APPENDIX 5 – Cable Percussion Borehole Records



	Grou	nd In		gations Ire /w.gii.ie	eland I	_td	Site Sandford Park Milltown	Borehol Number BH01
	Dando 2000 Cable Percussion		Diamete Omm cas	r ed to 5.70m		Level (mOD) 18.33	Client DBFL	Job Numb 9338-12-
			n (dGPS 7027.6 E) 731285.9 N		/03/2020- /03/2020	Project Contractor GII	Sheet 1/1
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
					18.03	(0.30)	Dark brown sandy slightly gravelly TOPSOIL with occasional rootlets.	
0.50	В					(0.50)	Soft light brown slightly sandy slightly gravelly CLAY.	
.00-1.45 .00	SPT(C) N=11 B			1,2/2,3,3,3	17.53	0.80	Firm to stiff light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0 0 0
						(1.70)		10 0 0 0 0 0
.00-2.45	SPT(C) N=19			2,3/4,5,5,5				0 0 0 0 0 0 0 0 0
.50					15.83	2.50	Very stiff dark grey slightly silty slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	6 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0
.00-3.45 .00	SPT(C) N=40 B			3,5/7,9,11,13			coodies.	0 0 0 0 0 0
								0 0 0 0 0 0 0 0
.00-4.45 .00	SPT(C) N=39 B			5,6/7,9,9,14		(3.20)		10 10 0 0 0 0 0
								0.00 0.00 0.00 0.00
.00-5.38	SPT(C) 50/225 B			6,9/13,17,19,1				0 0 4 0 0 4 0 0 0 0
					12.63	5.70	Refusal at 5.70m	6-64
Remarks o groundw	rater encountered du	ring drilling	g				Scale (approx)	Logged
orehole ter	ckfilled on completti minated at 5.70m B0 om 5.70m to 5.70m f	GL due to	obstructio	on, possible boulder	or rock		1:50	PM
							Figure	No.

	ando 2000 able Percussion	Casing 200		ed to 7.00m	11-0000-0000-0000-000	evel (mOD) 3.40	Client DBFL		Job Numbe 9338-12
			n (dGPS) 7045.9 E	731268.6 N	Dates 06/0	3/2020	Project Contractor GII		Sheet 1/1
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) Thickness)	Description	Legend	Mater Ins
.50 .00-1.45 .00 .00-2.45 .00 .00-3.45 .00 .00-4.40 .00 .00-6.30 .00 .00 .00 .00 .00 .00 .00 .00 .00	B SPT(C) N=14 SPT(C) N=18 SPT(C) N=33 SPT(C) 50/250 SPT(C) 50/250 SPT(C) 50/150 SPT(C) 50/150 SPT(C) 25*/0 B			1,2/3,3,4,4 2,3/4,5,4,5 4,6/7,8,9,9 6,8/11,15,17,7 7,10/13,15,17,5 8,10/17,21,12	17.30 17.30	(0.30) 0.30 (0.80) 1.10 (1.20) 2.30	Dark brown slightly sandy slightly gravelly TOPSOIL with occasional rootlets. Soft light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Firm to stiff light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Very stiff dark grey slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.		
Remarks o groundw	ater encountered du	uring drillin	g 7.0 P(21 to 4.0 201 1-1	i ib- b		al from 1.0m BGL to GL, finished with an upright	Scale (approx)	Logge

Description Legend Interest Description Description Legend Interest Description Legend Interest Description Desc		(Groui	nd In		gations Ire w.gii.ie	land I	Ltd	Site Sandford Park Milltown		В	orehole umber BH03
Depth Field Records Depth Field Records Logic Depth Dept	T44 lethod:Ca	4 ble Percus	sion	200	Omm cas	ed to 7.20m		81 6			N	umbe.
Dear the brown sightly sandy slightly gravelly TOP SOIL with occasional rockets. 12/3.2.4.4 18.77 18.47 1.23.2.4.4 18.77 18.47 1.20 2.40 2.50	witi	h Rotary to	ollow on			731274.9 N		/03/2020	TOWNSON TO SECURE AND ADDRESS OF THE SECURE		SI	1/2
19.37 0.50	Depth (m)	Sample /	Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
Soft light brown slightly sandy sightly gravelly (1.47) 1.2.3,2,4,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4 1.2.3,2,4							19 37		Dark brown slightly sandy slightly gravelly TOPSOIL with occasional rootlets.			
12/32,4,4 18 PT(C) N=13 12/32,4,4 18 PT(C) N=22 7,4/5,6,6,5 17,37 2,30 10,0 4,5 8 PT(C) N=22 7,4/5,6,6,5 17,37 2,30 10,0 4,5 8 PT(C) N=22 7,4/5,6,6,5 17,37 2,30 10,0 4,5 8 PT(C) N=22 7,108,9,11,11 (4,20) 10,0 4,5 8 PT(C) N=39 7,108,9,11,11 (4,20) 10,0 4,5 8 PT(C) N=39 7,108,9,11,11 (4,20) 10,0 4,5 8 PT(C) N=39 7,108,9,11,11 (4,20) 10,0 4,5 8 PT(C) N=50 10,0 5,0 6,8/10,12,12,13 10,0 5,0 6,8/10,12	50	В					13.57			6 0 4		
18.47 1.0	00 00-1.45	B SPT(C) N	N=13			1,2/3,2,4,4	la transition	(0.30)		6 - 0 d .		
7.45.6.6.5 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 2.30 17.37 17.37 17.37 2.30 17.37 17.37 17.37 2.30 17.37 17.		,					18.47		gravelly CLAY with occasional subangular to subrounded cobbles. Some yellow and grey	0 0 4.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.		
00-3 31 B SPT(C) 50/160 7,12/18,25.7 7,10/6.9,11,11 (4.20) 00-4.45 B SPT(C) N=39 7,10/6.9,11,11 (4.20) 00-5.45 B SPT(C) N=50 6,8/10,12,12,13 (5.50) 00-6.45 SPT(C) N=50 6,8/10,11,14,15 (5.50) 00-7.22 TCR SCR RQD FI SPT(C) 50/70 12,67 7.00 Very stiff brown slightly sandy gravelly CLAY. 75 SPT(C) S0/70 12,67 7.00 Very stiff brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. 93 (4.20) 22,3/50 SPT(C) 25/75 50/0 (4.20) 93 (4.20) 8 SCR RQD FI ST(C) S0/70 12,67 7.00 Very stiff brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. 93 (4.20) 8 SPT(C) 25/75 50/0 (4.20) 93 SPT(C) 25/75 50/0 SPT(C) 25/75 50	.00 .00-2.45		N=22			7,4/5,6,6,5	17.37			0 0 0 0 0 0 0 0		
10-4.45 SPT(C) N=39	.00 .00-3.31	00 B 00-3.31 SPT(C) 50/160				7,12/18,25,7				\$ 0 0 0 \$ 0 0 0		
00-5.45 SPT(C) N=47 6.8/10,12,12,13 6.8/10,12,12,13 6.8/10,12,12,13 6.8/10,12,12,13 6.8/10,12,12,13 6.8/10,12,12,13 6.50 Very stiff brown slightly sandy gravelly CLAY. Very stiff brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. 75 75 93 (4.20) 93 (4.20) 70-9.78 93 (4.20) 70-9.78 93 (4.20) 85 70 85 70 70 70 70 70 70 70 70 70 7	00 B 00-4.45 SPT(C) N=39		N=39			7,10/8,9,11,11		(4.20)		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
20-8 28 20 93 PT(C) 25'/75 SDT(C) 25'/75 SD/O PT (4.20)	.00 .00-5.45	00 B 00-5.45 SPT(C) N=47				6,8/10,12,12,13				5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		
TCR SCR RQD FI SPT(C) 50/70 12.67 7.00 Very stiff brown slightly sandy slightly gravelly CLAT with occasional subangular to subrounded cobbles. 22,3/50 SPT(C) 25*/75 50/0 22.3/50 SPT(C) 25*/75 50/0 SPT(C) 25*/75 SO/0 SPT(C) 25*/75 SPT(C	i.00 i.00-6.45	B SPT(C) I	N=50			6,9/10,11,14,15				\$ 50 0 \$ 50 0 \$ 50 0 \$ 50 0		
SPT(C) 50/70 12.67 7.00 Very stiff brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. 20-8.28 2							13.17		Very stiff brown slightly sandy gravelly CLAY.	0 0 0		
93 22.3/50 SPT(C) 25*/75 50/0 23.3/50 SPT(C) 25*/75 50/0 24.20) 25.3/50 SPT(C) 25*/75 50/0 26.3/50 SPT(C) 25*/75 50/0 27.3/50 SPT(C) 25*/75 SO groundwater encountered during cable percusion drilling. Scale (approx.) Solve (approx.) Solv	7.00-7.22 7.00		SCR	RQD	FI		12.67	7.00	CLÁY with occasional subangular to subrounded		1.1.1.1	
22,3/50 SPT(C) 25*/75 50/0 temarks o groundwater encountered during cable percusion drilling. able percussion to 7.00m BGL with Rotary core follow on to 20.00m BGL. otted pipe installed from 8.5m BGL to 3m BGL with pea grval filter zone from 8.5m BGL to 1.0m BGL and bentonite seal from 1.0m BGL to GL,	3.20-8.28					SPT(C) 25*/75					- Labora	
22,3/50 SPT(C) 25*/75 50/0 Comarks Spruch	.20	93				30/0						
SPT(C) 25*/75 50/0 Source So	70.0.70					22,3/50		(4.20)	0)		1,11,11,11	
able percussion to 7.00m BGL with Rotary core follow on to 20.00m BGL. otted pipe installed from 8.5m BGL to 3m BGL with pea grval filter zone from 8.5m BGL to 1.0m BGL and bentonite seal from 1.0m BGL to GL,	9.70-9.78 9.70		•						•	1 1 1 1 1		/
otted pipe installed from 8.5m BGL to 3m BGL with pea grval filter zone from 8.5m BGL to 1.0m BGL and bentonite seal from 1.0m BGL to GL,	able percue	eion to 70	Om RGI	with Rota	ry core fo	llow on to 20 00m B	GL.			Scale (approx)	L	ogged
niselling from 7.20m to 7.20m to 7.20m for 1 hour.	lotted pipe in inished with	nstalled fro an upright	m 8.5m cover	BGL to 3n	n BGL wit	th pea grval filter zor	ne from 8.5	m BGL to 1.0r	m BGL and bentonite seal from 1.0m BGL to GL,	1:50	F	PM, C

SI		Grou	nd In		igations Ire	eland	Ltd	Site Sandford Park Milltown		Borehole Number BH03
achine : Da T4 Flush : W	l4 ater	, Beretta		0mm ca	sed to 7.20m ed to 20.00m	1 200	Level (mOD) 19.67	Client DBFL		Job Number 9338-12-1
Core Dia: 63 Method : Ca wii			Locatio		E 731274.9 N	Dates 06	6/03/2020	Project Contractor GII		Sheet 2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Mater Instr
	93				26/50					
1.20-11.28 · 1.20	67				SPT(C) 26*/75 50/0	8.47	11.20	Very stiff brown slightly sandy gravelly CLAY with some subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse.		
2.70-12.70 2.70					25/50 SPT(C) 25*/0 50/0	6.27				
4.20-14.20 4.20	73				25/50 SPT(C) 25*/0 50/0	6.27	13.40	Very stiff grey slightly sandy gravelly CLAY with many subangular to subrounded cobbles and boulders. Gravel is subangular to subrounded fine to coarse.		
	73				22,3/50		(3.80)			
5.70-15.78 5.70	100				SPT(C) 25*/75 50/0					
7.20-17.28 7.20					21,4/50 SPT(C) 25*/75 50/0	2.47	17.20	Poor recovery. Recovery consists of slightly claye slightly gravelly clayey subangular to subrounded COBBLES of limestone.	y	
	33					1.22	(1.25)		0.000.0000	
8.70	62						(1.55)	limestone. Presumed rock.	0.000	
20.00		•				-0.33	20.00		0.00	
Remarks									Scale (approx)	Logged By
									Figure 1	

	Grou	nd In		gations Ire w.gii.ie	land	Ltd	Site Sandford Park Milltown	Borehol Number BH04
Machine : D Method : C	ando 2000 able Percussion	550	Diamete Omm cas	r ed to 7.30m		Level (mOD) 19.44	Client DBFL	Job Numb 9338-12-
		Location 716		731262.2 N	Dates 10	0/03/2020	Project Contractor GII	Sheet 1/1
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
					19.24	(0.20) 0.20	Dark brown sandy slightly gravelly TOPSOIL with occasional rootlets.	0.10.0
0.50	В					(0.70)	Soft to firm light brown mottled grey slightly sandy slightly gravelly CLAY.	6.00
.00-1.45 .00	SPT(C) N=8 B			1,1/2,1,2,3	18.54	(0.50)	Soft to firm light brown slightly sandy slightly gravelly CLAY.	
					18.04	1.40	Firm to stiff light brown slightly sandy slightly gravelly CLAY.	-
2.00-2.02	SPT(C) 25*/20			25/50		(1.10)		
2.00	50/0 B				16.94	2.50	Very stiff, dark grey slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	6 10 0
3.00-3.45	SPT(C) N=47			6,8/11,12,13,11			with occasional subangular to subrounded couples.	9 0 0 0 0 0 0
3.00	В							0 0 0 0 0 0
4.00-4.45	SPT(C) N=50			6,8/11,13,14,12				6-00
4.00	B			0,0711,10,14,12				9 0 0 0 0 0 0 0 0
						(4.40)		0 10 0 0 D 0
5.00-5.43 5.00	SPT(C) 50/275 B			7,8/10,15,16,9				0 0 0 0 0 0
								0 0 0 0 0 0
6.00-6.37 6.00	SPT(C) 50/215 B			9,10/14,16,20				9 0 0 0
					12.54	6.90		0.00
7.00-7.35 7.00	SPT(C) 50/195 B			10,10/15,20,15	12.14	(0.40)	Very stiff greyish brown slightly slity slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0 0 0 0 0 0 0
							Refusal at 7.30m	
	•			•			•	
Remarks No groundw Borehole ba Borehole ter	rater encountered du ckfilled on complerti rminated at 7.30m B	uring drilling ion. GL due to	g obstructi	on, possible boulder	or rock		Scale (approx	
Chiselling fro	om 2.50m to 2.62m	for 0.75 ho	ours. Chis	on, possible boulder selling from 7.30m to	7.30m for	1 hour.	1:50 Figure	No.

achine : De				WW	gations Ire w.gii.ie			Sandford Park Milltown	BH0) 5
achine : Da T4	14		Casing 1	mm cas	ed to 5.30m d to 16.50m		Level (mOD) 18.75	DBFL	Job Numb 9338-12	
	th Rotary f		Location		u to 16.50m	Dates	(0.0) (0.0) (0.0)	Project Contractor	Sheet	
			717	7014 E 7	31253.8 N	03	/03/2020	GII	1/2	!
Depth (m)	Sample	/ Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						18.65	0.10	MADE GROUND: Tarmacadam		XXXX
50	В					18.25	0.40)	MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and occasional fragments of red brick cloth fibres and tarmacadam.		- P000
00 00-1.45	B SPT(C)	N=12			1,2/3,3,3,3			Firm light brown slightly sandy slightly gravelly CLAY. Some orange mottling.		
							(1.70)			
00 00-2.45	B SPT(C)	N=37			2,4/5,7,12,13	16.55	2.20	Very stiff dark grey slightly sandy slightly gravelly CLAY.		
								Gravel is subangular to subrounded fine to coarse.		
00 00-3.45	B SPT(C)	N=51			5,7/11,11,14,15 Water strike(1) at 3.10m, rose to 2.60m in 20 mins, sealed at NOm.					_ ✓
00 00-4.45	B SPT(C)	N=55			5,7/10,13,15,17		(4.50)			
00										
30	SPT(C)	50/150 SCR	RQD	FI	7,15/20,30					
	25									
	25				14,22/50					
70-6.85 70					SPT(C) 50/0	12.05	6.70	Very stiff brown slightly sandy slightly gravelly CLAY with some subangular to subrounded cobbles and boulders. Gravel is subanugular to subrounded fine to coarse.	0.000	15 15
	100								0 0 0 0 0 0 0 0 0	15 18 .
20-8.28					22,3/50 SPT(C) 25*/75 50/0				0 0 0 0 0 0 0 0	N 1 60 1
					30/0				6 0 0	5 7
	100								6.00 4	10 18 1
70-9.78 70					22,3/50 SPT(C) 25*/75 50/0				0 0 4 0 0 4	S 0 1 K
orehole bad	r encounte ckfilled on	completio	in.					Scale (approx	Logg By	jed
		30m BGL to 5.30m f			ollow on to 16.50m B	GL.		1:50	PM, C	CB

