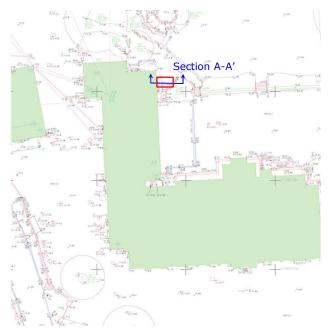
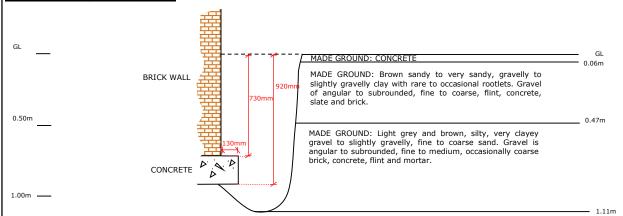


<u>PLAN</u>





SECTION A-A' (Looking north)



 $D = small\ disturbed\ sample,\ E = environmental\ sample\ (glass\ jar\ and\ tub),\ HV = hand\ shear\ vane\ test\ (kPa),\ pp = pocket\ penetrometer\ (kg/cm^2)$

Date:	09/05/22	Groundwater details	Samples
Equipment:	Hand excavated	• Dry	D @ 0.44m D @ 0.90m
Stability:	Stable		E @ 1.00m
Remarks:	Photo File corrupted		Logged by: SG



Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN

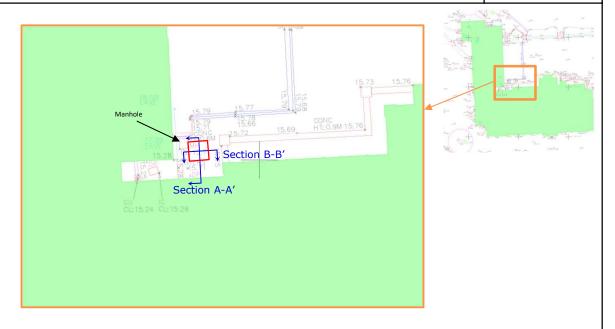
Trial Pit No:
TP7 (1 of 3)

Client:
Radnor House School Ltd

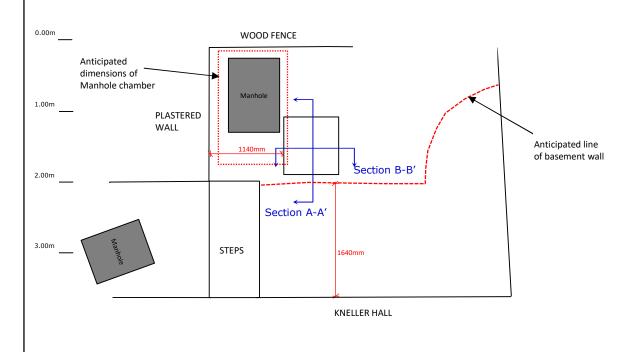
Engineer:
AKS Ward Ltd

<u>PLAN</u>





<u>PLAN</u>



 $D = small\ disturbed\ sample,\ E = environmental\ sample\ (glass\ jar\ and\ tub),\ HV = hand\ shear\ vane\ test\ (kPa),\ pp = pocket\ penetrometer\ (kg/cm^2)$

Date:	09/05/22	Groundwater details	Samples
Equipment:	Hand excavated	• Dry	D @ 0.50m
Stability:	Stable		
Remarks:	50mill gap between the two faces		Logged by: JW



Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN

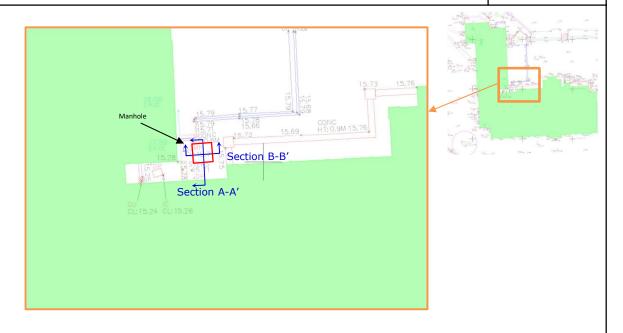
TP7 (2 of 3)

Client: Radnor House School Ltd

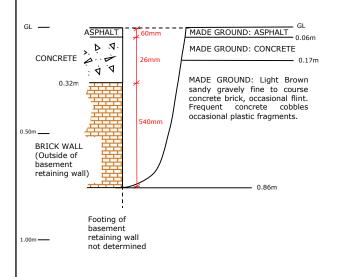
Engineer: AKS Ward Ltd

<u>PLAN</u>

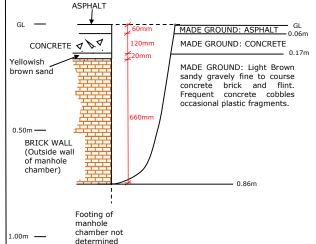




SECTION A-A' (Looking west)



SECTION B-B' (Looking north)



 $D = small\ disturbed\ sample,\ E = environmental\ sample\ (glass\ jar\ and\ tub),\ HV = hand\ shear\ vane\ test\ (kPa),\ pp = pocket\ penetrometer\ (kg/cm^2)$

Date:	09/05/22	Groundwater details	Samples
Equipment:	Hand excavated	• Dry	D @ 0.50m
Stability:	Stable		
Remarks:	ss: 50mm gap between the basement retaining wall and the manhole chamber wall.		Logged by: JW



Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN	Trial Pit No: TP7 (3 of 3)
Client:	Radnor House School Ltd	Report No:
Engineer:	AKS Ward Ltd	10728/SG

PHOTOGRAPHS











 $D=small\ disturbed\ sample,\ E=environmental\ sample\ (glass\ jar\ and\ tub),\ HV=hand\ shear\ vane\ test\ (kPa),\ pp=pocket\ penetrometer\ (kg/cm^2)$

Date:	09/05/22	Groundwater details	Samples
Equipment:	Hand excavated	• Dry	D @ 0.50m
Stability:	Stable		
Remarks:			Logged by: JW



Site & Location	Kilener Hany		Trial Pit No:	SK1
Client:	Radnor House School Ltd	Coords: 514628.378E, 174274.344N	Report No:	
Engineer:	AKS Ward	Level: +13.449mOD	10728/SG	

		S	amples/tes	ts
Depth (m)	Strata description	Depth (m)	Туре	Test results
GL to 0.15m	Grass over light greyish brown slightly gravelly, sandy TOPSOIL with frequent rootlets. Gravel is fine to coarse flint, occasional concrete and rare clinker.	0.10m	D/E	
0.15m to 0.40m	MADE GROUND: Light brown slightly gravelly, silty sandy gravel. Gravel is fine to coarse brick, flint, concrete, occasional cobbles and rare steel rebar.			
0.40m to 0.90m	MADE GROUND: Dark brown slightly gravelly to gravelly, silty sand. Gravel is fine to coarse flint, brick and concrete with frequent cobbles and boulders of concrete.	0.50m	D/E	
0.90m to 1.50m	MADE GROUND: Dark brown slightly gravelly, slightly clayey, silty sand. Gravel is fine and medium flint, brick.	1.00 to 1.50m	В	
1.50m to 2.00m	Light greenish grey and orange brown, yellow brown mottled slightly silty, slightly gravelly SAND. Gravel is subangular and subrounded, fine to coarse flint.	1.90m	В	
	At 2.00m: Gravelly to very gravelly.			





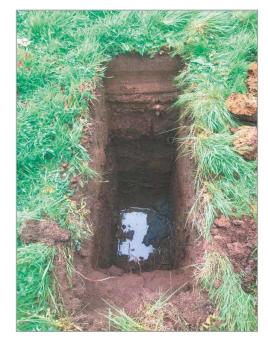
Date of excavation:	10/05/22	Groundwater:	None observed			
Equipment:	2-ton tracked excavator					
Stability:	Stable	Logged by:	JW	Checked by:	SG	
Remarks: 0.45m(W)	Remarks: 0.45m(W) x 1.00m(L) x 2.00m (D)					

 $\label{eq:control_equation} \text{Key: } D = \text{Small disturbed sample; } B = \text{Bulk disturbed sample; } HV = \text{Hand Shear Vane test (kN/m^2); } P = \text{Pocket Penetrometer (kg/cm^2)}$



Site & Location	Kilcher Hally		Trial Pit No:	SK2
Client:	Radnor House School Ltd	Coords: 514845.148E, 174335.626N	Report No:	
Engineer:	AKS Ward	Level: +11.22mOD		10728/SG

		Sa	amples/tes	ts
Depth (m)	Strata description	Depth (m)	Туре	Test results
GL to 0.10m	Grass over Light greyish brown TOPSOIL with frequent rootlets.	0.10m	D	
0.10m to 0.45m	MADE GROUND: Light bluish greenish grey and light brown mottled slightly gravelly, silty sand with occasional to frequent roots. Gravel is fine to coarse flint, brick and clinker.	0.30m	D	
0.45m to 0.65m	MADE GROUND: Firm to stiff greenish grey and brown mottled, silty, slightly gravelly clay / clayey gravel. Gravel is fine to coarse brick, flint and chalk.	0.50m	D	
0.65m to 1.10m	Firm to stiff light greenish grey, orange brown mottled slightly gravelly, very sandy, silty CLAY / very clayey silty SAND with occasional roots. Gravel is subangular to rounded, fine to coarse flint.	0.80m	D	
1.10m to 1.50m	Grey, bluish grey, light brown and orange brown mottled clayey, silty sandy GRAVEL with pockets of bluish grey very sandy clay and a slight organic odour. Gravel is subangular to rounded, fine to coarse flint.	1.20m	В	





Date of excavation:	10/05/22	Groundwater:	Seepage at 1.50m. No standing measured.		ng measured.	
Equipment:	2-ton tracked excavator					
Stability:	Stable	Logged by:	JW	Checked by:	SG	
Remarks: 0.45m(W) x 0.90m(L) x 1.50m(D)						

 $\label{eq:control_equation} \text{Key: } D = \text{Small disturbed sample; } B = \text{Bulk disturbed sample; } HV = \text{Hand Shear Vane test (kN/m^2); } P = \text{Pocket Penetrometer (kg/cm^2)}$



Site & Location	Kilciler Hally		Trial Pit No:	HP1
Client:	Radnor House School Ltd	Coords: 514611E, 174228N	Report No:	
Engineer:	er: AKS Ward Level: +13.55mOD			10728/SG

		Sa	amples/tes	ts
Depth (m)	Strata description	Depth (m)	Туре	Test results
GL to 0.85m	Gravel over MADE GROUND: Soft brown sandy, slightly silty, gravelly clay. Gravel is angular to subrounded, fine to coarse, flint, concrete, brick, asphalt and clinker.	0.30m	D	
	Below 0.55m: Becoming dark grey brown and silty.	0.60m 0.70m	D E	
0.85m to 1.06m	MADE GROUND: Soft orange brown and grey brown silty, very sandy, slightly gravelly clay. Gravel is angular to subrounded, fine and medium, brick, flint, concrete, and fine clinker fragments.	0.90m	D	







Date of excavation:	13/05/22	Groundwater:	Dry		
Equipment:	Hand excavated				
Stability:	Stable	Logged by:	SG	Checked by:	SG

- Remarks:

 Surrounding services and hardstanding dictated position.

