sample No.	AA91007	Lab. Sample No.	A18/5695
Sample Type:	B		
Depth (m)	4.00	Customer:	Jacobs
Date Received	25/06/2018	Date Testing started	05/07/2018
Description:	Brown slightly clayey/silty, very sandy, GRAVEL		
Remarks	Refer: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO1892-4:2016 Consent of copyright owner required for any other use.		

particle size	% passing	COBBLES	GRAVEL	SAND	SILT/CLAY
75	100				
63	100				
50	98				
37.5	91				
28	85				
20	75				
14	71				
10	64				
6.3	51				
5	46				
3.35	35				
2	25				
1.18	17				
0.6	10				
0.425	8				
0.3	7				
0.15	6				
0.063	5				

IGSL Ltd Materials Laboratory		Approved by:	Date:	Page no:
		<i>H Byrne</i>	19/07/18	1 of 1
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)				

IGSL Ltd Materials Laboratory Unit J5,M7 Business Park Naas Co. Kildare 045 899324	<table border="1"> <tr> <td colspan="2" style="text-align: center;">Test Report</td> </tr> <tr> <td colspan="2" style="text-align: center;">Determination of Moisture Condition Value at Natural Moisture Content</td> </tr> <tr> <td colspan="2" style="text-align: center;">Tested in accordance with BS1377:Part 4:1990, clause 5.4</td> </tr> </table>		Test Report		Determination of Moisture Condition Value at Natural Moisture Content		Tested in accordance with BS1377:Part 4:1990, clause 5.4																																		
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<table border="0"> <tr> <td>Report No.</td> <td>R91547</td> </tr> <tr> <td>Contract No.</td> <td>20974</td> </tr> <tr> <td>Contract Name:</td> <td>Abbvie , Sligo</td> </tr> <tr> <td>Customer:</td> <td>Jacobs</td> </tr> <tr> <td>BH/TP</td> <td>TP01</td> </tr> <tr> <td>Sample No.</td> <td>AA81371</td> </tr> <tr> <td>Depth (m)</td> <td>0.4-0.5m</td> </tr> <tr> <td>Sample Type:</td> <td>B</td> </tr> <tr> <td>Lab Sample No.</td> <td>A18/5681</td> </tr> <tr> <td>Source (if applicable)</td> <td>unknown</td> </tr> <tr> <td>Material Type (if applicable):</td> <td>B</td> </tr> <tr> <td>Sample Received:</td> <td>25/06/18</td> </tr> <tr> <td>Date Tested:</td> <td>13/07/18</td> </tr> <tr> <td>Sample Cert:</td> <td>N/A</td> </tr> <tr> <td>Moisture Content (%):</td> <td>32</td> </tr> <tr> <td>% Particles > 20mm (By dry mass):</td> <td>0</td> </tr> <tr> <td>MCV:</td> <td>5.4</td> </tr> <tr> <td>Interpretation of Plot:</td> <td>Steepest Straight Line</td> </tr> <tr> <td>Description of Soil:</td> <td>Mottled brown slightly sandy slightly gravelly SILT with root hairs</td> </tr> </table>				Report No.	R91547	Contract No.	20974	Contract Name:	Abbvie , Sligo	Customer:	Jacobs	BH/TP	TP01	Sample No.	AA81371	Depth (m)	0.4-0.5m	Sample Type:	B	Lab Sample No.	A18/5681	Source (if applicable)	unknown	Material Type (if applicable):	B	Sample Received:	25/06/18	Date Tested:	13/07/18	Sample Cert:	N/A	Moisture Content (%):	32	% Particles > 20mm (By dry mass):	0	MCV:	5.4	Interpretation of Plot:	Steepest Straight Line	Description of Soil:	Mottled brown slightly sandy slightly gravelly SILT with root hairs
Report No.	R91547																																								
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The result relates to the specimen tested. Any remaining material will be retained for one month. Sampling and opinions and interpretations are outside the scope of accreditation.		Persons authorised to approve reports J Barrett (Quality Manager) H Byrne (Laboratory Manager)																																							
IGSL Ltd Materials Laboratory	Approved by 	Date 16/07/18	Page 1 of 1																																						