G I		Grou	nd In	vesti	gations Ire	land I	_td	Site Sandford Park Milltown	Borehole Number BH05	
Machine : Da T4 Flush : W	14 ater	, Beretta	20	Diamete			Level (mOD) 18.75	Client DBFL	Job Numbe. 9338-12-19	9
Core Dia: 63 Method : Ca		ission follow on	Locatio 71		31253.8 N	Dates 03	/03/2020	Project Contractor GII	Sheet 2/2	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend &	VVale
11.20-11.28	93				22,3/50 SPT(C) 25*/75		(6.60)			
11.20	73				50/0				6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
12.70-13.15 12.70					8,9/10,12,12,11 SPT(C) N=45				6.00 0.00 0.00 0.00 0.00	
13.30	50	22	22			5.45	13.30	Weak- medium strong fine grained grey LIMESTONE distinctly weathered with calcite veining and occasional beds of stiff brown Clay. (possible residual mudstone) One set of fractures. F1: 0-10 degrees. Very closely-closely spaced undulating smooth occasionall open with brown staining and clay smearing.		
14.20	87	59	52	7			(3.20)			
15.40	81	23	16	N.I.				From 15.40 to 16.50 Non Intact.		
16.50						2.25	16.50	Complete at 16.50m		
Remarks							4.	1: Fig	Eale By Logged By 50 PM, CF gure No. 338-12-19.BH05	

V			WW	gations Ire w.gii.ie			Sandford Park Milltown	BHO	
achine : Da ethod : Ca	ando 2000 able Percussion		Diamete Omm cas	r ed to 8.00m	Santo-estatement (194)	evel (mOD) 0.32	Client DBFL	Job Numb	
		Location 716		731242.4 N	Dates 11/0	03/2020	Project Contractor GII	Sheet	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) Thickness)	Description	Legeno	Water
					20.12	(0.20)	Dark brown sandy slightly gravelly TOPSOIL with occasional rootlets.		070
50	В				19.72	0.40)	Soft light brown slightly sandy slightly gravelly CLAY with some grey mottling.	0.0.0	
00-1.45	SPT(C) N=10			1,1/2,2,3,3			Firm light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0.000 0.000	
						(1.60)		9 9 9 9 9 9	
00-2.45 00	SPT(C) N=19 B			2,2/3,4,5,7	18.12	2.20	Very stiff dark grey slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	9 0 0 d	w
00-3.42 00	SPT(C) 50/265 B			10,10/10,15,15,10				6 0 0 6 0 0 6 0 0	المرادة المرادة
00-4.39 00	SPT(C) 50/235 B			11,12/13,14,16,7					C) x C) x C)
00-5.38 00	SPT(C) 50/230 B			10,12/12,16,17,5		(4.80)			1
00-6.35 00	SPT(C) 50/200 B			11,13/17,19,14				6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.5 1x 1.5 1x 1.5
00-7.33 00	SPT(C) 50/180 B			12,14/16,22,12	13.32	7.00	Very stiff light brown slightly sandy slightly gravelly CLAY.	0.04	18 16 18 18
						(1.00)			
00-8.28 00	SPT(C) 50/125 B			16,19/25,25	12.32	8.00	Complete at 8.00m		
Remarks	•			•			Coale	Logo	ned
o groundw orehole ter	rater encountered di minated at 8.00m B	uring drillin GL	g				Scale (approx		
							1:50	PN	1

	Grou	nd In		gations Ire vw.gii.ie	land I	Ltd	Site Sandford Park Milltown		Boreho Numbe BH0
Machine : Da Method : Ca	ando 2000 able Percussion		Diamete 0mm cas	r ed to 8.00m	5517595454545415	Level (mOD) 20.00	Client DBFL		Job Numbe 9338-12
		Locatio		731230.1 N	Dates 12	/03/2020	Project Contractor GII		Sheet 1/1
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Mater Inst
0.50	В				40.00	(1.00)	MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and occasional fragments of concrete and red brick.		
1.00-1.45 1.00	SPT(C) N=5 B			1,1/1,2,1,1	19.00	1.00 (0.40) 1.40	POSSIBLE MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles. Firm to Stiff light brown slightly sandy slightly		
2.00-2.45	SPT(C) N=27			1,2/4,6,8,9	17.60	(1.00)	gravelly CLAY.		
3.00-3.45 3.00	SPT(C) N=44 B			5,7/10,11,11,12	17.60	2.40	Very stiff dark grey slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.		
9.00-4.44 9.00	SPT(C) 50/285 B			8,8/11,14,15,10				6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
5.00-5.43	SPT(C) 50/275 B			9,11/11,13,17,9		(4.80)		6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
3.00-6.37 3.00	SPT(C) 50/220 B			11,14/15,16,19				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
7.00-7.37 7.00	SPT(C) 50/220 B			12,12/14,16,20	12.80	7.20	Very stiff light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
3.00-8.31 3.00	SPT(C) 50/155 B			14,17/20,25,5	12.00	8.00	Complete at 8.00m	(0, 0, 0)	
	•						•	*	
lotted pipe v over		ound from	g 8.0m BG	GL to 1.0m BGL, plain	n pipe with I	pentonite seal	from 1.0m BGL to GL, finished with an upright	Scale (approx)	Logged By
	minated at 8.00m B0	GL						1:50 Figure N	PM o.

GI		Groui	nd In		gations Ire	land	Ltd	Site Sandford Park Milltown	Borehole Number BH08
achine : Da			20		r ed to 8.00m d to 13.70m	Commence of the Commence of th	Level (mOD) 19.76	Client DBFL	Job Number 9338-12-19
	ith Rotary fo		Locatio	n	731204.4 N	Dates 13	3/03/2020	Project Contractor GII	Sheet 1/2
Depth (m)	Sample	/ Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness	Description	Legend Nater
						19.66	0.10	CONCRETE.	
).50	В					19.26		MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles and occasional fragments of red brick and concrete	
.00	B SPT(C) I	N=5			1,1/1,1,1,2		(0.80)	Soft light brown very sandy slightly gravelly CLAY.	
.00-1.43	351(0)1	14-5			1,771,1,2	18.46	1.30	Soft to firm brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0. <u>0</u> 0
2.00	В						(1.30)		0.00
2.00-2.45	SPT(C)	N=9			1,1/1,2,3,3				6 0 0 6 0 0
	1					17.16	2.60	Very stiff dark grey slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobbles.	6 0 0 6 0 0
3.00 3.00-3.45	B SPT(C)	N=38			5,5/8,9,10,11				0 0 0 0 0 0
									9 6 6 0 0 0
4.00 4.00-4.45	B SPT(C)	N=41			4,5/8,10,11,12				6 0 4 6 0 4
									6 0 0
5.00 5.00-5.45	B SPT(C)	N=41			5,6/7,9,11,14		(4.60)		0 0 0 0 0 0
0.00-0.40	0, 1(0)				.,,.,.,.				0.00
6.00	В								.0.0.0 .0.0.0
6.00-6.45	SPT(C)	N=47			8,9/10,11,13,13				0.00
									6.04.
7.00 7.00-7.37	B SPT(C)	55/220			11,14/16,17,22	12.5	6 7.20	Very Still dark blown very Sandy very gravelly CLAT. Grave	0.00
					14,20/27,23		(0.80	is subangular to subrounded fine to coarse.	
8.00 8.00-8.25 8.00	TCR 100	SCR	RQD	FI	B SPT(C) 50/95	11.70	8.00		0 0 0
8.20								occasional subangular to subrounded cobbles and boulders. Gravel is subangular to subrounded fine to coarse.	9 0 4 9 0 4 9 0 0
	63						(1.70		9 0 4 0 0 4 0 0 0
									6 0 0
9.70-9.78 9.70					12,13/50 SPT(C) 25*/75 50/0	10.0	9.70	Medium strong- strong fine grained grey LIMESTONE partially- distinctly weathered with calcite veining.	0.00
Remarks No groundy	water encou	intered d	uring drilli	ng				Scale (approx	Logged By
Cable perc	ussion to 8. ackfilled on	00m BGl	with Rot	ary core t	follow on to 13.70m E	BGL.		1:50	РМ, СВ
								Figure 9338	• N o. -12-19.BH08

		Grou	nd In	vesti	gations Ire	eland	Ltd	Site Sandford Park Milltown	Borehole Number BH08
	Water	, Beretta	20	Diamete 0mm cas mm case	ed to 8.00m d to 13.70m		Level (mOD) 19.76	Client DBFL	Job Numbei 9338-12-19
Core Dia: 9		ssion follow on	Locatio		731204.4 N	Dates 13	3/03/2020	Project Contractor GII	Sheet 2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Kagend Nate
	100	67	60					Two sets of fractures. F1: 0-10 degrees. Very closely- closely spaced undulating smooth occasionally open with clay smearing. F2: 30-45 degrees. Very closely- closely spaced undulating smooth closed.	
11.20	100	59	59	9			(4.00)		
12.50	100	75	68						
13.70						6.06	13.70	Complete at 13.70m	
Remarks								Scal (appro	Logged bx) By
								1:50	11,000.00
									re No. 8-12-19.BH08

GI		Grou	nd In		gations Ire	land	Ltd		Site Sandford Park Milltown		Nι	orehole umber 8H09
achine : Da	44 able Percus	ssion	20	Diameter		Ground	Level 20.84	A CONTRACTOR OF THE PARTY OF TH	Client DBFL			b umber 8-12-19
wi	ith Rotary fo	ollow on	Locatio		731214.8 N	Dates 17	7/03/20	020	Project Contractor GII		Sh	neet 1/2
Depth (m)	Sample	/ Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	D (Thic	epth (m) ckness)	Description	Legend	Water	Instr
						20.54		(0.30)	Dark brown sandy slightly gravelly TOPSOIL with occasional rootlets.			
).50	В							(0.60)	Soft light brown slightly sandy slightly gravelly CLAY.			
1.00 1.00-1.45	B SPT(C)	N=10			1,1/2,3,3,2	19.94		0.90	Firm light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	6 0 0 0 6 0 0 0		
2.00	В							(1.50)		0 0 0 0 0 0 0 0 0 0 0 0		
2.00-2.45	SPT(C)	N=11			1,2/3,3,3,2	18.44		2.40	Very stiff dark grey slightly silty slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0.00		
3.00 3.00-3.45	B SPT(C)	N=28			2,3/5,7,7,9					0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
4.00 4.00-4.45	B SPT(C)	N=38			5,7/7,9,11,11					6 0 4 6 0 4 6 0 4 6 0 4		
5.00 5.00-5.45	B SPT(C)	N=43			7,7/8,10,12,13			(5.20)				
5.00 5.00-6.44	B SPT(C)	50/285			10,12/12,14,14,10					0 0 0		
7.00 7.00-7.34	B SPT(C)	50/190			12,14/16,23,11					6 0 4		
8.00	TCR	SCR	RQD	FI	12,17/24,26 B SPT(C) 50/125	13.24	4	7.60 (0.40)	Very stiff light brown slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobbles	6.00		
3.00-8.28 3.00 3.20	100				SFT(C) 30/123	12.84	4	8.00	Very stiff slightly sandy slightly gravelly CLAY with occsional subangular to subrounded cobbles. Gravel is subangular to subrounded fine to coarse			
	100							(2.50)				
9.70-9.85 9.70					12,22/50 SPT(C) 50/0							
Remarks No groundw Cable percu	recion drillin	a to 8 Of	m RGI W	ith rotany	follow on to 18 /0m t	3GL.				Scale (approx)	L	ogged Sy
Slotted pipe finished with	installed fr	om 9.5 B	GL to 3.0	m BGL ẃ	ith pea gravel filter zo	ne from 9	.5m B	GL to 1.	Om BGL and bentonite seal from 1.0m BGL to GL,	1:50 Figure 9338-1	No.	

		Grou	nd In		gations Ire vw.gii.ie	land	Ltd	Site Sandford Park Milltown		Boreho Numbe BH0
lachine : Da T4 lush : W	14 ater	, Beretta	20		r ed to 8.00m ed to 18.70m		Level (mOD) 20.84	Client DBFL		Job Numbe 9338-12-
ore Dia: 63 ethod : Ca wi			Locatio 71		731214.8 N	Dates 17	7/03/2020	Project Contractor GII		Sheet 2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Mater Inst
1.20-11.28	100				19,6/50 SPT(C) 25*/75	10.34	10.50	Very stiff brown slightly sandy slightly gravelly CLAY with somel subangular to subrounded cobbles and boulders.		
1.20	83				50/0		(2.50)			
2.70	27					7.84	13.00	No recovery. Driller notes possible rock at 13.00m		
4.20	77					6.64	14.20	Possible weathered rock recovered as slightly sandy gravelly CLAY with subangular to subrounded cobbles of limestone.		
5.70	93	51	51			5.14	15.70	Medium strong- strong fine grained grey LIMESTONE partially to distinctly weathered, with closely to medium spaced thin beds of stiff brown Clay (possible residual mudstone). One set of fractures. F1: 0-10 degrees. Very closely-closely spaced undulating smooth occasionally open with brown staining and clay smearing.		
7.20	80	32	32				(3.00)			
3.70						2.14	18.70	Complete at 18.70m	+ T	
Remarks									Scale (approx)	Logge By
									Figure N	No.

		nd In		gations Ire w.gii.ie	land	Ltd		Site Sandford Park Milltown	Boreho Number BH10		
	ando 2000 able Percussion		Diamete			Level (mO 20.35	D)	Client DBFL		ob umber 38-12-19	
		Locatio		731201 N		7/03/2020- 3/03/2020		Project Contractor GII	Sh	heet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness	ss)	Description	Leg	Mater Mater	
					20.15	(0.2	0)	Dark brown sandy slightly gravelly TOPSOIL with occasional rootlets.			
0.50	В					(1.0	0)	Soft light brown slightly sandy slightly gravelly CLAY. Mottled grey.	v		
1.00-1.45 1.00	SPT(C) N=11 B			1,1/2,3,3,3	19.15	1.2	20	Firm to stiff light brown slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	0 -	0 0 0 0	
2.00-2.45	SPT(C) N=21			2,3/4,5,5,7		(1.3	30)		0000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
2.00	В				17.85	2.5	50	Very stiff dark grey slightly silty slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	00000	0.00 0.00 0.00 0.00	
3.00-3.45 3.00	SPT(C) N=44 B			5,7/9,10,12,13					000000	0.00 0.00 0.00 0.00 0.00	
4.00-4.44 4.00	SPT(C) 50/285 B			7,9/11,14,16,9 Water strike(1) at 4.30m, rose to 4.20m in 20 mins.					0.0000000000000000000000000000000000000	0.0 ▼1 0.0 ▼1 0.0 0 ▼1 0.0 0 0	
5.00-5.40 5.00	SPT(C) 44/245 B			7,10/10,10,17,7		(4.7	70)		100000000000000000000000000000000000000	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
6.00-6.37 6.00	SPT(C) 50/215 B			9,11/14,17,19					0,0000000000000000000000000000000000000	0 4 . 0 4 . 0 4 . 0 4 .	
7.00-7.17 7.00	SPT(C) 50/20 B			12,14/50	13.1	5 7.	.20	Refusal at 7.20m	0.0	0.00 0.00	
Borehole b	er encountered at 4. ackfilled on completi	ion	obstruct	ion, possible boulder	or rock			Scal (appro		Logged By	
Soleliole (6	minateu at 7.2011 E	JOE GUE IC	, openuol	, possible boulder				1:50	re No.	PM	