 Hand pit located adjacent to Electricity Sub-station and adjacent to site of historical tanks.

Site & Location	Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN			HP2
Client:	Radnor House School Ltd Coords: 514769E, 174220N		Report No:	10720/55
Engineer:	AKS Ward	Level: +13.21mOD		10728/SG

		Sa	amples/tes	ts
Depth (m)	Strata description	Depth (m)	Туре	Test results
GL to 0.65m	Grass over MADE GROUND: Soft grey brown silty, very sandy, gravelly clay with occasional rootlets. Gravel is angular to subrounded, fine to coarse brick, concrete, flint and rare glass.	0.40m	D	PID = 0.2
		0.60m	Е	
0.65m to 1.10m	Friable soft to firm orange, grey and orange brown mottled, silty, sandy, slightly gravelly CLAY with rare rootlets. Gravel is angular to subrounded, fine to coarse flint.	0.90m	D	PID = 0.1



Date of excavation:	13/05/22	Groundwater:	Dry		
Equipment:	Hand excavated				
Stability:	Stable	Logged by:	SG	Checked by:	SG

- Remarks:

 Surrounding hardstanding dictated position.
 Hand pit located adjacent to site of historical tank.
 Photos of location corrupted

 $Key: D = Small \ disturbed \ sample; \ E = Environmental \ sample; \ HV = Hand \ Shear \ Vane \ test \ (kN/m^2); \ PID = Photoionization \ Detector \ (VOC \ in \ ppm)$



Site &

Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN

Report No:

10728/SG

Trial pit soakage test results

TP No: SK01

Dimensions: Width = 0.45 Length = 1.00 Pit filled with gravel (Y/N) No

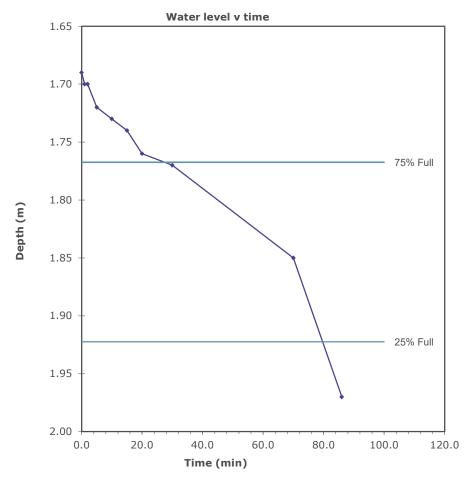
Voids Ratio

Depth: 2.00 m Test No: 1

Ground sequence: See trial pit logs.

GW Standing at: 2.00 m

Time (mins)	Depth (mBGL)
0.0	1.69
1.0	1.70
2.0	1.70
5.0	1.72
10.0	1.73
15.0	1.74
20.0	1.76
30.0	1.77
70.0	1.85
86.0	1.97



Depth of water at start of test 1.69 m Depth of water at end of test 1.97 m Depth at 75% full 1.77 m Depth at 25% full 1.92 m Base area of pit 0.45 m² Effective soakage area a_{s50} 0.90 m² Volume Change V_{75} - V_{25} 0.07 m³

Time used in calculation t_{p75}

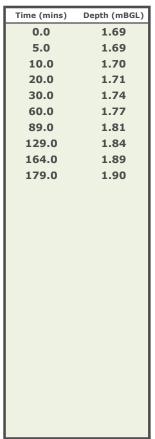
Time used in calculation t_{p25}

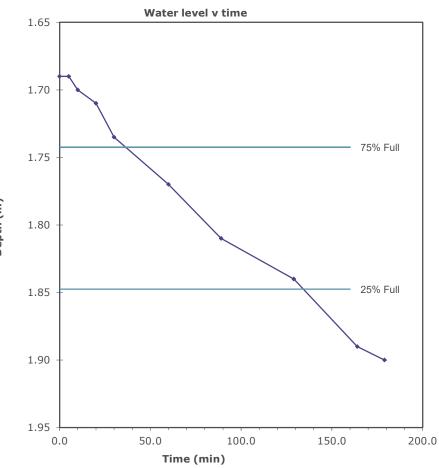
Soil infiltration rate 2.48E-05 m/sec

The 'soil infiltration rate' is calculated using two selected water levels (BRE DG 365: 2016 "Soakaway design")

1650 sec

4780 sec





Depth of water at start of test 1.69 m Depth of water at end of test 1.90 m Depth at 75% full 1.74 m Depth at 25% full 1.85 m 0.45 m² Base area of pit Effective soakage area a_{s50} 1.04 m² Volume Change V₇₅-V₂₅ 0.05 m³ Time used in calculation t_{p75} 2186 sec Time used in calculation t_{p25} 8055 sec