IGSL Ltd Materials Laboratory Unit J5,M7 Business Park Naas Co. Kildare 045 899324	<table border="1"> <tr> <th colspan="3">Test Report</th> </tr> <tr> <td colspan="3">Determination of Moisture Condition Value at Natural Moisture Content</td> </tr> <tr> <td colspan="3">Tested in accordance with BS1377:Part 4:1990, clause 5.4</td> </tr> </table>		Test Report			Determination of Moisture Condition Value at Natural Moisture Content			Tested in accordance with BS1377:Part 4:1990, clause 5.4																																
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<table border="0"> <tr> <td>Report No.</td> <td>R91087</td> </tr> <tr> <td>Contract No.</td> <td>20974</td> </tr> <tr> <td>Contract Name:</td> <td>Abbvie , Sligo</td> </tr> <tr> <td>Customer:</td> <td>Jacobs</td> </tr> <tr> <td>BH/TP</td> <td>TP02</td> </tr> <tr> <td>Sample No.</td> <td>AA81381</td> </tr> <tr> <td>Depth (m)</td> <td>1.00-1.20m</td> </tr> <tr> <td>Sample Type:</td> <td>B</td> </tr> <tr> <td>Lab Sample No.</td> <td>A18/5684</td> </tr> <tr> <td>Source (if applicable)</td> <td>unknown</td> </tr> <tr> <td>Material Type (if applicable):</td> <td>B</td> </tr> <tr> <td>Sample Received:</td> <td>25/06/18</td> </tr> <tr> <td>Date Tested:</td> <td>13/07/18</td> </tr> <tr> <td>Sample Cert:</td> <td>N/A</td> </tr> <tr> <td>Moisture Content (%)</td> <td>19</td> </tr> <tr> <td>% Particles > 20mm (By dry mass):</td> <td>0</td> </tr> <tr> <td>MCV:</td> <td>14.3</td> </tr> <tr> <td>Interpretation of Plot:</td> <td>Steepest Straight Line</td> </tr> <tr> <td>Description of Soil:</td> <td>Mottled brown slightly sandy, gravelly, CLAY</td> </tr> </table>				Report No.	R91087	Contract No.	20974	Contract Name:	Abbvie , Sligo	Customer:	Jacobs	BH/TP	TP02	Sample No.	AA81381	Depth (m)	1.00-1.20m	Sample Type:	B	Lab Sample No.	A18/5684	Source (if applicable)	unknown	Material Type (if applicable):	B	Sample Received:	25/06/18	Date Tested:	13/07/18	Sample Cert:	N/A	Moisture Content (%)	19	% Particles > 20mm (By dry mass):	0	MCV:	14.3	Interpretation of Plot:	Steepest Straight Line	Description of Soil:	Mottled brown slightly sandy, gravelly, CLAY
Report No.	R91087																																								
Contract No.	20974																																								
Contract Name:	Abbvie , Sligo																																								
Customer:	Jacobs																																								
BH/TP	TP02																																								
Sample No.	AA81381																																								
Depth (m)	1.00-1.20m																																								
Sample Type:	B																																								
Lab Sample No.	A18/5684																																								
Source (if applicable)	unknown																																								
Material Type (if applicable):	B																																								
Sample Received:	25/06/18																																								
Date Tested:	13/07/18																																								
Sample Cert:	N/A																																								
Moisture Content (%)	19																																								
% Particles > 20mm (By dry mass):	0																																								
MCV:	14.3																																								
Interpretation of Plot:	Steepest Straight Line																																								
Description of Soil:	Mottled brown slightly sandy, gravelly, CLAY																																								
The result relates to the specimen tested. Any remaining material will be retained for one month. Sampling and opinions and interpretations are outside the scope of accreditation.		<table border="1"> <tr> <th colspan="2">Persons authorised to approve reports</th> </tr> <tr> <td colspan="2">J Barrett (Quality Manager)</td> </tr> <tr> <td colspan="2">H Byrne (Laboratory Manager)</td> </tr> </table>		Persons authorised to approve reports		J Barrett (Quality Manager)		H Byrne (Laboratory Manager)																																	
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IGSL Ltd Materials Laboratory		<table border="1"> <tr> <th>Approved by</th> </tr> <tr> <td></td> </tr> </table>	Approved by		<table border="1"> <tr> <th>Date</th> </tr> <tr> <td>16/07/18</td> </tr> </table>	Date	16/07/18	<table border="1"> <tr> <th>Page</th> </tr> <tr> <td>1 of 1</td> </tr> </table>	Page	1 of 1																															
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Page																																									
1 of 1																																									