		Grou	nd In		igations Ire vw.gii.ie	eland	Ltd	Site Sandford Park Milltown		N	orehol umber 3H11
achine : D	ando 200 44	0, Beretta	Casing	Diamete	er .	Ground	Level (mOD)	Client			ob umb⊾.
ethod : C	able Perc				sed to 8.00m ed to 13.00m		20.45	DBFL			38-12-
		follow on	Locatio	n		Dates		Project Contractor		s	heet
			71	6967.5 E	731182.2 N	18	/03/2020	GII		1/2	
Depth (m)	Sampl	e / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Inst
						20.35	0.10	MADE GROUND: Tarmacadam	******		3800
							(0.40)	MADE GROUND: Light brown slightly sandy			
50	В					19.95	0.50 (0.20) 0.70	slightly gravelly CLAY with occasional subangular to subrounded cobbles	0.000		
						19.75		Soft light brown slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobble	6.00		
00 00-1.45	B SPT(C) N=6			1,1/1,2,1,2		(0.50)	Soft light brown mottled grey slightly sandy slightly	1.46		
						19.25	1.20	gravelly CLAY with occasional subangular to subrounded cobbles.			
							E	Firm light brown slightly sandy slightly gravelly	1, 1		
00	В						(1.20)	CLAY.			
00-2.45	SPT(C) N=12			1,1/2,3,3,4						
						18.05	2.40	V - 100 data and 1	· · · · ·		
							E	Very stiff dark grey slightly silty slightly sandy slightly gravelly CLAY with occasional subangular	6 . 0 0		
								to subrounded cobbles.	· · · · · · · · ·		
00 00-3.45	SPT(C)	N=48			7,9/10,12,12,14				0.00		
									5.00		
									9 0 0		
									6.04		
00 00-4.45	SPT(C)	N=49			7,10/10,12,14,13				6.00		
									· 0 p . 0		
									6 0 0 0		
00							(4.70)		0 10 0		
00-5.44	SPT(C)	50/285			8,9/11,12,13,14				0 D Q		
									6.00		
									0 0 0		
20	В								6.00		
00 00-6.40	B SPT(C)	50/245			8,10/12,14,14,10				0 10 0		
							_		· 0 0 0		
									6.00		
00	TCR	SCR	RQD	FI	10,11/14,16,20 B				· · · · · · · · · · · · · · · · · · ·		
00-7.37					SPT(C) 50/220	13.35	7.10		8.000		1111
								Very stiff light brown slightly sandy gravelly CLAY with occasional subangular to subrounded cobble	s. 6-5-8		
	33	-					(0.90)		0.00		
					12,14/17,20,15				10 p		
00-8.34 00					SPT(C) 52/190 B	12.45	8.00	Very stiff brown slightly sandy slightly gravelly	0 10 0		71111
20								CLÁY with some subangular to subrounded cobbles and boulders.	0 0 0		//
							(1.00)		6.00		//
									· 0 · 0 · 0		//
00	87	18	9			11.45	9.00	Medium strong-strong grey fine grained	6.20.		/
								LIMESTONE partially weathered with calcite veining.			/
								Two sets of fractures, F1: 0-10 degrees. Very closely- closely spaced undulating smooth			//
0								closely-closely-gradient closely-medium spaced undulating smooth closed.			//
nant/								spaces and and any since in colored.	1111		//
ble percus	ssion to 8.		vith Rotar	y core fol	llow on to 13.00m BC		m BCI 1- 1.0	m PCL and hontonits and from 1 Co. PCL to Cl	Scale (approx)	Lo B	ogged y
otted pipe i ished with	nstalled fr a flush co	om 7.0m B ver.	GL to 3m	BGL with	n pea gravel filter zor	ne from 7.0	m BGL to 1.0r	m BGL and bentonite seal from 1.0m BGL to GL,	1:50	PI	M, CF
									Figure N		

	(Grou	nd In	vesti	igations Ire	land	Ltd	Site Sandford Park Milltown			orehole umber 8H11
Flush : V	Dando 2000, Γ44 Vater		Casing	Diamete		Ground	Level (mOD) 20.45	Client DBFL			ob umber 88-12-19
Core Dia: 9 Method : 0	66 mm Cable Percu vith Rotary f	ssion ollow on	Locatio		731182.2 N	Dates 18	3/03/2020	Project Contractor GII		Sh	neet 2/2
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	93	89	87	8			(4.00)				
11.20	100	67	36								
12.70 13.00	100	67	67			7.45	13.00	Complete at 13.00m	7 7 7 7		//
Remarks									Scale (approx)	F	ogged
									1:50		РМ, СВ
									Figure 1		

	Grou	nd In		gations Ire	eland	Ltd	Site Sandford Park Milltown	Borehole Number BH12
Machine : D	Dando 2000 Cable Percussion	250	Diamete Omm cas	r ed to 8.00m		Level (mOD) 21.41	Client DBFL	Job Numbe. 9338-12-19
		Locatio		731202.8 N	Dates 19	0/03/2020	Project Contractor GII	Sheet 1/1
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend Nate
0.50	В				21.11	(0.30) 0.30 (0.70)	Dark brown sandy slightly gravelly TOPSOIL with occasional rootlets. POSSIBLE MADE GROUND: light brown sandy gravelly CLAY.	1
1.00-1.45 1.00	SPT(C) N=6 B			1,1/1,1,2,2	20.41	1.00	Soft light brown mottled grey slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	6 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2.00-2.45 2.00	SPT(C) N=10 B			2,2/2,3,3,2	19.51	1.90	Firm light brown slightly sandy slightly gravelly CLAY.	5 0 g
3.00-3.45 3.00	SPT(C) N=25 B			2,3/4,5,7,9	18.81	2.60	Very stiff dark grey slightly silty slightly sandy slightly gravelly CLAY with occasional subangular to subrounded cobbles.	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
4.00-4.45 4.00	SPT(C) N=30 B			3,4/5,7,9,9				2 2 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5.00-5.45 5.00	SPT(C) N=35 B			6,6/7,8,9,11		(5.40)		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6.00-6.45 6.00	SPT(C) N=46 B			7,10/10,11,12,13				0.00 0.00 0.00 0.00 0.00 0.00 0.00
7.00-7.40 7.00	SPT(C) 50/245 B			10,12/14,14,15,7				6 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8.00-8.37 8.00	SPT(C) 50/220 B			10,14/16,17,17	13.41	8.00	Complete at 8.00m	6-24.
Borehole ba	rater encountered du ckfilled on completio mplete at 8.00m BG	n.					Scale (approx	Logged By
							Figure	No. 12-19.BH12

Appendix 6 – Laboratory Testing





Unit 3 Deeside Point

Zone 3

Deeside Industrial Park

Deeside CH5 2UA P: +44 (0) 1244 833780

F: +44 (0) 1244 833781

W: www.element.com

Ground Investigations Ireland Catherinestown House Hazelhatch Road Newcastle Co. Dublin Ireland





Attention:

Mike Sutton

Date:

17th June, 2020

Your reference :

9338-12-19

Our reference :

Test Report 20/7377 Batch 1

Location:

Sadford Park Miltown

Date samples received :

10th June, 2020

Status:

Final report

Issue:

1

Five samples were received for analysis on 10th June, 2020 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Phil Sommerton BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sadford Park Miltown

Contact:

Mike Sutton

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle

H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No. Sample ID Depth COC No / misc Containers Sample Date Sample Type Batch Number	09/06/2020	09/06/2020		25-32 BH07 VH HNUF HCLZP 0	33-40 BH11					
Depth COC No / misc Containers Sample Date Sample Type	V HHAUF HOLZP 0 09/06/2020 Ground Water	V HINNE HOLZ P. 6 09/06/2020	V H HINUF HCL Z P. O		BH11					
COC No / misc Containers Sample Date Sample Type	09/06/2020 Ground Water	09/06/2020		V H HNUF HCL Z P G				//		
COC No / misc Containers Sample Date Sample Type	09/06/2020 Ground Water	09/06/2020		V H HNUF HCL Z P G				Diagon one		otes for all
Containers Sample Date Sample Type	09/06/2020 Ground Water	09/06/2020		V H HNUF HCL Z P B					tions and a	
Sample Date	09/06/2020 Ground Water	09/06/2020			V H HNUF HCL Z P 0					
Sample Type	Ground Water		05/06/2020	05/06/2020						
		Ground Water								
Batch Number	1									
		1	1	1	1			LOD/LOR	Units	Method No.
Date of Receipt		10/06/2020		10/06/2020				-0.5		TM30/PM
issolved Arsenic *	<2.5	<2.5	<2.5	<2.5	<2.5			<2.5 <12	ug/l	TM30/PM
issolved Boron	51	35	34	32	30 <0.5			<0.5	ug/l	TM30/PM
issolved Cadmium	<0.5	<0.5	<0.5	<0.5	<1.5			<1.5	ug/l	TM30/PM
otal Dissolved Chromium	<1.5 <7	<1.5 <7	<1.5 <7	<1.5 <7	<7			<7	ug/l	TM30/PM
issolved Copper		<7 <5	<5	<5	<5			<5	ug/l	TM30/PM
issolved Lead	33.8	10.7	18.7	13.5	12.2			<0.1	mg/l	TM30/PM
issolved Magnesium *	861	190	200	999	55			<2	ug/l	TM30/PM
issolved Manganese	<1	<1	<1	<1	<1			<1	ug/l	TM30/PM
issolved Nickel "	9	3	4	4	2			<2	ug/l	TM30/PM
issolved Potassium *	2.9	2.0	1.0	1.4	1.9			<0.1	mg/l	TM30/PM
issolved Zinc *	<3	<3	<3	<3	<3			<3	ug/l	TM30/PM
AH MS										
laphthalene *	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM4/PM
cenaphthylene *	<0.013	<0.013	<0.013	<0.013	<0.013			<0.013	ug/l	TM4/PM
cenaphthene *	<0.013	<0.013	<0.013	<0.013	<0.013			<0.013	ug/l	TM4/PM TM4/PM
luorene *	< 0.014	< 0.014	< 0.014	<0.014	<0.014			<0.014	ug/l ug/l	TM4/PM
henanthrene *	<0.011	<0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PM
inthracene "	<0.013	< 0.013	<0.013	<0.013	<0.013			<0.012	ug/l	TM4/PM
luoranthene *	<0.012	<0.012	<0.012 <0.013	<0.012 <0.013	<0.012 <0.013			<0.013	ug/l	TM4/PM
Pyrene *	<0.013	<0.013 <0.015	<0.013	<0.013	<0.015			<0.015	ug/l	TM4/PM
Benzo(a)anthracene * Chrysene *	<0.015	<0.013	<0.013	<0.013	<0.011			<0.011	ug/l	TM4/PM
Benzo(bk)fluoranthene	<0.018	<0.018	<0.018	<0.018	<0.018			<0.018	ug/l	TM4/PM
Benzo(a)pyrene	<0.016	<0.016	<0.016	<0.016	<0.016			<0.016	ug/l	TM4/PM
ndeno(123cd)pyrene	<0.011	<0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PM
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	ug/l	TM4/PN
Benzo(ghi)perylene	<0.011	< 0.011	<0.011	<0.011	<0.011			<0.011	ug/l	TM4/PN
PAH 16 Total	<0.195	<0.195	<0.195	<0.195	<0.195			< 0.195	ug/l	TM4/PM
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	ug/l	TM4/PN
Benzo(k)fluoranthene	< 0.01	<0.01	<0.01	<0.01	<0.01			<0.01	ug/l	TM4/PM
PAH Surrogate % Recovery	77	78	80	74	79			<0	%	TM4/PM
MTBE #	<5	<5	<5	<5	<5			<5	ug/l	TM36/P
Benzene *	<5	<5	<5	<5	<5			<5	ug/l	TM36/P
Toluene *	<5	<5	<5	<5	<5		1.	<5 <5	ug/l	TM36/P
Ethylbenzene *	<5	<5	<5	<5	<5			<5 <5	ug/l	TM36/P
m/p-Xylene *	<5	<5	<5	<5	<5			<5 <5	ug/l	TM36/P
o-Xylene *	<5	<5	<5	<5	<5				ug/i	1,7,007
										-

Client Name:

Ground Investigations Ireland

Reference: Location:

9338-12-19

Sadford Park Miltown

Contact:

Mike Sutton

EMT Job No: 20/7377 Report: Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle

H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-8	9-16	17-24	05.00				-		
			17524	25-32	33-40					
Sample ID	BH09	BH03	BH02	BH07	BH11					
Depth										
COC No / misc									e attached r ations and a	
Containers	V H HNUF HCL Z P G	V H HNUF HCL Z F O	V H HNUF HCL Z F O	V H HNUF HCL Z P O	V H HNUF HCL Z P 0					
Sample Date										
		NO AMERICAN DESCRIPTION OF THE PERSON OF THE								
Sample Type										T
Batch Number	1	1	1	1	1			LOD/LOR	Units	Method No.
Date of Receipt	10/06/2020	10/06/2020	10/06/2020	10/06/2020	10/06/2020					140.
TPH CWG										
Aliphatics >C5-C6	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8*	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C8-C10 *	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C10-C12*	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16*	<10	70	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21*	<10	560	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 * Total aliphatics C5-35 *	<10 <10	<10	<10 <10	<10 <10	<10 <10			<10	ug/l	ТМ5/РМ16/РМ30
Aromatics	<10	630	~10	~10	~10			-10	ug/l	100.0007002700000
>C5-EC7	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>EC7-EC8 *	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>EC8-EC10 *	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>EC10-EC12 *	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>EC12-EC16	<10	330	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>EC16-EC21	<10	2500	<10	<10	<10			<10	ug/l	TM5/PW16/PM30
>EC21-EC35 * Total aromatics C5-35 *	<10 <10	<10 2830	<10 <10	<10 <10	<10 <10			<10	ug/l	ТМ5/РМ16/РМ30
Total aliphatics and aromatics(C5-35)	<10	3460	<10	<10	<10			<10	ug/l	THIS CHARGE PHOTO PARTY PHOTO
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15			<0.15	mg/l	TM26/PM0
Total Honor Hard	0,70	0.10	0.10	0.10	0.10				mg/	Time or mo
Sulphate as SO4 *	67.2	47 6	101.6	9.4	126.6			<0.5	mg/l	TM38/PM0
Chloride *	27.4	24.1	16.8	8.0	19.5			<0.3	mg/l	ТМ38/РМ0
Nitrate as NO3	<0.2	<0.2	0.9	<0.2	<0.2			<0.2	mg/l	TM38/PM0
Total Cyanide *	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as NH3	0.41	0.15	<0.03	0.23	0.12			<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4	0.43	0.16	<0.03	0.24	0.13			<0.03	mg/l	TM38/PM0
Carbonate Alkalinity as CaCO3	<1	<1	<1	<1	<1			<1	mg/l	TM75/PM0
Electrical Conductivity @25C	734	277	814	541	581			<2	uS/cm	TM76/PM0
pH.	8.01	8.08	7.48	7.82	7.83			<0.01	pH units	TM73/PM0
	•				•					•

EPH Interpretation Report

Matrix: Liquid

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sadford Park Miltown

Contact:

Mike Sutton

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
20/7377	1	BH03		9-16	Linear alkylbenzenes

Notification of Deviating Samples

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sadford Park Miltown

Contact:

Mike Sutton

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
					No deviating sample report results for job 20/7377	
li li						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.:

20/7377

SOILS

ase note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

fficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the sting may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

'JRROGATES

surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact e laboratory if further details are required of the circumstances which have led to the removal of accreditation.