Soil infiltration rate

The 'soil infiltration rate' is calculated using two selected water levels (BRE DG 365: 2016 "Soakaway design")

7.71E-06 m/sec

Site & Report No: Kneller Hall, 65 Kneller Road, Twickenham, London TW2 7DN 10728/SG Location Trial pit soakage test results Depth: 1.50 m SK02 Test No: 1 TP No: **Dimensions:** Width = 0.45 Ground sequence: See trial pit logs. Length = 0.90 Pit filled with gravel (Y/N) No Voids Ratio GW Standing at: 1.50 m Time (mins) Depth (mBGL) Water level v time 0.0 0.67 0.00 1.0 0.67 2.0 0.68 0.10 5.0 0.69 0.70 10.0 20.0 0.71 0.20 30.0 0.72 40.0 0.73 60.0 0.76 0.30 90.0 0.79 123.0 0.81 165.0 0.83 Depth (m) 0.40 197.0 0.84 0.50 0.60 0.70 50% max achieved 0.80 0.90 50.0 0.0 100.0 150.0 200.0 250.0 Time (min) Depth of water at start of test 0.67 m Depth of water at end of test 0.84 m Remark: GW seapage at 1.5 Depth at 75% full 0.71 m Depth at 25% full 0.80 m 0.41 m² Base area of pit Effective soakage area a_{s50} 2.42 m² Volume Change V₇₅-V₂₅ 0.03 m^{3} Time used in calculation t_{p75} 1350 sec Time used in calculation t_{p25} 6142 sec

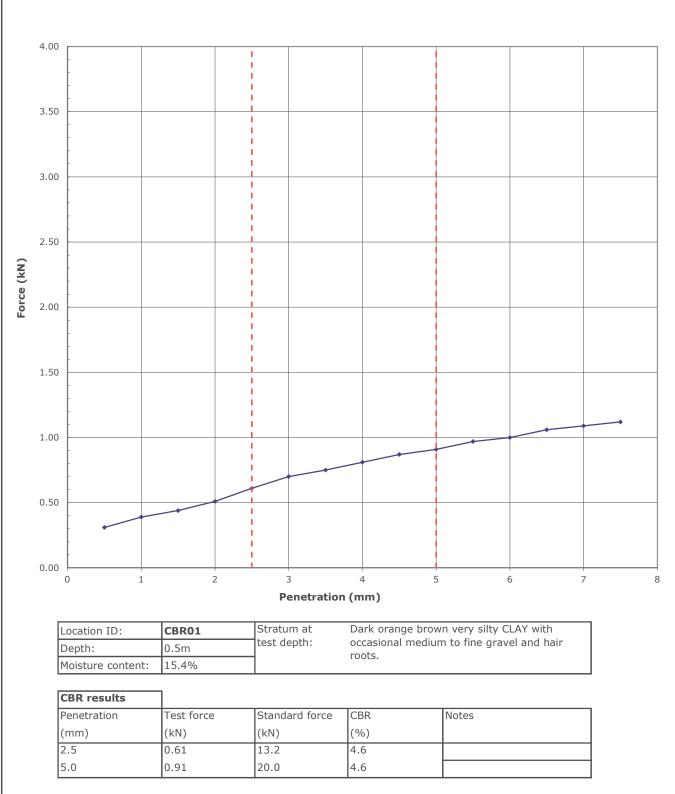
The 'soil infiltration rate' is calculated using two selected water levels (BRE DG 365: 2016 "Soakaway design")

2.97E-06 m/sec

Soil infiltration rate



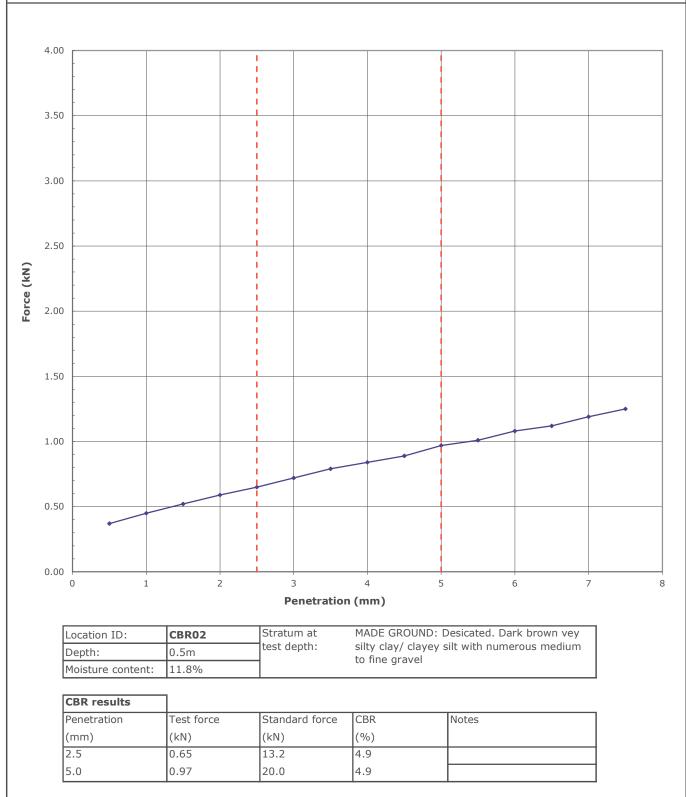
In-situ California Bearing Ratio test result (In accordance with: BS1377:1990, Part 9, Clause 4.3)