Final Report

Report No.: 18-18758-1

Initial Date of Issue: 04-Jul-2018

Client IGSL

Client Address: M7 Business Park
Naas
County Kildare
Ireland

Contact(s): Darren Keogh

Project 20974 AbbVie Sligo (Jacobs)

Quotation No.:

Date Received: 28-Jun-2018

Order No.:

Date Instructed: 28-Jun-2018

No. of Samples: 5

Turnaround (Wkdays): 5

Results Due: 04-Jul-2018

Date Approved: 04-Jul-2018

Approved By:

Details: Glynn Harvey, Laboratory Manager

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Client: IGSL	Chemtest Job No.:	18-18758
Quotation No.:	Chemtest Sample ID.:	646163
Order No.:	Client Sample Ref.:	81380
	Client Sample ID.:	TP2
	Sample Type:	SOIL
	Top Depth (m):	0.70
	Bottom Depth (m):	0.80
Determinand	Accred.	SOP Units LOD
Ammonium	U	1220 mg/l 0.050 0.53
Ammonium	N	1220 mg/kg 0.10 5.3
Boron (Dissolved)	U	1450 µg/l 20 < 20
Boron (Dissolved)	U	1450 mg/kg 0.20 < 0.20

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Client: IGSL		Chemtest Job No.:		18-18758	18-18758	18-18758	18-18758	18-18758	18-18758
Quotation No.:		Chemtest Sample ID.:	646162	646163	646164	646165	646166	646167	646168
Order No.:		Client Sample Ref.:	81384	81380	81381	81375	96072		
		Client Sample ID.:	TP1	TP2	TP2	TP3	BH3		
		Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):	0.40	0.70	1.00	0.80	3.00		
		Bottom Depth (m):	0.50	0.80	1.20	0.90			
		Asbestos Lab:		COVENTRY					
Determinand	Accred.	SOP	Units	LOD					
ACM Type	U	2192		N/A					
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected			
Moisture	N	2030	%	0.020	24		27	31	5.1
pH	U	2010		N/A	[A] 6.5		[A] 5.4	[A] 7.1	[A] 8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		< 0.40			
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.045		< 0.010	< 0.010	< 0.010
Sulphur (Elemental)	U	2180	mg/kg	1.0		[A] 3.0			
Cyanide (Total)	U	2300	mg/kg	0.50		[A] < 0.50			
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		[A] 2.9			
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.059			
Arsenic	U	2450	mg/kg	1.0		6.5			
Barium	U	2450	mg/kg	10		40			
Cadmium	U	2450	mg/kg	0.10		0.29			
Chromium	U	2450	mg/kg	1.0		13			
Molybdenum	U	2450	mg/kg	2.0		< 2.0			
Antimony	N	2450	mg/kg	2.0		< 2.0			
Copper	U	2450	mg/kg	0.50		11			
Mercury	U	2450	mg/kg	0.10		< 0.10			
Nickel	U	2450	mg/kg	0.50		11			
Lead	U	2450	mg/kg	0.50		35			
Selenium	U	2450	mg/kg	0.20		0.22			
Zinc	U	2450	mg/kg	0.50		54			
Chromium (Trivalent)	N	2490	mg/kg	1.0		13			
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50			
Organic Matter	U	2625	%	0.40				[A] 1.5	
Total Organic Carbon	U	2625	%	0.20		[A] 0.80			
Mineral Oil	N	2670	mg/kg	10		< 10			
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0			