EMT Job No.:

20/7377

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
528 18	
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
sv	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significant higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
ОС	Outside Calibration Range

EMT Job No: 20/7377

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	РМ0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev. 2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev. 2, Dec 1996; Modified BS EN ISO 11885 2009; SOILS by Modified USEP	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co- elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE re	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) (comparabl	PM0	No preparation is required.	Yes			

Element Materials Technology

Method Code Appendix

EMT Job No: 20/7377

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377- 3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
ТМ75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.				
ТМ76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
ТМ89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	РМ0	No preparation is required.	Yes			



Unit 3 Deeside Point

Zone 3

Deeside Industrial Park

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Ground Investigations Ireland Catherinestown House Hazelhatch Road Newcastle Co. Dublin Ireland





Attention : Barry Sexton

Date: 7th February, 2020

Your reference: 9338-12-19

Our reference : Test Report 20/1334 Batch 1

Location : Sandford Park MillItown

Date samples received: 29th January, 2020

Status :

Issue :

PECELIED POOP 13-00-13-53

Eighteen samples were received for analysis on 29th January, 2020 of which eighteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Final report

Authorised By:

Bruce Leslie Project Manager

Please include all sections of this report if it is reproduced

Client Name:

Ground Investigations Ireland 9338-12-19

Reference:

Sandford Park MillItown Location:

Barry Sexton

Contact:

Report : Solid

EMT Job No:	20/1334												
EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	W503	WS03	WS04			
Depth	0.70	1.70	2.40	0.70	1.70	2.50	0.70	1.70	2.70	0.70	Please se	e attached r	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	TLV	VJT										
Sample Date	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	17/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1		TTOLES	Method
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	LOD/LOR	Units	No.
Antimony	2	2	2	3	2	<1	2	2	2	2	<1	mg/kg	TM30/PM15
Arsenic *	13.9	9.3	7.6	13.6	11.3	8.9	11.3	11.2	13.7	12.3	<0.5	mg/kg	TM30/PM15
Barium *	97	80	55	201	147	122	74	80	110	65	<1	mg/kg	TM30/PM15
Cadmium *	3.0	2.0	1.4	4.7	2.3	1.1	3.0	2.3	1.6	2.7	<0.1	mg/kg	TM30/PM15
Chromium *	51.2	47.9	33.0	79.6	44.1	57.3	43.6	52.1	40.9	57.3	<0.5	mg/kg	TM30/PM15
Copper *	46	32	22	31	39	28	39	37	23	39	<1	mg/kg	TM30/PM15
Lead*	20	15	14	20	17	17	20	16	18	18	<5	mg/kg	TM30/PM15
Mercury *	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum *	4.9	5.5	3.4	8.7	6.4	4.2	4.5	5.1	4.1	4.5	<0.1	mg/kg	TM30/PM15
Nickel *	65.1	42.7	27.6	72.8	51.9	42.6	51.0	58.4	37.1	51.7	<0.7	mg/kg	TM30/PM15
Selenium *	1	2	3	3	2	3	1	2	3	1	<1	mg/kg	TM30/PM15
Zinc *	114	96	66	114	110	98	95	98	77	93	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene *	< 0.04	<0.04	<0.04	< 0.04	<0.04	<0.04	< 0.04	< 0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	< 0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene *	< 0.05	<0.05	< 0.05	<0.05	< 0.05	<0.05	<0.05	< 0.05	<0.05	<0.05	< 0.05	mg/kg	TM4/PM8
Fluorene *	<0.04	<0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	<0.04	<0.04	< 0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene *	0.16	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene *	0.06	< 0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	<0.04	<0.04	<0.04	< 0.04	mg/kg	TM4/PM8
Fluoranthene *	0.25	<0.03	< 0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene *	0.22	< 0.03	< 0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	mg/kg	TM4/PM8
Benzo(a)anthracene	0.13	<0.06	<0.06	< 0.06	<0.06	<0.06	< 0.06	< 0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene *	0.11	<0.02	<0.02	<0.02	< 0.02	<0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene	0.21	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	< 0.07	mg/kg	TM4/PM8
Benzo(a)pyrene	0.10	<0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	< 0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
ndeno(123cd)pyrene	0.08	<0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	< 0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene	< 0.04	<0.04	<0.04	<0.04	<0.04	<0.04	< 0.04	< 0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene *	0.08	<0.04	< 0.04	< 0.04	<0.04	<0.04	< 0.04	< 0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	< 0.04	<0.04	<0.04	< 0.04	<0.04	< 0.04	< 0.04	< 0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total	0.72	<0.22	<0.22	<0.22	<0.22	<0.22	< 0.22	< 0.22	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	1.40	< 0.64	< 0.64	< 0.64	< 0.64	< 0.64	< 0.64	< 0.64	< 0.64	< 0.64	< 0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	<0.05	<0.05	< 0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	67 ^{sv}	80	71	72	72	80	79	73	80	73	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	mg/kg	тм5/Fм8/Pм.1

Client Name:

Ground Investigations Ireland 9338-12-19

Reference:

Location: Contact:

Sandford Park Millitown

Barry Sexton

Report : Solid

EMT Job No:	20/1334

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	WS01	WS01	WS01	WS02	WS02	W502	WS03	WS03	WS03	WS04			
Depth	0.70	1.70	2.40	0.70	1.70	2.50	0.70	1.70	2.70	0.70	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	TLV	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	17/01/2020			
Sample Type	Soil	Soil	Soll	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number		1	1	1	1	1	1	1	1	1			
Date of Receipt			29/01/2020	"				29/01/2020	29/01/2020		LOD/LOR	Units	Method No.
TPH CWG	29/01/2020	29/01/2020	29/01/2020	25/01/2020	23/01/2020	23/01/2020	23/01/2020	20/01/2020	25/01/2020	2070 112020			
Aliphatics													
>C5-C6*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 sv	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0 1 sv	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 sv	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16*	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TMS/FM8/FM16
>C16-C21 *	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM10
>C21-C35 *	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/FM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	THIS THOSE PROPERTY MISE NO.
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 sv	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/FM8/FM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	I MONEMBREM IS
Aromatics			-0.4	-0.4	-0.4	<0.1 sv	-0.4	-0.1	<0.1 sv	<0.1	<0.1	maka	TM36/PM12
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1	mg/kg mg/kg	TM36/PM12
>EC7-EC8 * >EC8-EC10 *	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1 sv	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10* >EC10-EC12*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/FM8/FM16
>EC12-EC16*	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/FM8/FM18
>EC16-EC21*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM16
>EC21-EC35*	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	THEFTHER PHILIPPE
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	THETHORPMOTHISTM
>EC6-EC10*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 ^{8V}	<0.1	<0.1	<0.1 ^{8V}	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/FM8/PM1
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM1
MTBE*	<5	<5	<5	<5	<5	<5°V	<5	<5	<5 ^{SV}	<5	<5	ug/kg	TM31/PM12
Benzene *	<5	<5	<5	<5	<5	<5sv	<5	<5	<5sv	<5	<5	ug/kg	TM31/PM12
Toluene*	<5	<5	<5	<5	<5	<5 sv	<5	<5	<5sv	<5	<5	ug/kg	TM31/PM12
Ethylbenzene *	<5	<5	<5	<5	<5	<5sv	<5	<5	<5 ^{sv}	<5	<5	ug/kg	TM31/PM12
m/p-Xylene *	<5	<5	<5	<5	<5	<5 sv	<5	<5	<5 8V	<5	<5	ug/kg	TM31/PM12
o-Xylene *	<5	<5	15	<5	<5	<5 sv	<5	<5	<5 sv	<5	<5	ug/kg	TM31/PM1
PCB 28 *	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 28* PCB 52*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52* PCB 101*	<5 <5	<5 <5	<5	<5 <5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 *	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 P	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 P	<5	<5	<5	<5	<5	<5	<5	<5	< 5	<5	<5	ug/kg	TM17/PM8
PCB 180 PCB 18	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs*	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Client Name:

Ground Investigations Ireland 9338-12-19

Reference:

Location:

Sandford Park Milltown

Contact:

Barry Sexton

Report : Solid

EMT Job No:	20/1334												
EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	WS03	WS03	WS04			
Depth	0.70	1.70	2.40	0.70	1.70	2.50	0.70	1.70	2.70	0.70	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	V J T 16/01/2020	V J T	V J T 17/01/2020									
Sample Date Sample Type	Soil	Soil	Soil	Soil	Soil	Soll	Soil	Soil	Soil	Soll			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	LODITOR	Units	No.
Natural Moisture Content Moisture Content (% Wet Weight)	21.3 17.6	12.7 11.3	9.7 8.9	16.8 14.4	15.8 13.6	9.4 8.6	17.6 15.0	16.3 14.0	10.3	13.0 11.5	<0.1	%	PM4/PM0 PM4/PM0
idade content (50 tree traight)	17.0	11.0	0,0	14.4	10.0	0.0							
Hexavalent Chromium * Chromium III	<0.3 51.2	<0.3 47.9	<0.3 33.0	<0.3 79.6	<0.3 44.1	<0.3 57.3	<0.3 43.6	<0.3 52.1	<0.3 40.9	<0.3 57.3	<0.3 <0.5	mg/kg mg/kg	TM38/PM20 NONE/NONE
				0.48	0.40	0.39	0.37	0.33	0.49	0.37	<0.02	%	TM21/PM24
otal Organic Carbon	0.43	0.35	0.37	0.48	0.40	0.39	0.37	0.33	0.49	0.37	10,02	70	
н "	8.37	8.52	8.73	8.40	8.47	8.71	8.40	8.46	8.69	8.30	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1099	0.1014	0.1011	0.1079	0.1038	0.099	0.1052	0.105	0.1002	0.1044		kg kg	NONE/PM17

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Report: Solid

Location: Contact: EMT Job No		Sandford Barry Sex 20/1334	Park MillIto ton	wn				Solids: ∀=6	60g VOC jar, J=25	50g glass jar, T=	plastic tub		
	EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54				
	Sample ID	WS04	WS05	WS05	WS06	WS06	WS07	VVS07	WS07				
	Depth	1.70	0.70	1.70	0.70	1.70	0.70	1.70	2.60			attached r	
	COC No / misc												
	Containers	TLV	VJT	VJT	VJT	VJT	VJT	TLV	All				
	Sample Date	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020				
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
	Batch Number	1	1	1	1	1	1	1	1		LOD/LOR	Units	Method
	Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020				No.
Antimony		2	2	2	3	2	2	2	2		<1	mg/kg	TM30/PM1
Arsenic *		10.4	10.6	9.0	15.7	10.3	9.1	10.8	10.1		<0.5	mg/kg	TM30/PM1
Barium *		75	77	85	163	105	60	105	102		<1	mg/kg	TM30/PM1
Cadmium *		2.1	1.9	2.1	3.6	2.1	2.4	2.5	1.9		<0.1	mg/kg	TM30/PM1
Chromium *		36.3	46.4	41.0	50.1	33.4	52.6	44.6	40.6		<0.5	mg/kg	TM30/PM1
Copper*		33	33	33	37	33	31	37	28		<1	mg/kg	TM30/PM1
Lead*		17	17	15	22	14	15	16	17		<5	mg/kg	TM30/PM1
Mercury *		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	mg/kg	TM30/PM1
Molybdenum *		4.6	3.8	5.1	6.0	4.2	4.0	5.5	5.3		<0.1	mg/kg	TM30/PM1
Nickel *		47.3	46.6	40.4	65.8	42.2	39.3	46.8	42.5		<0.7	mg/kg	TM30/PM1
Selenium *		2	1	1	2	2	1	1	4		<1	mg/kg	TM30/PM1

TM30/PM15

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location: Sandford Park Milltown

Contact:

Barry Sexton

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Report: Solid

EMT Job No: 20/1334

EMT Job No:	20/1334								 			
EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54				
Sample ID	WS04	WS05	WS05	WS06	WS06	WS07	WS07	WS07				
Depth	1.70	0.70	1.70	0.70	1.70	0.70	1.70	2.60		Please see	attached r	notes for all
COC No / misc	() Sec. () Sec. ()										itions and a	
Containers	VJT	VJT	VJT	VJT	TLV	VJT	VJT	VJT				
Sample Date	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Batch Number	1	1	1	1	1	1	1	1	1			
										LOD/LOR	Units	Method No.
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/0 1/2020	29/0 1/2020				
TPH CWG Aliphatics												
>C5-C6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 ^{sv}		<0.1	mg/kg	TM36/PM12
>C6-C8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 ^{SV}		<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 ^{sv}		<0.1	mg/kg	TM36/PM12
>C10-C12*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	mg/kg	TM5/FM8/PM16
>C12-C16*	<4	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM8/PM16
>C16-C21 *	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>C21-C35 *	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TMS/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26		<26	mg/kg	146/1466/FMSPM12FM16
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 ^{SV}		<0.1	mg/kg	TM36/PM12 TM5/PM8/PM16
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TM5/PM8/PM16 TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	-1 M 2/P M B/P M 10
Aromatics			_			.0.4	-0.4	<0.1 sv		<0.1	mg/kg	TM36/PM12
>C5-EC7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1		<0.1	mg/kg	TM36/PM12
>EC7-EC8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1		<0.1	mg/kg	TM36/PM12
>EC8-EC10*	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1		<0.2	mg/kg	TM5/PM8/PM16
>EC10-EC12	<4	<4	<4	<4	<4	<4	<4	<4		<4	mg/kg	TM5/PM8/PM16
>EC12-EC16" >EC16-EC21"	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/FM8/FM16
>EC16-EC21	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/FM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7		<7	mg/kg	TM5/F1M8/F1M16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26		<26	mg/kg	тизтивениенизения
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52		<52	mg/kg	THETHORPHOPHIC
>EC6-EC10 *	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 ^{8V}		< 0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TM5/FM6/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10		<10	mg/kg	TMS/FM8/PM16
мтве*	<5	<5	<5	<5	<5	<5	<5	<5 sv		<5	ug/kg	TM31/PM12
Benzene *	<5	<5	<5	<5	<5	<5	<5	<5 sv		<5	ug/kg	TM31/PM12
Toluene *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM31/PM12
Ethylbenzene *	<5	<5	<5	<5	<5	<5	<5	<5 ^{SV}		<5	ug/kg	TM31/PM12
m/p-Xylene *	<5	<5	<5	<5	<5	<5	<5	<5 sv		<5	ug/kg	TM31/PM12
o-Xylene *	<5	<5	<5	<5	<5	<5	<5	<5 sv		<5	ug/kg	TM31/PM12
PCB 28 •	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 52 *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 101 *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 118 *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 138 *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 153 *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
PCB 180 *	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/kg	TM17/PM8
Total 7 PCBs*	<35	<35	<35	<35	<35	<35	<35	<35		<35	ug/kg	TM17/PM8

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location: Contact: Sandford Park Milltown

Barry Sexton

Report: Solid

EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			
Sample ID	WS04	WS05	WS05	WS06	WS06	WS07	WS07	WS07			
Depth	1.70	0.70	1.70	0.70	1.70	0.70	1 70	2.60		e attached n	
COC No / misc									abbrevi	ations and a	cronyms
Containers	VJT	TLV	VJT	TLV	VJT	TLV	TLV	VJT			
Sample Date	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020			
Sample Type	Soil										
Batch Number	1	1	1	1	1	1	1	1			Method
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	LOD/LOR	Units	No.
Natural Moisture Content	13.8	14.9	13.3	21.3	14.9	15.2	13.4	10.1	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	12.1	12.9	11.7	17.5	12.9	13.2	11.8	9.2	<0.1	%	PM4/PM0
								-0.0	-0.3	matte	TM38/PM20
Hexavalent Chromium Chromium III	<0.3 36.3	<0.3 46.4	<0.3 41.0	<0.3 50.1	<0.3 33.4	<0.3 52.6	<0.3 44.6	<0.3 40.6	<0.3	mg/kg mg/kg	NONE/NONE
Chromium III	36.3	46.4	41.0	50.1	33.4	52.0	44.0	40.0	-0.0	mgmg	
Total Organic Carbon	0.38	0.38	0.40	0.55	0.37	0.32	0 41	0.61	<0.02	%	TM21/PM24
pH*	8.32	8.53	8.48	8.32	8.20	8.32	8 45	8.68	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.101	0.1047	0.1038	0.108	0.1037	0.1044	0.1023	0.1009		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sandford Park Milltown

Contact:

Barry Sexton

20/1334 EMT Job No:

Report: CEN 10:11 Batch

EMT Job No:	20/1334												
EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	WS03	WS03	WS04			
Depth	0.70	1.70	2.40	0.70	1.70	2.50	0.70	1.70	2.70	0.70	Please se	e attached no	otes for all
COC No / misc											abbrevi	ations and ac	ronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	TLV	VJT	VJT	VJT			
Sample Date	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	17/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			Method
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	LOD/LOR	Units	No.
Dissolved Antimony	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	0.005	0.005	0.002	0.003	< 0.002	mg/l	TM30/PM17
Dissolved Antimony (A10)	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.05	0.05	0.02	0.03	<0.02	mg/kg	TM30/PM17
Dissolved Arismony (A10)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Arsenic (A10)		<0.025	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	< 0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.03	<0.003	<0.003	<0.03	<0.03	mg/kg	TM30/PM1
Dissolved Barium (A10)	<0.03	555,550	-	-		<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium *	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	C 75000000000000000000000000000000000000			<0.005	<0.005	<0.005	mg/kg	TM30/PM1
Dissolved Cadmium (A10)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	200000	577-570			TM30/PM17
Dissolved Chromium *	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10)	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM1
Dissolved Copper*	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	
Dissolved Copper (A10)	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM1
Dissolved Lead *	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM1
Dissolved Lead (A10)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM1
Dissolved Molybdenum *	0.002	0.008	0.010	0.004	0.009	0.013	<0.002	0.005	0.019	<0.002	<0.002	mg/l	TM30/PM1
Dissolved Molybdenum (A10)	<0.02	0.08	0.10	0.04	0.09	0.13	<0.02	0.05	0.19	<0.02	<0.02	mg/kg	TM30/PM1
Dissolved Nickel*	<0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM1
Dissolved Nickel (A10)	<0.02	<0.02	<0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM1
Dissolved Selenium *	<0.003	< 0.003	<0.003	<0.003	< 0.003	<0.003	< 0.003	<0.003	< 0.003	<0.003	<0.003	mg/l	TM30/PM1
Dissolved Selenium (A10)	<0.03	< 0.03	<0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	mg/kg	TM30/PM1
Dissolved Zinc *	0.008	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM1
Dissolved Zinc (A10)	0.08	<0.03	< 0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	mg/kg	TM30/PM1
Mercury Dissolved by CVAF	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	< 0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	0.4	<0.3	0.3	0.6	<0.3	0.3	0.4	0.5	1.4	0.5	<0.3	mg/l	TM173/PM
Fluoride	4	<3	<3	6	<3	3	4	5	14	5	<3	mg/kg	TM173/PM
Sulphate as SO4	0.5	0.6	0.6	0.7	0.5	1.4	0.6	1.1	0.8	10.6	<0.5	mg/l	TM38/PM0
Sulphate as SO4	<5	6	6	7	<5	14	6	11	8	106	<5	mg/kg	TM38/PM0
Chloride *	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride *	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	3	<2	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	30	<20	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM
рН	8.25	6.99	7.82	7.92	8.17	8.19	8 19	8.08	8.26	8.05	<0.01	pH units	TM73/PM
Total Dissolved Solids	67	101	35	67	46	36	53	46	51	146	<35	mg/l	TM20/PM
Total Dissolved Solids	670	1010	<350	670	460	360	530	460	510	1460	<350	mg/kg	TM20/PM
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Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sandford Park Milltown

E

Barry Sexton

Report: CEN 10:1 1 Batch

Contact:	barry Se.
EMT Job No:	20/1334

EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			
Sample ID	WS04	WS05	WS05	WS06	WS06	WS07	WS07	WS07			
Sample ID	******	***************************************	11000	***************************************	11000	***************************************	***************************************	11007			
Depth	1.70	0.70	1.70	0.70	1.70	0.70	1.70	2.60		attached n	
COC No / misc									abbrevie	dons and at	21 Ottyrris
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1		2570	Method
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	LOD/LOR	Units	No.
Dissolved Antimony	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic *	< 0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10)	<0.025	< 0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	< 0.025	mg/kg	TM30/PM17
Dissolved Barium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10)	<0.003	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium (A10)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium (A 10)	< 0.0015	<0.0015	<0.0015	<0.0015	<0.0015	< 0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10)	<0.0015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
CONTRACTOR OF THE CONTRACTOR O	<0.007	< 0.007	<0.007	<0.013	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper		<0.07	<0.07	<0.007	<0.007	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Copper (A10)	<0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM1
Dissolved Lead *	2011/00/00/00	(1880)	277.00	455,575,55		<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM1
Dissolved Lead (A10)	< 0.05	<0.05	<0.05	<0.05	<0.05				<0.002	3.4	TM30/PM1
Dissolved Molybdenum *	0.010	0.004	0.011	0.004	0.013	0.003	0.009	0.022		mg/l	
Dissolved Molybdenum (A10)	0.10	0.04	0.11	0.04	0.13	0.03	0.09	0.22	<0.02	mg/kg	TM30/PM1
Dissolved Nickel*	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM1
Dissolved Nickel (A10)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM1
Dissolved Selenium *	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM1
Dissolved Selenium (A10)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM1
Dissolved Zinc *	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM1
Dissolved Zinc (A10)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM1
Mercury Dissolved by CVAF	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	0.4	0.3	0.5	<0.3	0.5	<0.3	<0.3	<0.3	mg/l	TM173/PM
Fluoride	<3	4	<3	5	<3	5	<3	<3	<3	mg/kg	TM173/PM
Sulphate as SO4	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	mg/l	TM38/PM0
Sulphate as SO4	19	<5	<5	<5	<5	<5	<5	8	<5	mg/kg	TM38/PM0
Chloride *	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride *	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM
pH	6.77	7.15	7.34	7.51	7.60	7.67	7.71	7.68	<0.01	pH units	TM73/PM
Total Dissolved Solids	186	56	165	91	61	51	83	103	<35	mg/l	TM20/PM
Total Dissolved Solids	1861	560	1650	910	610	510	830	1030	<350	mg/kg	TM20/PM
. Juli bissoired dollds	1001	550	10.00								

Client Name: Reference:

Ground Investigations Ireland 9338-12-19

Contact: EMT Job No:

Sandford Park Milltown Barry Sexton

Location: 20/1334 Report: EN12457_2

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
Sample ID	WS01	WS01	WS01	WS02	W502	W802	WSII3	W503	WSU3	W904
Depth	0.70	1.70	2.40	0.70	1.70	2.50	0.70	1.70	2.70	0.70
COC No / misc										
Containers	VJT									
Sample Date	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	17/01/2020
Sample Type	Soil									

Sample Date Sample Type Batch Number Date of Receipt 29/0 Solid Waste Analysis	Soil 1	V J T 16/01/2020 Soil 1	V J T 16/01/2020 Soil 1	VJT 16/01/2020 Soil	V J T 16/01/2020 Soil	V J T 17/01/2020 Soil				abbrevia	itions and ac	ronyms				
Sample Date Sample Type Batch Number Date of Receipt 29/0 Solid Waste Analysis	/01/2020 Soil 1	16/01/2020 Soil	16/01/2020 Soil	16/01/2020 Soil	16/01/2020 Soil	16/01/2020	16/01/2020	16/01/2020	16/01/2020	17/01/2020						
Sample Type Batch Number Date of Receipt 29/0	Soil 1	Soil	Soil	Soil	Soil											
Sample Type Batch Number Date of Receipt 29/0 Solid Waste Analysis	1	2000				Soil	Soil	Soil	Soil	Call						
Batch Number Date of Receipt 29% Solid Waste Analysis	1	2000								2011						
Date of Receipt 29/0 Solid Waste Analysis					1	1	1	1	1	1	Tribut S.	Stable Non-				Method
Solid Waste Analysis		29/01/2020	20/04/2020	29/01/2020	29/01/2020	29/01/2020		29/01/2020	29/01/2020	29/01/2020	hert	reactive	Hazardous	LOD LOR	Units	No.
		28/01/2020	29/01/2020	29/01/2020	28/01/2020	25/01/2020	25/01/2020	20/0/112020	20/0/12020							
Tabel Occasio Occhest	0.43	0.35	0.37	0.48	0.40	0.39	0.37	0.33	0.49	0.37	3	5	6	<0.02	%	TM21/PM24
Total Organic Carbon	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025 ^{SV}	<0.025	<0.025	<0.025 ^{SV}	<0.025	6		-	<0.025	mg/kg	TM31/PM12
	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	< 0.035	<0.035	<0.035	1	-	- 2	<0.035	mg/kg	TM17/PM8
Sum of 1 1 out	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	500	_		<30	mg/kg	тыз/Рыв/Ры16
MINERALIZATI	0.72	<0.22	<0.22	<0.22	< 0.22	<0.22	<0.22	<0.22	<0.22	<0.22		-	-	<0.22	mg/kg	TM4/PM8
r Air out or o	1.40	<0.64	<0.64	< 0.64	< 0.64	<0.64	<0.64	<0.64	<0.64	<0.64	100	- *		<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic"	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium *	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium *	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper*	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury" <0	0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
mary boot norm	<0.02	0.08	0.10	0.04	0.09	0.13	<0.02	0.05	0.19	<0.02	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead"	<0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony"	<0.02	< 0.02	< 0.02	0.03	<0.02	<0.02	0.05	0.05	0.02	0.03	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium "	<0.03	< 0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc*	80.0	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids"	670	1010	<350	670	460	360	530	460	510	1460	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	30	<20	<20	<20	<20	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion 0	0.1099	0.1014	0.1011	0.1079	0.1038	0.099	0.1052	0.105	0.1002	0.1044	*		-		kg	NONE/PM17
Dry Matter Content Ratio	82.2	88.3	89.3	83.0	86.7	90.5	85.3	86.1	89.6	85.9	*1	-		<0.1	%	NONE/PM4
Leachant Volume	0.88	0.888	0.889	0.882	0.886	0.891	0.884	0.886	0.89	0.885	*	*	100		1	NONE/PM17
Eluate Volume	8.0	0.8	0.8	0.8	0.8	8.0	0.8	0.8	0.8	0.8		-			I.	NONE/PM17
pH "	8.37	8.52	8.73	8.40	8.47	8.71	8 40	8.46	8.69	8.30	-			<0.01	pH units	TM73/PM11
Phenol	⊲0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1			<0.1	mg/kg	TM26/PM0
Fluoride	4	⊲	<3	6	<3	3	4	5	14	5		-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 "	⋄	6	6	7	<5	14	6	11	8	106	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride *	0	3	<3	<3	<3	<3	<3	<3	<3	<3	800	15000	25000	<3	mg/kg	TM38/PM0

Reference: Location:

Ground Investigations Ireland 9338-12-19 Sandford Park Millitown Barry Sexton

Report: EN12457_2

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Contact: EMT Job No: 20/1334

EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54
Sample ID	W584	WS05	WS05	W506	WSUE	WS07	W507	W507
Depth	1.70	0.70	1.70	0.70	1.70	0.70	1.70	2.60
COC No / misc								
Containers	VJT							
Sample Date	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020

Please see attached notes for all

COC No / misc													abbrevia	ations and ac	cronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT							
Sample Date		16/01/2020		16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Spil							
Batch Number	1	1	1	1	1	1	1	1							
										Inert	Stable Non- reactive	Hazardous	LOD LOR	Units	Method No.
Date of Receipt	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020	29/01/2020							
Solid Waste Analysis	0.38	0.38	0.40	0.55	0.37	0.32	0.41	0.61		3	5	6	<0.02	%	TM21/PM24
Total Organic Carbon* Sum of BTEX	Comaca	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025°V		6		Ĭ	<0.025	mg/kg	TM31/PM12
	<0.025 <0.035	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025		1			< 0.035	mg/kg	TM17/PMB
Sum of 7 PCBs*			100000000000000000000000000000000000000	<30	<30	<30	<30	<30		500			<30	mg/kg	тиз/РМВ/РМ16
Mineral Oil	<30	<30	<30	<0.22	<0.22	<0.22	<0.22	<0.22		-			<0.22	mg/kg	TM4/PM8
PAH Sum of 6"	<0.22	<0.22	<0.22		<0.22	<0.22	<0.64	<0.64		100			<0.64	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	< 0.64	<0.64	<0.64	<0.64	<0.64	<0.64		100		-	<0.64	mg/kg	1 (4)4/ P (4)0
CEN 10:1 Leachate															
Arsenic *	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025		0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium *	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium *	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium *	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper*	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		2	50	100	<0.07	mg/kg	TM30/PM17
Mercury"	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum "	0.10	0.04	0.11	0.04	0.13	0.03	0.09	0.22		0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel "	<0.02	<0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02		0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02		0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium *	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc*	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids*	1861	560	1650	910	610	510	830	1030		4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20		500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.101	0.1047	0.1038	0.108	0.1037	0.1044	0.1023	0.1009						kg	NONE/PM17
Dry Matter Content Ratio	88.9	86.4	86.7	83.6	86.7	86.2	87.9	89.0		-		-	<0.1	%	NONE/PM4
Leachant Volume	0.889	0.886	0.886	0.882	0.886	0.886	0.888	0.889			-	-		1	NONE/PM17
Eluate Volume	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8			-	-		1.	NONE/PM17
pH*	8.32	8.53	8.48	8.32	8.20	8.32	8 45	8,68			-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	4	<3	5	⊲	5	<3	<3		-	4	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 *	19	<5	<5	<5	<5	<5	<5	8		1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride *	<3	<3	<3	<3	3	<3	<3	<3		800	15000	25000	<3	mg/kg	TM38/PM0

EPH Interpretation Report

Matrix: Solid

Client Name: Ground Investigations Ireland

Reference: 9338-12-19

Location: Sandford Park MillItown

Contact: Barry Sexton

20/1334 20/1334 20/1334 20/1334 20/1334	1 1 1	WS01 WS01	0.70		
20/1334	1	WS01		1-3	No interpretation possible
20/1334			1.70	4-6	No interpretation possible
	4	WS01	2.40	7-9	No interpretation possible
20/1334	1	WS02	0.70	10-12	No interpretation possible
20/1334	1	WS02	1.70	13-15	No interpretation possible
20/1334	1	WS02	2.50	16-18	No interpretation possible
20/1334	1	WS03	0.70	19-21	No interpretation possible
20/1334	1	WS03	1.70	22-24	No interpretation possible
20/1334	1	WS03	2.70	25-27	No interpretation possible
20/1334	1	WS04	0.70	28-30	No interpretation possible
20/1334	1	WS04	1.70	31-33	No interpretation possible
20/1334	1	WS05	0.70	34-36	No interpretation possible
20/1334	1	WS05	1.70	37-39	No interpretation possible
20/1334	1	WS06	0.70	40-42	No interpretation possible
20/1334	1	WS06	1.70	43-45	No interpretation possible
20/1334	1	WS07	0.70	46-48	No interpretation possible
20/1334	1	WS07	1.70	49-51	No interpretation possible
20/1334	1	WS07	2.60	52-54	No interpretation possible

Client Name: Ground Investigations Ireland

Reference: 19/12/9338

Location: Sandford Park Millitown

Contact: Barry Sexton

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
20/1334	1	WS01	0.70	2	31/01/2020	General Description (Bulk Analysis)	soil stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS01	1.70	5	31/01/2020	General Description (Bulk Analysis)	soil.stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS01	2.40	8	31/01/2020	General Description (Bulk Analysis)	soil stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS02	0.70	11	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS02	1.70	14	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS02	2.50	17	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS03	0.70	20	31/01/2020	General Description (Bulk Analysis)	Soil/Stones
					31/01/2020	Asbestos Fibres	NAD.
					31/01/2020	Asbestos ACM	NAD

Client Name:

Ground Investigations Ireland

Reference:

19/12/9338

Location:

Sandford Park Millitown

Contact:

Barry Sexton

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
20/1334	1	WS03	0.70	20	31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS03	1.70	23	31/01/2020	General Description (Bulk Analysis)	Soil/Stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS03	2.70	26	31/01/2020	General Description (Bulk Analysis)	Soil/Stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS04	0.70	29	31/01/2020	General Description (Bulk Analysis)	Soil/Stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS04	1.70	32	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	ď	WS05	0.70	35	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS05	1.70	38	31/01/2020	General Description (Bulk Analysis)	soil-stones
			11000		31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
						Asbestos Level Screen	NAD
20/1334	1	WS06	0.70	41	31/01/2020	General Description (Bulk Analysis)	Soil/Stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS06	1.70	44	31/01/2020	General Description (Bulk Analysis)	Soll/Stones
20/1004		11300	1.70	-14	31/01/2020	Asbestos Fibres	NAD
					0.000.000.7250.000.7	(5.0773) (3. 06.063)	NAD
					31/01/2020	Asbestos ACM	00000
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
0/1334	1	WS07	0.70	47	31/01/2020	General Description (Bulk Analysis)	soil stones
					31/01/2020	Asbestos Fibres	NAD

Client Name: Ground Investigations Ireland

Reference: 19/12/933

Location: Sandford Park MillItown

EMT Job No. 20/1334	Batch 1	Sample ID WS07	Depth 0.70	EMT Sample No.	Date Of Analysis 31/01/2020	Analysis	Result
			0.70	47	31/01/2020		
20/1334	1	WS07				Asbestos ACM	NAD
20/1334	1	WS07			31/01/2020	Asbestos Type	NAD
20/1334	1	WS07			31/01/2020	Asbestos Level Screen	NAD
			1.70	50	31/01/2020	General Description (Bulk Analysis)	soil stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1334	1	WS07	2.60	53	31/01/2020	General Description (Bulk Analysis)	soil stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD

Client Name: Ground Investigations Ireland

Reference: 9338-12-19

Sandford Park Milltown Location:

Contact: **Barry Sexton**

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
					No deviating sample report results for job 20/1334	
				11		

Please include all sections of this report if it is reproduced

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.:

20/1334

SOILS

gase note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

ifficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the sting may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

IRROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact e laboratory if further details are required of the circumstances which have led to the removal of accreditation.