In-situ CBR value (%) 4.6 Surcharge: 10kPa



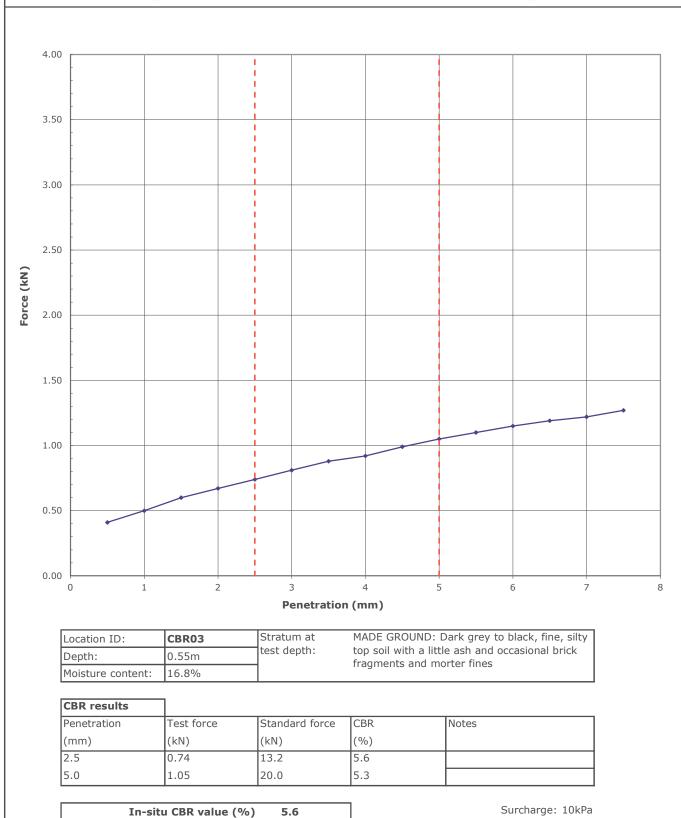
In-situ California Bearing Ratio test result (In accordance with: BS1377:1990, Part 9, Clause 4.3)



In-situ CBR value (%) 4.9 Surcharge: 10kPa

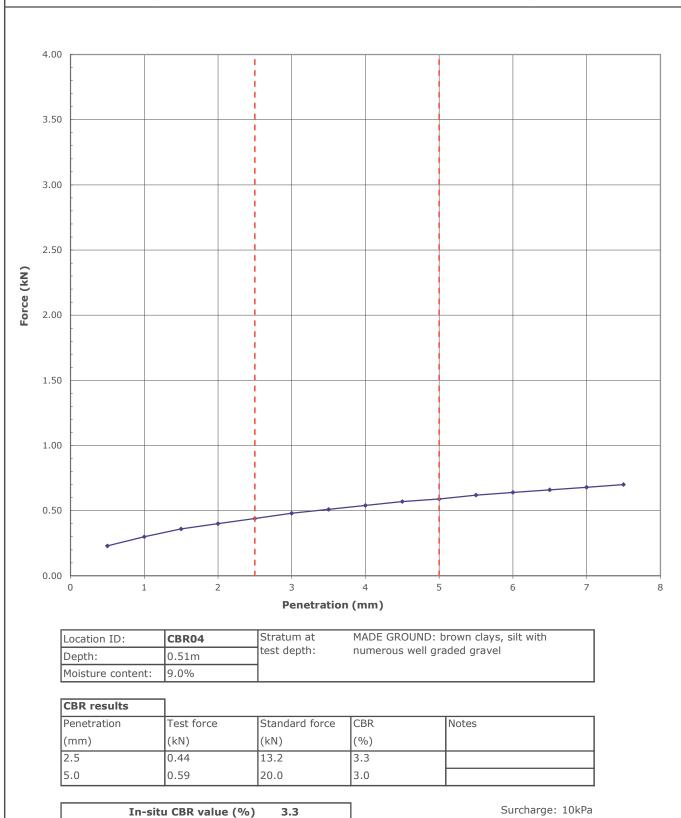


In-situ California Bearing Ratio test result (In accordance with: BS1377:1990, Part 9, Clause 4.3)