Results - Soil

Client: IGSL		Chemtest Job No.:	18-18758	18-18758	18-18758	18-18758	18-18758
Quotation No.:		Chemtest Sample ID.:	646162	646163	646164	646165	646166
Order No.:		Client Sample Ref.:	81384	81380	81381	81375	96072
		Client Sample ID.:	TP1	TP2	TP2	TP3	BH3
		Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):	0.40	0.70	1.00	0.80	3.00
		Bottom Depth (m):	0.50	0.80	1.20	0.90	
		Asbestos Lab:	COVENTRY				
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0		
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0		
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10		
Benzene	U	2760	µg/kg	1.0	[A] < 1.0		
Toluene	U	2760	µg/kg	1.0	[A] < 1.0		
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0		
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0		
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0		
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0		
Naphthalene	U	2800	mg/kg	0.10	0.12		
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		
Acenaphthene	U	2800	mg/kg	0.10	< 0.10		
Fluorene	U	2800	mg/kg	0.10	< 0.10		
Phenanthrene	U	2800	mg/kg	0.10	0.23		
Anthracene	U	2800	mg/kg	0.10	< 0.10		
Fluoranthene	U	2800	mg/kg	0.10	0.13		
Pyrene	U	2800	mg/kg	0.10	< 0.10		
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10		
Chrysene	U	2800	mg/kg	0.10	< 0.10		
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10		
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10		
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10		
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10		
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10		
Coronene	N	2800	mg/kg	0.10	< 0.10		
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0		
PCB 28	U	2815	mg/kg	0.010	[A] < 0.010		
PCB 52	U	2815	mg/kg	0.010	[A] < 0.010		
PCB 90+101	U	2815	mg/kg	0.010	[A] < 0.010		
PCB 118	U	2815	mg/kg	0.010	[A] < 0.010		
PCB 153	U	2815	mg/kg	0.010	[A] < 0.010		

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Client: IGSL		Chemtest Job No.:		18-18758	18-18758	18-18758	18-18758	18-18758
Quotation No.:		Chemtest Sample ID.:		646162	646163	646164	646165	646166
Order No.:		Client Sample Ref.:		81384	81380	81381	81375	96072
		Client Sample ID.:		TP1	TP2	TP2	TP3	BH3
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.40	0.70	1.00	0.80	3.00
		Bottom Depth (m):		0.50	0.80	1.20	0.90	
		Asbestos Lab:		COVENTRY				
Determinand		Accred.	SOP	Units	LOD			
PCB 138		U	2815	mg/kg	0.010	[A] < 0.010		
PCB 180		U	2815	mg/kg	0.010	[A] < 0.010		
Total PCBs (7 Congeners)		N	2815	mg/kg	0.10	[A] < 0.10		
Total Phenols		U	2920	mg/kg	0.30	< 0.30		

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Results - Single Stage WAC

Project: 20974 AbbVie Sligo (Jacobs)

Chemtest Job No: 18-18758							
Chemtest Sample ID: 646163							
Sample Ref: 81380							
Sample ID: TP2							
Top Depth(m): 0.70							
Bottom Depth(m): 0.80							
Sampling Date:							
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%				
Loss On Ignition	2610	U	%	[A] 0.80 4.9			
Total BTEX	2760	U	mg/kg	[A] < 0.010			
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10			
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10			
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0			
pH	2010	U		6.6			
Acid Neutralisation Capacity	2015	N	mol/kg	0.044			
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg	
Arsenic	1450	U	0.0014	< 0.050	0.5	2	25
Barium	1450	U	0.019	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0016	< 0.050	0.5	10	70
Copper	1450	U	0.0029	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0038	< 0.050	0.5	10	30
Nickel	1450	U	0.0027	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0011	0.011	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0091	< 0.50	4	50	200
Chloride	1220	U	3.9	39	800	15000	25000
Fluoride	1220	U	0.20	2.0	10	150	500
Sulphate	1220	U	32	320	1000	20000	50000
Total Dissolved Solids	1020	N	170	1700	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	17	170	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	27

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
646162	81384	TP1		A	Amber Glass 250ml
646163	81380	TP2		A	Amber Glass 250ml
646163	81380	TP2		A	Amber Glass 60ml
646164	81381	TP2		A	Amber Glass 250ml
646165	81375	TP3		A	Amber Glass 250ml
646166	96072	BH3		A	Amber Glass 250ml

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SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44	Dichloromethane extraction / GCxGC FID detection

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste – Leaching	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

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

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.co.uk

Appendix VII Site Plan

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