EMT Job No.:

REPORTS FROM THE SOUTH AFRICA LABORATORY

20/1334

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
sv	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significant higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
ТВ	Trip Blank Sample
ОС	Outside Calibration Range

EMT Job No: 20/1334

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported or dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	РМО	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
ТМ5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required	Yes		AR	Yes
TM20	Modified BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3, 1995, ISO10694, 1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes

EMT Job No: 20/1334

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenois by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 5010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method BS EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2.1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10.1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes

EMT Job No: 20/1334

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2 As received solid samples are leached with water in a 10.1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM17	Modified method BS EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	



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Zone 3

Deeside Industrial Park

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Ground Investigations Ireland Catherinestown House Hazelhatch Road Newcastle Co. Dublin Ireland





Attention :

Barry Sexton

Date:

10th February, 2020

Your reference :

9338-12-19

Our reference :

Test Report 20/1406 Batch 1

Location:

Sandford Park Milltown

Date samples received :

30th January, 2020

Status:

Final report

Issue:

1

Twenty samples were received for analysis on 30th January, 2020 of which twenty were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie

Project Manager

Please include all sections of this report if it is reproduced

Ground Investigations Ireland Client Name:

9338-12-19 Reference:

Sandford Park Milltown Location:

Barry Sexton Contact: 20/1406 EMT Job No:

Report : Solid

EMI JOD NO.	20/1400									
EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
Sample ID	WS08	VVS08	WS08	WS09	WS09	WS09	WS10	WS10	WS10	WS11
Depth	0.70	1.70	2.60	0.70	1,70	2.60	0.70	1.70	2.30	0.70
COC No / misc										
Containers	VJT	TLV	VJT	VJT	VJT	TLV	TLV	VJT	TLV	VJT
Sample Date	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020
Sample Type	Soil									

	Sample ID	WS08	WS08	WS08	WS09	WS09	WS09	WS10	WS10	WS10	WS11			
	Depth	0.70	1.70	2.60	0.70	1.70	2.60	0.70	1.70	2.30	0.70		e attached n	
	COC No / misc											abbrevia	itions and ad	cronyms
	Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
	Sample Date		17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020			
	Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
						10000	10.000	1	1	1	1			
	Batch Number	1	1	1	1	1	30/01/2020			30/01/2020		LOD/LOR	Units	Method No.
	Date of Receipt					30/01/2020						-1		TM30/PM15
Antimony		2	2	2	2	2	2	2	2	2	2	<1	mg/kg	TM30/PM15
Arsenic *		6.9	7.6	10.9	8.1	9.4	11.6	13.3	11.3	11.0	11.5	<0.5	mg/kg	
Barium *		65	94	42	312	87	64	69	63	63	113	<1	mg/kg	TM30/PM15
Cadmium *		1.2	1.7	2.4	1.9	2.1	1.9	2.5	2.1	2.0	2.6	<0.1	mg/kg	TM30/PM15
Chromium *		50.2	42.5	39.2	37.6	47.1	38.2	42.2	42.8	36.7	39.3	<0.5	mg/kg	TM30/PM15
Copper *		20	26	32	30	33	32	40	31	30	36	<1	mg/kg	TM30/PM15
Lead*		11	14	17	14	16	18	17	19	17	16	<5	mg/kg	TM30/PM15
Mercury *		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum *	,	3.5	4.9	5.2	3.5	4.7	4.9	4.6	4.7	4.4	4.0	<0.1	mg/kg	TM30/PM15
Nickel *		29.6	35.2	40.0	35.5	43.0	41.2	51.0	39.2	39.7	47.4	<0.7	mg/kg	TM30/PM15
Selenium *		1	1	3	1	2	5	1	<1	2	1	<1	mg/kg	TM30/PM15
Zinc*		80	76	96	62	94	98	101	90	86	83	<5	mg/kg	TM30/PM15
PAH MS														
Naphthalene		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthyler		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Acenaphthene	e ·	-37000750		1000000	1955000	Name of C	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluorene *		<0.04	<0.04	<0.04	<0.04	<0.04				<0.03	<0.03	<0.03	250 3	TM4/PM8
Phenanthrene	•	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03				mg/kg	TM4/PM8
Anthracene *		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	
Fluoranthene '		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene *		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthr	racene "	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene *		<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluo		<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrer	ne *	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd		< 0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)ai		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)per	rylene *	< 0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total		< 0.22	<0.22	<0.22	<0.22	<0.22	<0.22	< 0.22	<0.22	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total		< 0.64	< 0.64	< 0.64	<0.64	<0.64	< 0.64	< 0.64	< 0.64	<0.64	< 0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluora		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluora	anthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluora	anthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogat	te % Recovery	84	83	81	81	76	86	106	98	100	100	<0	%	TM4/PM8
Mineral Oil (C	10-C40)	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	mg/kg	TM5/PM8/PM16
							•				•			

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Sandford Park Milltown Location:

Contact:

Barry Sexton

Report: Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Job No: 20/1406

EMT Job No:	20/1406												
EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30			
Sample ID	WS08	WS08	WS08	WS09	WS09	WS09	WS10	WS10	WS10	WS11			
Depth	0.70	1.70	2.60	0.70	1.70	2.60	0.70	1.70	2.30	0.70	Please se	e attached n	otes for all
COC No / misc											abbrevia	ations and a	cronyms
Containers	VJT	VJT	TLV	VJT	TLV	VJT	VJT	VJT	TLV	TLV			
Sample Date	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
333977	100000	1	1	1	1	1	1	1	1	1			
Batch Number	1								22 100000000000000000000000000000000000		LOD/LOR	Units	Method No.
Date of Receipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020		THE STATE OF THE STATE OF	THE RESERVE
TPH CWG													
Aliphatics	-0.1	<0.4	<0.1 sv	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
C5-C6	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 <0.1 sv	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 • >C8-C10	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
C10-C12 *	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	тм5/Рм8/Рм16
C12-C16	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	тм5Фм8/Рм 16
C16-C21	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
C21-C35	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM16
C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM16
Fotal aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TMS/TMS6FMSFM13FM1
C6-C10	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 ^{sv}	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
C10-C25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/FM8/PM16
C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics			ev			ev			-0.4	-0.1	-0.1	malia	TM36/PM12
C5-EC7	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1 ^{sv}	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg mg/kg	TM36/PM12
EC7-EC8	<0.1	<0.1	<0.1 sv <0.1 sv	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM1
>EC10-EC12	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/FM8/PM1/
>EC12-EC16 >EC16-EC21	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	ТМ5/РМ8/РМ1
>EC21-EC35 *	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM1
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM1
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	тиртизельятиноги
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	THEYTHOSPHOPHIOPS
>EC6-EC10 *	<0.1	<0.1	<0.1 8V	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM1
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/FM8/PM1
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM1
MTBE.	<5	<5	<5sv	<5	<5	<5 ^{sv}	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene *	<5	<5	<5 sv	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM1
Toluene *	<5	<5	<5	<5	<5	<5 sv	<5	<5	<5	<5	<5	ug/kg	TM31/PM1
Ethylbenzene *	<5	<5	<5 ^{SV}	<5	<5	<5 SV	<5	<5	<5	<5	<5	ug/kg	TM31/PM1:
m/p-Xylene *	<5	<5	<5sv	<5	<5	<5 ^{SV}	<5	<5	<5	<5	<5	ug/kg	TM31/PM1
o-Xylene •	<5	<5	<5 sv	<5	<5	<5 ^{SV}	<5	<5	58	<5	<5	ug/kg	TM31/PM1
PCB 28 *	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52*	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM
PCB 101 *	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM
PCB 118 *	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM
PCB 138	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM
PCB 153 *	<5	<5	<5	<5	<5	<5	<5	<5	<5	* <5	<5	ug/kg	TM17/PM
PCB 180 *	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	<5 <35	ug/kg ug/kg	TM17/PM8

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location: Contact:

Sandford Park Milltown

Barry Sexton

Report : Solid

EMT Job No:	20/1406									
EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
Sample ID	WS08	WS08	WS08	WS09	VVS09	WS09	WS10	WS10	WS10	WS11
Depth	0.70	1.70	2.60	0.70	1.70	2.60	0.70	1.70	2.30	0.70
COC No / misc										
Containers	VJT	TLV	VJT	VJT	VJT	TLV	VJT	TLV	VJT	VJT
Sample Date	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020
Sample Type	Soil									
Batch Number	1	1	1	1	1	1	1	1	1	1

Sample ID	VV300	**506	VV300	VV505	*******	***************************************	***************************************	***************************************	******	11011			
Depth COC No / misc	0.70	1.70	2.60	0.70	1.70	2.60	0.70	1.70	2.30	0.70	Please see attached notes for abbreviations and acronym		
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date			17/01/2020			16/01/2020				16/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			Method
Date of Receipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	LOD/LOR	Units	No.
Natural Moisture Content	13.5	10.9	8.9	15.7	11.8	8.2	13.2	13.9	12.9	13.3	<0.1	%	PM4/PM0
Maisture Content (% Wet Weight)	11.9	9.8	8.2	13.6	10.5	7.6	11.6	12.2	11.5	11.7	<0.1	%	PM4/PM0
Hexavalent Chromium *	<0.3	<0.3	<0.3	<0.3	< 0.3	<0.3	<03	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Chromium III	50.2	42.5	39.2	37.6	47.1	38.2	42.2	42.8	36.7	39.3	<0.5	mg/kg	NONE/NONE
Total Organic Carbon	0.44	0.36	0.69	0.38	0.40	0.69	0.37	0.37	0.49	0.39	<0.02	%	TM21/PM24
pH *	8.30	8.44	8.33	8.55	8.60	8.65	8.48	8.56	8.66	8.60	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.0999	0.0994	0.0983	0.1026	0.101	0.0984	0.1031	0.1014	0.1027	0.1002		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17
						•							

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sandford Park Milltown

Contact:

Barry Sexton

Report: Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

20/1406 EMT Job No: 31-33 34-36 37-39 40-42 43-45 46-48 49-51 52-54 55-57 58-60 EMT Sample No. WS11 WS12 WS12 WS12 WS13 WS13 WS14 WS14 WS14 Sample ID 2.20 0.70 1.70 2.50 0.70 1 40 0.70 1.70 2.70 Depth 1.70 Please see attached notes for all abbreviations and acronyms COC No / misc VJT VJT VJT VJT VJT VJT Containers VJT VIT VIT VIT 17/01/2020 17/01/2020 17/01/2020 17/01/2020 17/01/2020 Sample Date 16/01/2020 16/01/2020 17/01/2020 17/01/2020 17/01/2020 Soll Soll Sample Type Soil Soil Soil Soil Soil **Batch Number** Method LOD/LOR 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 Date of Receipt 30/01/2020 TM30/PM15 2 2 mg/kg 2 2 Antimony 2 2 2 2 2 10.2 8.3 10.2 <0.5 mg/kg TM30/PM1 10.1 10.4 9.8 123 Arsenic * 106 10.2 9.4 92 80 88 130 71 64 68 121 51 <1 mg/kg TM30/PM1 Barium * 65 M30/PM18 29 2.0 1.4 1.9 1.8 2.3 19 23 2.1 2.0 < 0.1 ma/ka Cadmium M30/PM18 < 0.5 37.5 50.8 64.0 40.2 37.4 40.5 34.4 39.9 35.8 35.7 mg/kg Chromium ' TM30/PM15 32 28 mg/kg Copper* 32 32 30 29 31 31 33 30 TM30/PM15 13 15 mg/kg Lead* 16 18 25 16 18 14 <0.1 <0.1 <0.1 < 0.1 TM30/PM15 <0.1 < 0.1 <0.1 <0.1 <0.1 < 0.1 Mercury < 0.1 3.5 4.0 3.8 4 4 43 < 0.1 mg/kg TM30/PM15 4.0 Molybdenum 1 TM30/PM15 38.2 < 0.7 37.9 44.7 34.1 41.1 39.3 40.5 417 41.1 35.6 mg/kg Nickel * TM30/PM15 3 <1 mg/kg <1 3 <1 <1 Selenium * TM30/PM15 89 89 80 91 <5 mg/kg Zinc* 103 91 164 89 86 83 PAH MS < 0.04 TM4/PM8 < 0.04 < 0.04 mg/kg < 0.04 < 0.04 < 0.04 <0.04 < 0.04 < 0.04 < 0.04 < 0.04 Naphthalene * TM4/PM8 < 0.03 < 0.03 < 0.03 < 0.03 <0.03 < 0.03 < 0.03 mg/kg < 0.03 < 0.03 Acenaphthylene < 0.03 < 0.03 TM4/PM8 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 mg/kg < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 Acenaphthene TM4/PM8 Fluorene * < 0.04 < 0.04 < 0.04 < 0.04 <0.04 <0.04 <0.04 <0.04 <0.04 mg/kg < 0.04 < 0.04 TM4/PM8 < 0.03 0.05 < 0.03 < 0.03 <0.03 <0.03 0.06 <0.03 <0.03 < 0.03 < 0.03 ma/ka Phenanthrene * < 0.04 TM4/PM8 < 0.04 < 0.04 < 0.04 mg/kg < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 Anthracene * < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 <0.03 mg/kg TM4/PM8 < 0.03 < 0.03 < 0.03 Fluoranthene * < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 < 0.03 mg/kg TM4/PM8 < 0.03 < 0.03 Pyrene * < 0.03 < 0.06 < 0.06 <0.06 < 0.06 < 0.06 < 0.06 <0.06 <0.06 < 0.06 mg/kg TM4/PM8 < 0.06 Benzo(a)anthracene < 0.06 < 0.02 < 0.02 < 0.02 < 0.02 0.03 < 0.02 < 0.02 < 0.02 < 0.02 0.03 < 0.02 mg/kg TM4/PM8 Chrysene * TM4/PM8 Benzo(bk)fluoranthene < 0.07 < 0.07 <0.07 < 0.07 <0.07 < 0.07 < 0.07 < 0.07 < 0.07 < 0.07 < 0.07 mg/kg TM4/PM8 < 0.04 Benzo(a)pyrene < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 mg/kg TM4/PM8 < 0.04 < 0.04 Indeno(123cd)pyrene < 0.04 < 0.04 < 0.04 <0.04 <0.04 < 0.04 < 0.04 < 0.04 < 0.04 ma/ka TM4/PM8 < 0.04 < 0.04 < 0.04 mg/kg < 0.04 Dibenzo(ah)anthracene < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 mg/kg TM4/PM8 < 0.04 < 0.04 < 0.04 < 0.04 Benzo(ghi)perylene < 0.04 < 0.04 <0.04 <0.04 < 0.04 < 0.04 mg/kg TM4/PM8 < 0.04 < 0.04 < 0.04 < 0.04 < 0.04 Coronene TM4/PM8 < 0.22 < 0.22 < 0.22 < 0.22 < 0.22 < 0.22 <0.22 < 0.22 mg/kg PAH 6 Total < 0.22 < 0.22 < 0.22 TM4/PM8 < 0.64 < 0.64 < 0.64 < 0.64 < 0.64 < 0.64 <0.64 <0.64 < 0.64 < 0.64 < 0.64 ma/ka PAH 17 Total TM4/PM8 < 0.05 < 0.05 < 0.05 < 0.05 ma/ka < 0.05 < 0.05 < 0.05 <0.05 <0.05 <0.05 < 0.05 Benzo(b)fluoranthene TM4/PM8 < 0.02 < 0.02 < 0.02 < 0.02 mg/kg < 0.02 < 0.02 < 0.02 Benzo(k)fluoranthene <0.02 < 0.02 < 0.02 < 0.02 TM4/PM8 <1 <1 mg/kg <1 <1 <1 <1 Benzo(j)fluoranthene <1 <1 TM4/PM8 99 85 98 97 100 <0 97 99 105 101 PAH Surrogate % Recovery 97 <30 <30 <30 <30 <30 <30 <30 ma/ka M5/PM8/PM1 <30 <30 Mineral Oil (C10-C40) <30

Client Name:

Ground Investigations Ireland

34-36

37-39

Reference:

9338-12-19

31-33

Location:

Sandford Park Milltown

Contact: Barry Sexton EMT Job No: 20/1406

EMT Sample No.