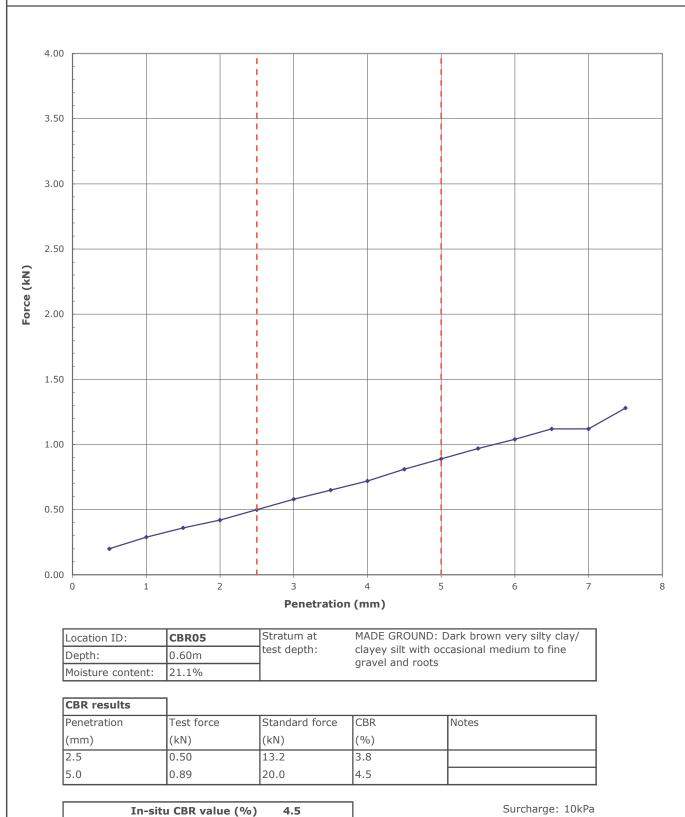


In-situ California Bearing Ratio test result (In accordance with: BS1377:1990, Part 9, Clause 4.3)



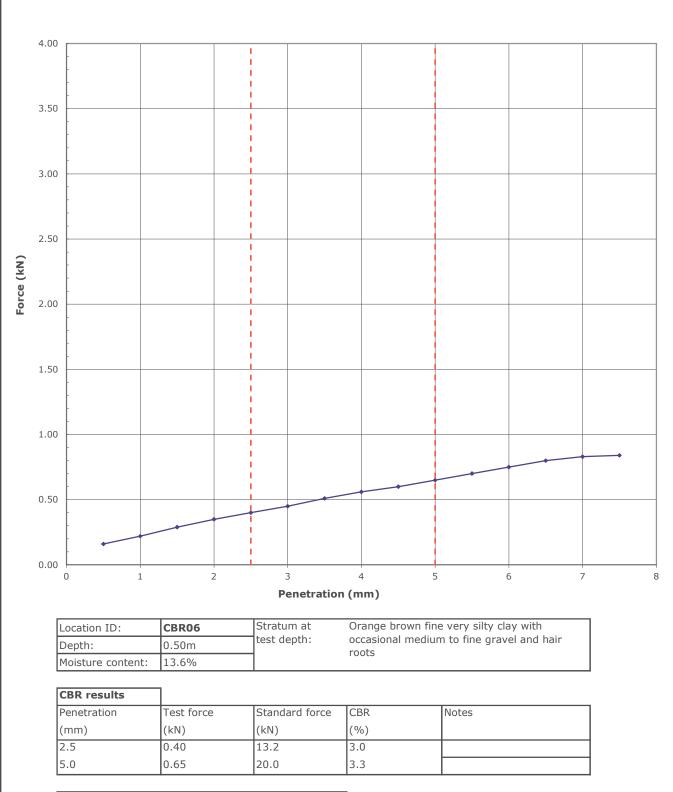


In-situ California Bearing Ratio test result (In accordance with: BS1377:1990, Part 9, Clause 4.3)





In-situ California Bearing Ratio test result (In accordance with: BS1377:1990, Part 9, Clause 4.3)



In-situ CBR value (%) 3.3 Surcharge: 10kPa



GPS Co-ordinates

Location ID	Easting	Northing	Elevation
BH1	514646.13	174285.073	13.3
BH2	514578.76	174346.918	12.145
вн3	514570.692	174255.076	13.132
BH4	514698.241	174240.712	14.322
WS1	514562.335	174318.289	12.562
WS2	514617.288	174367.723	12.5
WS2A	514617.288	174367.723	12.5
WS3	514667.254	174345.155	12.245
WS4	514710.154	174283.217	13.083
WS5	514708.514	174360.305	12.149
WS6	514859.636	174314.217	11.059
WS7	514831.338	174243.802	11.487
WS8	514917.537	174197.931	10.402
WS9	514795.81	174180.748	12.248
WS10	514876	174105	10.581
TP1	514560.339	174273.038	12.49
TP2	514637.952	174348.346	23.104
TP3	514637.952	174348.346	23.104
TP4	514668.191	174282.8	14.541
TP5	514781.645	174171.229	12.663
TP6	514674.11	174221.871	14.801
TP7	514675.704	174200.705	15.846
HP1	514611	174228	13.55
HP2	514769	174220	13.21
SK1	514628.378	174274.344	13.449
SK2	514845.148	174335.626	11.22
CBR1	514848.165	174303.254	11.145
CBR2	514591.112	174323.909	12.559
CBR3	514563.824	174287.961	12.581
CBR4	514698.521	174254.387	14.262
CBR5	514687.168	174306.64	12.389
CBR6	514798.292	174219.168	12.229



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022		ng equipment	OAFOOO N. OFOFOFF	
			Instrume	ent:	GA5000. No. G505055	
Barometri	ic pressure:		Calibration	on check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022	
b)	At start (mB):	1021				
			Notes:			
			1)			
Recorded	by:	GW	1	metoffice.gov.u	k website on the day of the monitoring visit	
			2)		ck is performed at start of monitoring against ambient air and also	
Surface g	round conditions:	Dry	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture			
Weather conditions: Overcast		Overcast	3)			
Ambient a	air temp (°C):	16		O ₂ = oxygen; F	H ₂ S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	09:24:34	50	3.20	5.50