Report : Solid

43-45

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

46-48 49-51 52-54 55-57 58-60 WS13 WS13 WS14 WS14 WS14 0.70 1.40 0.70 1.70 2.70

Sam	ple ID	WS11	W511	WS12	WS12	WS12	WS13	WS13	WS14	WS14	WS14			5,0
	Depth	1.70	2.20	0.70	1.70	2.50	0.70	1.40	0.70	1.70	2.70		e attached nations and a	otes for all
COC No	/ misc											abbievie	audio and a	cionyma
Cont	ainers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sampl	e Date	16/01/2020	16/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020			
Sample	е Туре	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch N	umber	1	1	1	1	1	1	1	1	1	1			Method
Date of R	teceipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	LOD/LOR	Units	No.
TPH CWG														
Allphatics														
>C5-C6*		<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>C6-C8"		<0.1	< 0.1	<0.1	<0.1	<0.1 ^{sv}	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>C8-C10		<0.1	< 0.1	<0.1	<0.1	<0.1 sv	<0.1	0.2	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>C10-C12*		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/FM8/PM16
>C12-C16		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21*		<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35*		<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40		<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/FM8/PM16
Total aliphatics C5-40		<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	THISTINGSPHINANCEPHIN
>C6-C10		<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	0.2	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>C10-C25		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics		0.53			13.5	100							JF_00=3	
>C5-EC7 *		<0.1	<0.1	<0.1	<0.1	<0.1 ^{sv}	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>EC7-EC8*		<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>EC8-EC10 *		<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
>EC10-EC12*		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16*		<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/FM8/PM16
>EC16-EC21 *		<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC16-EC21 >EC21-EC35		<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM15
>EC21-EC35 >EC35-EC40		<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40		<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	THISTMONEPHINEHICZEWIS
Total aliphatics and aromatics(C540\	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	THETHERPHOPHISPHIE
>EC6-EC10 *	0040)	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	<0.1	<0.1	<0.1	<0.1 sv	<0.1	mg/kg	TM36/PM12
				<10	<10	<0.1	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC10-EC25		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/FM8/PM16
>EC25-EC35		<10	<10	<10	210	10	110	10	10	210	-10	-10	mg/kg	130.07.00.07.00
MTBE*		<5	<5	<5	<5	<5 sv	<5	<5	<5	<5	<5 ^{sv}	<5	ug/kg	TM31/PM12
Benzene*		<5	<5	<5	<5	<5sv	<5	<5	<5	<5	<5 ^{sv}	<5	ug/kg	TM31/PM12
Toluene *		<5	<5	<5	<5	<5 ^{sv}	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene*		<5	<5	<5	<5	<5 ^{SV}	<5	<5	<5	<5	<5sv	<5	ug/kg	TM31/PM12
m/p-Xylene *		<5	<5	<5	<5	<5 8V	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
o-Xylene*		<5	26	<5	<5	<5 sv	<5	15	<5	<5	<5 sv	<5	ug/kg	TM31/PM12
PCB 28 *		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 *		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 *		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 P		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 P		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153		<5 <5		<5 <5	<5 <5	<5 <5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180			<5						100				Call	TM17/PM8
Total 7 PCBs*		<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	I WI I / / FINI O

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Sandford Park Milltown Location:

Contact:

Barry Sexton

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Report : Solid

Contact: EMT Job No:	20/1406	ton											
EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54	55-57	58-60			
Sample ID	WS11	WS11	WS12	WS12	WS12	WS13	WS13	WS14	WS14	WS14			
Depth	1.70	2.20	0.70	1.70	2.50	0.70	1.40	0.70	1.70	2.70	Please se	e attached r	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	16/01/2020	16/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method
Date of Receipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020		21/17/	No.
Natural Moisture Content Moisture Content (% Wet Weight)	12.2 10.9	11.9 10.6	27.0 21.2	10.9 9.8	10.1 9.1	13.8 12.1	12 0 10.7	13.2 11.7	12.1 10.8	8.9 8.1	<0.1	% %	PM4/PM0
Hexavalent Chromium *	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM2
Chromium III	37.5	50.8	64.0	40.2	37.4	40.5	34.4	39.9	35.8	35.7	<0.5	mg/kg	NONEMON
Total Organic Carbon	0.36	0.30	1.06	0.35	0.66	0.32	0.37	0.36	0.34	0.69	<0.02	%	TM21/PM2
он "	8.57	8.65	8.29	8.43	8.67	8.58	8.62	8.55	8.53	8.42	<0.01	pH units	TM73/PM1
Mass of raw test portion	0.101	0.091	0.1107	0.099	0.099	0.0984	0.1014	0.1029	0.1007	0.0982		kg	NONE/PM1
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM1
						-				-			

Client Name:

Ground Investigations Ireland

Reference:

9338-12-19

Location:

Sandford Park Milltown

Barry Sexton Contact: EMT Job No

Report: CEN 10:1 1 Batch

T Job	No:	20/1406									
	EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
	Sample ID	WS08	WS08	WS08	WS09	WS09	WS09	WS10	WS10	WS10	WS11
	Depth	0.70	1.70	2.60	0.70	1.70	2.60	0 70	1.70	2.30	0.70
	COC No / misc										
	Containers	VJT	TLV	VJT	VJT	VJT	VJT	VJT	VJT	TLV	VJT
	Sample Date	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020
								2.0			

Sample ID	WS08	W508	WS08	WS09	WS09	WS09	WS10	WS10	WS10	WS11			
Donath	0.70	1.70	2.60	0.70	1.70	2.60	0.70	1.70	2.30	0.70			
Depth	0.70	1.70	2.60	0.70	1.70	2,60	0.70	1.70	2.30	0.70		e attached no ations and ac	
COC No / misc													
Containers	VJT	TLV	TLV	TLV	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soll	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method
Date of Receipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	LOD/LOR	Offics	No.
Dissolved Antimony	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	0 002	<0.002	0.002	< 0.002	mg/l	TM30/PM17
Dissolved Antimony (A10)	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	<0.02	0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic *	< 0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	< 0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10)	<0.025	< 0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium *	0.009	< 0.003	0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10)	0.09	<0.03	0.05	<0.03	< 0.03	<0.03	<0.03	< 0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium *	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium *	< 0.0015	<0.0015	<0.0015	< 0.0015	<0.0015	< 0.0015	<0.0015	< 0.0015	< 0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10)	<0.015	< 0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	< 0.015	<0.015	< 0.015	mg/kg	TM30/PM17
Dissolved Copper	<0.007	< 0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10)	<0.07	< 0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead *	<0.005	< 0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10)	<0.05	< 0.05	<0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum *	0.020	0.015	0.030	0.004	0.013	0.027	0.005	0.013	0.015	0.005	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10)	0.20	0.15	0.30	0.04	0.13	0.27	0.05	0.13	0.15	0.05	<0.02	mg/kg	TM30/PM17
Dissolved Nickel	<0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10)	<0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium *	<0.003	<0.003	0.023	<0.003	<0.003	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	mg∕l	TM30/PM17
Dissolved Selenium (A10)	< 0.03	< 0.03	0.23	<0.03	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc*	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10)	<0.03	<0.03	0.03	<0.03	< 0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	< 0.00001	<0.00001	<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF	0.0002	< 0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	0.3	<0.6 _{AA}	<1.2 _{AB}	<0.6 _{AA}	<0.6 _{AA}	<0.6 _{AA}	<0.6 _{AA}	<0.3	<0.3	0.4	<0.3	mg/l	TM173/PM0
Fluoride	<3	<6 _{AA}	<12 _{AB}	<6 _{AA}	<6 _{AA}	<6 _{AA}	<6AA	<3	<3	4	<3	mg/kg	TM173/PM0
211	0.0	1.0	10.7	0.7	0.6	1.4	<0.5	0.6	0.6	<0.5	<0.5	mg/l	TM38/PM0
Sulphate as SO4	0.9	1.0	18.7	0.7	0.6	1.4	<5	6	6	<5	<5	mg/kg	TM38/PM0
Sulphate as SO4	<0.3	<0.3	5.3	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride *	<0.3	<3	5.3	4	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM38/PM0
Chioride		-3	55	,				10				mgmg	Time on the
Dissolved Organic Carbon	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	mg/l	ТМ60/РМ0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM0
рН	8.16	8.17	8.12	8.13	8.27	8.05	8.17	7.69	8.03	8.18	<0.01	pH units	TM73/PM0
Total Dissolved Solids	63	73	69	73	58	55	66	88	58	115	<35	mg/l	TM20/PM0
Total Dissolved Solids	630	730	690	730	580	550	660	880	580	1151	<350	mg/kg	TM20/PM0
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Client Name:

Ground Investigations Ireland 9338-12-19

Reference:

Sandford Park Milltown Location:

Contact: 20/1406 EMT Job No:

Barry Sexton

Report: CEN 10:1 1 Batch

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EMT Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54	55-57	58-60
Sample ID	WS11	WS11	WS12	WS12	WS12	WS13	WS13	WS14	WS14	WS14
Depth	1.70	2.20	0.70	1.70	2.50	0.70	1.40	0.70	1.70	2.70
COC No / misc										

Sample ID	WS11	WS11	WS12	WS12	WS12	WS13	WS13	WS14	WS14	WS14			
Depth	1.70	2.20	0.70	1.70	2.50	0.70	1.40	0.70	1.70	2.70		e attached n	
COC No / misc											applevi	auoris and ad	HOHYIHS
Containers	TLV	VJT	TLV	TLV	VJT	VJT	VJT	VJT	VJT	VJT			
Sample Date	16/01/2020	16/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1		at Millional Con-	Method
Date of Receipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	LOD/LOR	Units	No.
Dissolved Antimony	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	< 0.002	mg/l	TM30/PM17
Dissolved Antimony (A10)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic *	<0.0025	<0.0025	< 0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	< 0.025	<0.025	<0.025	<0.025	< 0.025	mg/kg	TM30/PM17
Dissolved Barium	<0.003	< 0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	< 0.003	mg/l	TM30/PM17
Dissolved Barium (A10)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10)	<0.005	<0.0005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Cadmium (A10)	<0.003	<0.0015	<0.003	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	< 0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10)	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	< 0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper	<0.007	< 0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	< 0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10)	<0.007	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Copper (A10)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	mg/kg	TM30/PM17
	0.014	0.015	<0.002	0.014	0.020	0.003	0.007	0.004	0.011	0.027	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum	0.14	0.15	<0.002	0.14	0.20	0.03	0.07	0.04	0.11	0.27	<0.02	mg/kg	TM30/PM17
Dissolved Molybdenum (A10)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel		1000000000	<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Nickel (A10)	<0.02	<0.02	0.000	<0.02	<0.02	<0.003	<0.003	<0.003	<0.003	0.045	<0.003	mg/l	TM30/PM17
Dissolved Selenium	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.03	<0.03	0.45	<0.03	mg/kg	TM30/PM17
Dissolved Selenium (A10)	<0.03	<0.03	<0.03	<0.03	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc	<0.003	<0.003	(2000)	227224.2	<0.003	<0.003	<0.003	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc (A10)	<0.03	<0.03	<0.03	<0.03					<0.00001	<0.00001	<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.0001	<0.0001	10.00	TM61/PM0
Mercury Dissolved by CVAF	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	C0.0001	×0.0001	mg/kg	T WIC THE WIC
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	ТМ26/РМ0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	0.3	<0.3	<0.3	0.4	0.3	1.7	0.3	0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	4	<3	17	<3	3	<3	mg/kg	TM173/PM0
Sulphata as SO4	<0.5	0.6	1.0	0.6	1.3	0.5	0.5	<0.5	0.6	1.7	<0.5	mg/l	TM38/PM0
Sulphate as SO4	<5	6	10	6	13	5	<5	<5	6	17	<5	mg/kg	TM38/PM0
Sulphate as SO4 * Chloride *	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride *	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	10	<2	<2	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	100	<20	<20	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM0
рН	8.23	8.15	7.64	7.65	7.74	7.77	7.73	8.63	8.13	7.90	<0.01	pH units	TM73/PM0
Total Dissolved Solids	55	48	<35	58	130	119	82	71	43	42	<35	mg/l	TM20/PM0
Total Dissolved Solids *	550	480	<350	580	1300	1190	820	710	430	420	<350	mg/kg	TM20/PM0
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Ground Investigations Ireland 9338-12-19

Sandford Park Milltown Barry Sexton Location:

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Report: EN12457_2

Contact: EMT Job No: 20/1406

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
Sample ID	WSOE	WSUB	WS08	WS09	WS09	WS09	WS10	WS10	W51()	WS11
Depth	0.70	1.70	2.60	0.70	1.70	2.60	0.70	1.70	2.30	0.70
COC No / misc										
Containers	VJT									
Sample Date	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020
Sample Type	Soil	Spil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1
Date of Receipt	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020

Please see attached notes for all abbreviations and acronyms

Containers Sample Date																
Sample Date	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT	VJT						
	17/01/2020	17/01/2020	17/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020	16/01/2020						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Spil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1	To be	Stable Non-	T100-121	7000000	FRIO S	Method
	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020	inert	reactive	Hazardous	LOD LOR	Units	No.
Solid Waste Analysis																
Total Organic Carbon*	0.44	0.36	0.69	0.38	0.40	0.69	0.37	0.37	0.49	0.39	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025 ^{5V}	<0.025	<0.025	<0.025 ^{SV}	<0.025	<0.025	0.058	<0.025	6		2	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs*	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	< 0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	500	-		<30	mg/kg	тиоливрите
PAH Sum of 6"	< 0.22	< 0.22	< 0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22				<0.22	mg/kg	TM4/PM8
PAH Sum of 17	< 0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	100		-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic *	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium "	0.09	<0.03	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium *	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium *	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper*	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	2	50	100	<0.07	mg/kg	TM30/PM17
Mercury"	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum *	0.20	0.15	0.30	0.04	0.13	0.27	0.05	0.13	0.15	0.05	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel"	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead"	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony*	< 0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium "	<0.03	<0.03	0.23	<0.03	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc*	< 0.03	<0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids*	630	730	690	730	580	550	660	880	580	1151	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.0999	0.0994	0.0983	0.1026	0.101	0.0984	0.1031	0.1014	0.1027	0.1002	-				kg	NONE/PM 17
Dry Matter Content Ratio	90.1	91.0	91.7	87.7	88.8	91.5	87.5	88.7	87.8	89.6	1.5	-	-	<0,1	%	NONE/PM4
Leachant Volume	0.89	0.891	0.892	0.887	0.889	0.892	0.887	0.888	0.887	0.89			-		P	NONE/PM17
Eluate Volume	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	-	*			1	NONE/PM17
pH "	8.30	8.44	8.33	8.55	8.60	8.65	8.48	8.56	8.66	B.60	-	-	-	<0.01	pH units	TM73/PM1
Phenol	⊲0 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-		<0.1	mg/kg	TM26/PM0
Fluoride	<3	<6 _{BA}	<1288	<6 _{8A}	<6 _{BA}	<6 _{8A}	<6 _{BA}	<3	<3	4	2	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 *	9	10	187	7	6	14	<5	6	6	<5	1000	20000	50000	<5	mg/kg	TM38/PM0
	3	<3	53	4	3	<3	<3	<3	<3	<3	800	15000	25000	<3	mg/kg	TM38/PM0

Ground Investigations Ireland 9338-12-19 Sandford Park Milliown Barry Sexton 20/1406

Client Name:
Reference:
Location:
Contact:
EMT Job No:

Report: EN12457_2

of 17	of 6"	=	PCBs"	EX	anic (ste A									_
7	•		5,		anic Carbon*	ste Analysis	Date of Receipt 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020 30/01/2020	Batch Number	Sample Type	Sample Date	Containers	COC No / misc	Depth	Sample ID	EMT Sample No.
<0.64	<0.22	<30	<0.035	<0.025	0.36		30/01/2020	-	Soil	16/01/2020	TLV		1.70	WSII	31-33
△0.64	<0.22	<30	△0.035	0.026	0.30		30/01/2020	-	Soil	16/01/2020	VJT		2.20	WSII	34-36
△0.64	<0.22	<30	<0.035	⊲0.025	1.06		30/01/2020	-	Soil	16/01/2020 17/01/2020	TLV		0.70	W812	37-39
A (A	< 0.22	<30	40.035	40.025	0.35		30/01/2020	_	Sail	17/01/2020	VJT		1,70	WS12	40-42
<0.64	<0.22	^30	<0.035	<0.025°V	0.66		30/01/2020	_	Soil	17/01/2020 17/01/2020 17/01/2020 17/01/2020 17/01/2020 17/01/2020 17/01/2020	T L		2.50	WS12	43-45
0.64	<0.22	△30	<0.035	<0.025	0.32		30/01/2020	_	Soil	17/01/2020	V J T		0.70	WS13	46-48
8	<0.22	30	<0.035	<0.025	0.37		30/01/2020	_	Soil	17/01/2020	TLV		1.40	WS13	49-51
8	<0.22	20	<0.035	<0.025	0.36		30/01/2020	-	Soil	17/01/2020	V J T		0.70	WS 14	52-54
8	40.22	△30	<0.035	<0.025	0.34		30/01/2020	_	Soil	17/01/2020	T V		1.70	W514	55-57
0.64	<0.22	<30	<0.035	<0.025 ^{SV}	0.69		30/01/2020	_	Soil	17/01/2020	TLV		2.70	W514	58-60
100		500	-	đ	w			hert							
	÷	ž			U		resotive	Stable Non-							
				,	a			Hazardous							
△ 64	0.22	△30	<0.035	<0.025	40.02			LOD LOR				9000	Please se		
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	. *			Units				and describing and and onlying	Please see attached notes for all		
TM4/PM8	TM4/PM8	эминамичеми в	TM17/PM8	TM31/PM12	TM21/PM24		No	Method				or original	otes for all		

1 1 1 1 1 1 1 1 1 1	adillipie Date	1010112020	1010111010	*********	**********					The state of the s							
Date of Name 1 1 1 1 1 1 1 1 1	Sample Type	Soil	Soil	Soil	Sail	Soil	Soil	Soil	Soil	Soil	Soil						
Charle Researcy 2007/20720	Batch Number	-	-	-	_	_	_	_		-	_	hert	Stable Non-	Hazardous	LOD LOR	Units	~
Part		30/01/2020	30/01/2020	30/01/2020	30/01/2020		30/01/2020	30/01/2020	30/01/2020	30/01/2020	30/01/2020		resotive	The state of the s			
Tick-cheen 2018 0.039 1.089 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	Solid Waste Analysis																
Perform	Total Organic Carbon*	0.36	0.30	1.06	0.35	0.66	0.32	0.37	0.36	0.34	0.69	u	O)	Os	<0.02	*	T.
Part	Sum of BTEX	<0.025	0.026	<0.025	40.025	<0.025 ^{SV}	<0.025	<0.025	<0.025	<0.025	<0.025 ^{SV}	a		,	<0.025	mg/kg	F
Color Colo	Sum of 7 PCBs*	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	-		. 4	<0.035	mg/kg	7
Control Ration Color Col	Mineral Oil	<30	<30	<30	<30	<30	<30	<30	△30	△30	<30	500		1.	30	mg/kg	74
Color Colo	PAH Sum of 6"	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22				Ф.22	mg/kg	-
	PAH Sum of 17	<0.64	A 20	000	∆ %	△0.64	0.64	A 64	A 22	8	20.02	100		*	A 22	mg/kg	-
40025 40025	CEN 10:1 Leachate														X L	٥	
	Arsenic *	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	¥
4-0105 - 40015	Barium *	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	40.03	40.03	<0.03	20	100	300	40.03	mg/kg	Z
### 4015 4015 4015 4016 4016 4016 4016 4016 4016 4016 4016	Cadmium *	-0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	△0.005	0.04	_	cs.	<0.005	mg/kg	1 X
Mary	Chromium "	-0.015	<0.015	<0.015	<0.015	40.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.5	10	70	<0.015	mg/kg	T N
1000 1000	Copper*	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	40.07	△0.07	<0.07	2	50	100	40.07	mg/kg	TM30/PM17
mm*	Mercury"	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	40.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	3 1	40.0001	mg/kg	1 7
40.05 40.05	Nickel "	<0.02	<0.02	<0.02	<0.02	<0.02	40.02	40.02	40.02	A 02	<0.02	0.4	10	40	40.02	mg/kg	TM30/PM17
	Lead*	<0.05	<0.05	<0.05	<0.05	<0.05	A.05	<0.05	<0.05	A.06	<0.05	0.5	10	50	△0.05	mg/kg	TM30/PM17
House Hous	Antmony"	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	40.02	40.02	<0.02	0.06	0.7	U1	40.02	mg/kg	TM30/PM17
cods cods <th< td=""><td>Selenium "</td><td><0.03</td><td><0.03</td><td><0.03</td><td><0.03</td><td><0.03</td><td><0.03</td><td>40.03</td><td>40.03</td><td>40.03</td><td>0.45</td><td>0.1</td><td>0.5</td><td>7</td><td>0.03</td><td>mg/kg</td><td>TM30/PM17</td></th<>	Selenium "	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	40.03	40.03	40.03	0.45	0.1	0.5	7	0.03	mg/kg	TM30/PM17
Averal Solidar* 550 480 430 580 1190 ED3 770 430 420 4000 10000 1900 420 420 420 4000 10000 1900 420 400 4000 10000 1900 420 400 4000 10000 420 1900 420 400 1000 420 1900 420 400 1900 420 1900 420 400 1900 420 1900 420 420 420 420 400 1900 420	Zine*	<0.03	<0.03	<0.03	<0.03	<0.03	40.03	0.03	0.03	A. 83	40.03	4	50	200	A.03	mg/kg	TM30/PM17
Organic Carbon -20 -20 100 -20	Total Dissolved Solids"	550	480	<350	580	1300	1190	820	710	430	420	4000	00000	100000	000	mg/kg	- 8
witest portion 0.101 0.091 0.1107 0.098 0.0964 0.1014 0.1029 0.1007 0.0982 <t< td=""><td>Dissolved Organic Carbon</td><td><20</td><td><20</td><td>100</td><td><20</td><td>^20</td><td><20</td><td>^20</td><td>-20</td><td><20</td><td><20</td><td>500</td><td>800</td><td>1000</td><td><20</td><td>mg/kg</td><td>TM60/PM0</td></t<>	Dissolved Organic Carbon	<20	<20	100	<20	^20	<20	^20	-20	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Content Ratio 890 984 814 909 90.8 91.5 89.2 87.8 89.4 91.5	Mass of raw test portion	0.101	0.091	0.1107	0.099	0.099	0.0984	0.1014	0.1029	0.1007	0.0982		96	٠		kg	NONE/PM1
Volume 0.889 0.889 0.889 0.897 0.881 0.881 0.882 0.882 0.883 <t< td=""><td>Dry Matter Content Ratio</td><td>89.0</td><td>98.4</td><td>81.4</td><td>90.9</td><td>90.8</td><td>91.5</td><td>89.2</td><td>87.8</td><td>89.4</td><td>91.5</td><td></td><td></td><td>٠</td><td>A</td><td>×</td><td>NONE/PM4</td></t<>	Dry Matter Content Ratio	89.0	98.4	81.4	90.9	90.8	91.5	89.2	87.8	89.4	91.5			٠	A	×	NONE/PM4
ume 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	Leachant Volume	0.889	0.899	0.879	0.891	0.891	0.892	0.889	0.887	0.889	0.892		,			-	NONEPMI
857 865 829 843 867 858 862 855 853 842	Eluate Volume	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	*		1		-	NONE/PM17
401 401 401 401 401 401 401 401 401 1 1	PH.	8.57	8.65	8.29	8.43	8.67	8.58	8.62	8.55	8.53	8.42	,	,	1.9	40.01	pH units	TM73/PM11
18 SQA* 4 4 4 1 17 4 3 3	Phenol	٥	۵	۵	<u> </u>	₽1	6 .1	<0.1	<0.1	<0.1	A	-		v	A -	mg/kg	TM26/PM0
45 6 10 6 13 5 <5 6 17 1000 2000 50000 <5 mg/kg	Fluoride	۵	۵	۵	۵	۵	4	۵	17	۵	ω		c	140	۵	mg/kg	TM173/PM0
\$\triangle \tag{25000}\$ \$\triangle \tag{15000}\$ \$\triangle \tag{25000}\$ \$\triangle \tag{15000}\$ \$\triangle \triangle \tag{15000}\$ \$\triangle \tag{15000}\$ \$\triangle 1500	Sulphate as SO4 "	A	o	10	6	13	cs.	A	S	6	17	1000	20000	50000	ŝ	mg/kg	TM38/PM0
	Chloride "	۵	۵	۵	Δ	۵	۵	۵	۵	۵	۵	800	15000	25000	۵	mg/kg	TM38/PM0

EPH Interpretation Report

Matrix : Solid

Client Name: Ground Investigations Ireland

Reference: 9338-12-19

Location: Sandford Park Milltown

Contact: Barry Sexton

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
20/1406	1	WS08	0.70	1-3	No interpretation possible
20/1406	1	WS08	1.70	4-6	No interpretation possible
20/1406	1	WS08	2.60	7-9	No interpretation possible
20/1406	1	WS09	0.70	10-12	No interpretation possible
20/1406	1	WS09	1.70	13-15	No interpretation possible
20/1406	1	WS09	2.60	16-18	No interpretation possible
20/1406	1	WS10	0.70	19-21	No interpretation possible
20/1406	1	WS10	1.70	22-24	No interpretation possible
20/1406	1	WS10	2.30	25-27	No interpretation possible
20/1406	1	WS11	0.70	28-30	No interpretation possible
20/1406	1	WS11	1.70	31-33	No interpretation possible
20/1406	1	WS11	2.20	34-36	No interpretation possible
20/1406	1	WS12	0.70	37-39	No interpretation possible
20/1406	1	WS12	1.70	40-42	No interpretation possible
20/1406	1	WS12	2.50	43-45	No interpretation possible
20/1406	1	WS13	0.70	46-48	No interpretation possible
20/1406	1	WS13	1.40	49-51	No interpretation possible
20/1406	1	WS14	0.70	52-54	No interpretation possible
20/1406	1	WS14	1.70	55-57	No interpretation possible
20/1406		WS14	2.70	58-60	No interpretation possible

Asbestos Analysis

Element Materials Technology

Client Name: Ground Investigations Ireland

Reference: 19/12/9338

Location: Sandford Park Milltown

Contact: Barry Sexton

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
20/1406	1	WS08	0.70	2	31/01/2020	General Description (Bulk Analysis)	soil.stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1406	1	WS08	1.70	5	31/01/2020	General Description (Bulk Analysis)	soil stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1406	1	WS08	2.60	8	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS09	0.70	11	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1406	1	WS09	1.70	14	31/01/2020	General Description (Bulk Analysis)	soil-stones
					31/01/2020	Asbestos Fibres	NAD
					31/01/2020	Asbestos ACM	NAD
					31/01/2020	Asbestos Type	NAD
					31/01/2020	Asbestos Level Screen	NAD
20/1406	1	WS09	2.60	17	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS10	0.70	20	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD

Client Name: Ground Investigations Ireland

Reference: 19/12/9338

Location: Sandford Park Milltown

Contact: Barry Sexton

Contact	t:		Barry Se	xton			
EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
0/1406	1	WS10	0.70	20	03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS10	1.70	23	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS10	2.30	26	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS11	0.70	29	03/02/2020	General Description (Bulk Analysis)	soil-stones
	100				03/02/2020	Asbestos Fibres	NAD
					03/02/2020		NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS11	1.70	32	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS11	2.20	35	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS12	0.70	38	03/02/2020	General Description (Bulk Analysis)	Soil/Stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS12	1.70	41	03/02/2020	E 2	Soll/Stones
					03/02/2020	CONTROL CONTROL CONTROL	NAD
					03/02/2020		NAD
					03/02/2020	- A - A - A - A - A - A - A - A - A - A	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS12	2.50	44	03/02/2020	WORK AND DESCRIPTION OF THE OWNER OWN	Soil/Stones
					03/02/2020		NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020		NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS13	0.70	47	03/02/2020	General Description (Bulk Analysis)	Soil/Stones
					03/02/2020	Asbestos Fibres	NAD -

Client Name: Ground Investigations Ireland

Reference: 19/12/9338

Location: Sandford Park Milltown

Contact: Barry Sexton

Contact	t:		Barry Se	xton			
EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
20/1406	1	WS13	0.70	47	03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS13	1.40	50	03/02/2020	General Description (Bulk Analysis)	soil.stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS14	0.70	53	03/02/2020	General Description (Bulk Analysis)	soil stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS14	1.70	56	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
20/1406	1	WS14	2.70	59	03/02/2020	General Description (Bulk Analysis)	soil-stones
					03/02/2020	Asbestos Fibres	NAD
					03/02/2020	Asbestos ACM	NAD
					03/02/2020	Asbestos Type	NAD
					03/02/2020	Asbestos Level Screen	NAD
							4

Notification of Deviating Samples

Client Name: Ground Investigations Ireland Matrix : Solid

Reference: 9338-12-19

Location: Sandford Park Milltown

Contact: Barry Sexton

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
20/1406	1	WS08	0.70	1-3	ЕРН	Sample holding time exceeded
20/1406	1	WS08	1.70	4-6	EPH	Sample holding time exceeded
20/1406	1	WS08	2.60	7-9	EPH, GRO	Sample holding time exceeded
20/1406	1	WS09	0.70	10-12	ЕРН	Sample holding time exceeded
20/1406	1	WS09	1.70	13-15	ЕРН	Sample holding time exceeded
20/1406	1	WS09	2.60	16-18	EPH, GRO	Sample holding time exceeded
20/1406	1	WS10	0.70	19-21	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS10	1.70	22-24	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS10	2.30	25-27	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS11	0.70	28-30	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS11	1.70	31-33	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS11	2.20	34-36	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS12	0.70	37-39	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS12	1.70	40-42	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS12	2.50	43-45	EPH, GRO, PAH, PCB	Sample holding time exceeded
20/1406	1	WS13	0.70	46-48	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS13	1.40	49-51	ЕРН	Sample holding time exceeded
20/1406	1	WS14	0.70	52-54	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS14	1.70	55-57	EPH, PAH, PCB	Sample holding time exceeded
20/1406	1	WS14	2.70	58-60	EPH, GRO, PAH, PCB	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.:

20/1406

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to personal content or sold in the preparation process to monitor recovery of analytes. However low recovery in soils is often due to personal content or sold in the preparation of the preparation process to monitor recovery of analytes. However low recovery in soils is often due to personal content or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.