Time	CH₄	CO ₂	O ₂	CO	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.6	0	0	0.1
15	0.0	0.3	21.6	0	0	0.0
30	0.0	0.3	21.6	0	0	0.0
45	0.0	0.3	21.6	0	0	0.0
60	0.0	0.3	21.5	0	0	0.0
75	0.0	0.3	21.5	0	0	0.0
90	0.0	0.3	21.5	0	0	0.0
105	0.0	0.3	21.5	0	0	0.0
120	0.0	0.3	21.5	0	0	0.0
135	0.0	0.3	21.5	0	0	0.0
150	0.0	0.3	21.5	0	0	0.0
165	0.0	0.3	21.5	0	0	0.0
180	0.0	0.3	21.5	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.3
Min O ₂ (%)	21.5
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.1	0.1	0.00

REMARK: pump fail



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment nt:	GA5000. No. G505055	
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022	
b)	At start (mB):	1021				
			Notes:			
			1)			
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit		
			2)	Calibration check is performed at start of monitoring against ambient ai		
Surface ground conditions:		Dry	7	periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture		
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide		
Ambient air temp (°C):		16				

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	09:32:37	19	3.13	24.17

Time	CH ₄	CO ₂	O ₂	CO	H ₂ S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppn)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	hr)	Relative pressure (mb)
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment nt:	GA5000. No. G505055	
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022	
b)	At start (mB):	1021				
			Notes:			
			1)			
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit		
			2)	Calibration check is performed at start of monitoring against ambient ai		
Surface ground conditions:		Dry	7	periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture		
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide		
Ambient air temp (°C):		16				

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН02	08:25:16	50	1.37	2.95

Time	CH ₄	CO ₂	O ₂	СО	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ррііі)
0	0.0	0.1	21.4	0	0	0.1
15	0.1	1.0	20.8	0	0	0.3
30	0.1	1.0	20.7	0	0	0.4
45	0.0	1.0	20.7	0	0	0.6
60	0.0	1.0	20.6	0	0	0.7
75	0.0	1.0	20.7	0	0	0.8
90	0.0	1.0	20.7	0	0	0.9
105	0.0	1.1	20.7	0	0	1.0
120	0.0	1.1	20.6	0	0	1.1
135	0.0	1.1	20.6	0	0	1.2
150	0.0	1.1	20.6	0	0	1.3
165	0.0	1.1	20.6	0	0	1.4
180	0.0	1.1	20.6	0	0	1.5

Max CH ₄ (%)	0.1
Max CO ₂ (%)	1.1
Min O ₂ (%)	20.6
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	1.5

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.2	0.2	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment	GA5000. No. G505055
Barometr	ic pressure:			on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1021			
			Notes:		•
			1)	 Barometric pressure trend and ambient air temperature is recorded fror metoffice.gov.uk website on the day of the monitoring visit 	
Recorded	by:	GW		metonice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient ai periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture	
Surface ground conditions:		Dry		CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide;	
Weather conditions:		Overcast	3)		
Ambient air temp (°C):		16		O_2 = oxygen; F	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН02	08:25:16	19	1.91	14.80

Time	CH ₄	CO ₂	O ₂	CO	H ₂ S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(PP)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment nt:	GA5000. No. G505055
Barometric pressure:			Calibratio	n check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1021			
			Notes:		
			1)		
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient at	
Surface ground conditions:		Dry	7	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide;	
Weather conditions:		Overcast	3)		
Ambient air temp (°C):		16		O ₂ = oxygen; F	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН03	08:44:31	50	2.39	8.36

Time	CH₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.4	0	0	0.1
15	0.0	0.9	20.7	0	0	0.4
30	0.0	0.7	20.9	0	0	0.4
45	0.0	0.6	21.0	0	0	0.3
60	0.0	0.5	21.0	0	0	0.3
75	0.0	0.5	21.0	0	0	0.2
90	0.0	0.5	21.1	0	0	0.1
105	0.0	0.4	21.1	0	0	0.1
120	0.0	0.4	21.2	0	0	0.0
135	0.0	0.4	21.2	0	0	0.0
150	0.0	0.3	21.3	0	0	0.0
165	0.0	0.3	21.3	0	0	0.0
180	0.0	0.3	21.3	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.9
Min O ₂ (%)	20.7
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.4

Flow rate (l/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.2	0.3	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment	GA5000. No. G505055
Barometr	ic pressure:			on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1021			
			Notes:		•
			1)		ssure trend and ambient air temperature is recorded from
Recorded	by:	GW		metorrice.gov.u	k website on the day of the monitoring visit
			2) Calibration check is performed at start of monitoring against ambient air and		
Surface ground conditions: Dry		Dry		periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide	
Weather conditions:		Overcast	3)		
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
вн03	08:44:31	19	2.37	23.55

Time	CH₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.0
Min O ₂ (%)	0.0
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.0

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26 (05 (2022	Monitori	ng equipment	
	26/05/2022 Instrument:		GA5000. No. G505055		
Barometr	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cal	ibration date:	Sept 2022
b)	At start (mB):	1021			
			Notes:		•
			1) Barometric pressure trend and ambient air temperature is recorded from		·
Recorded	by:	GW		metoffice.gov.u	k website on the day of the monitoring visit
			2)		ck is performed at start of monitoring against ambient air and also
Surface ground conditions:		Dry		periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture	
Weather	conditions:	- Vicitable /		, -	
Ambient air temp (°C):		16		O_2 = oxygen; H_2S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH4	11:29:21	50	3.78	5.16

Time	CH ₄	CO ₂	02	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.2	0	0	0.1
15	0.0	0.1	21.3	0	0	0.2
30	0.0	0.1	21.3	0	0	0.2
45	0.0	0.1	21.3	0	0	0.1
60	0.0	0.1	21.3	0	0	0.0
75	0.0	0.1	21.3	0	0	0.0
90	0.0	0.1	21.3	0	0	0.0
105	0.0	0.1	21.3	0	0	0.0
120	0.0	0.1	21.2	0	0	0.0
135	0.0	0.1	21.2	0	0	0.0
150	0.0	0.1	21.3	0	0	0.0
165	0.0	0.1	21.2	0	0	0.0
180	0.0	0.1	21.2	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.1
Min O ₂ (%)	21.2
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.2

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	-0.2	-0.1	0.00

REMARK: gas valve open on arrival



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment	GA5000. No. G505055	
Barometric pressure:					See note 2 below	
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022	
b)	At start (mB):	1021				
			Notes:		•	
			1)	Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit		
Recorded	by:	GW		metonice.gov.ak website on the day of the monitoring visit		
			2)		s performed at start of monitoring against ambient air and also	
Surface ground conditions:		Dry		periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide		
Weather conditions:		Overcast	3)			
Ambient air temp (°C):		16				

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH4	11:29:21	19	3.86	14.69

Time	CH₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.0
Min O ₂ (%)	0.0
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.0

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022		ng equipment	CAFOOO No CEOFOFF
			Instrume	ent:	GA5000. No. G505055
Barometri	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022
b)	At start (mB):	1022			
			Notes:		•
			1)		
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient air	
Surface ground conditions:		Dry	7	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide	
Weather conditions:		Overcast	3)		
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS3	10:10:31	50	1.26	3.10

Time	CH ₄	CO ₂	O ₂	CO	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(PPIII)
0	0.0	0.0	21.4	0	0	0.0
15	3.0	3.2	4.7	0	0	0.0
30	2.8	3.1	3.2	0	0	0.0
45	2.6	2.9	4.2	0	0	0.1
60	2.5	2.8	4.6	0	0	0.0
75	2.4	2.7	5.3	0	0	0.1
90	2.2	2.5	6.5	0	0	0.1
105	2.3	2.6	5.9	0	0	0.1
120	2.2	2.5	6.3	0	0	0.0
135	2.2	2.5	6.2	0	0	0.0
150	2.1	2.4	7.0	0	0	0.1
165	2.0	2.3	7.2	0	0	0.1
180	2.0	2.3	7.4	0	0	0.0
						·
						·

Max CH ₄ (%)	3.0
Max CO ₂ (%)	3.2
Min O ₂ (%)	3.2
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean Max		
0.0	-0.1	0.0	0.00



Site & Location	Kneller Hall,	Report No:
1	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitori	ng equipment	
		20/05/2022	Instrum	ent:	GA5000. No. G505055
Barometri	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cal	ibration date:	Sept 2022
b)	At start (mB):	1017			
			Notes:		
			1)		
Recorded	by:	GW		metoffice.gov.u	uk website on the day of the monitoring visit
			2)	Calibration check is performed at start of monitoring against ambient air	
Surface ground conditions:		Dry		periodically with a 5% $\mathrm{CH_4}$, 5% $\mathrm{CO_2}$ and 6% $\mathrm{O_2}$ gas mixture	
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide	
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS6	12:30:50	50	1.23	2.05

Time	CH ₄	CO ₂	02	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.0	20.9	0	0	0.3
15	0.0	0.0	20.9	0	0	0.1
30	0.0	0.0	21.0	0	0	0.0
45	0.0	0.0	21.0	0	0	0.0
60	0.0	0.0	20.9	0	0	0.0
75	0.0	0.0	20.9	0	0	0.0
90	0.0	0.0	20.9	0	0	0.0
105	0.0	0.0	20.9	0	0	0.0
120	0.0	0.0	20.9	0	0	0.0
135	0.0	0.0	20.9	0	0	0.0
150	0.0	0.0	20.9	0	0	0.0
165	0.0	0.1	20.9	0	0	0.0
180	0.0	0.1	20.9	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.1
Min O ₂ (%)	20.9
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.3

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
-0.1	-0.1	-0.1	0.00

REMARK: saving of flow data fail



Site & Location	Kneller Hall,	Report No:
1	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		26/05/2022	Monitorin Instrume	g equipment nt:	GA5000. No. G505055
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1021			
			Notes:		
			1)	Barometric pressure trend and ambient air temperature is recorded fro	
Recorded	by:	GW	1	metoffice.gov.u	ık website on the day of the monitoring visit
			2)	Calibration check is performed at start of monitoring against ambient air	
Surface ground conditions: Dry		Dry	7	periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture	
Weather conditions: Ove		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide	
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS10	13:32:52	50	DRY	2.98

Time	CH ₄	CO ₂	02	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.0	21.0	0	0	0.2
15	0.0	1.4	20.2	0	0	0.3
30	0.0	1.5	20.1	0	0	0.3
45	0.0	1.5	20.1	0	0	0.3
60	0.0	1.5	20.1	0	0	0.3
75	0.0	1.5	20.1	0	0	0.2
90	0.0	1.5	20.1	0	0	0.2
105	0.0	1.5	20.1	0	0	0.2
120	0.0	1.5	20.1	0	0	0.2
135	0.0	1.5	20.1	0	0	0.2
150	0.0	1.5	20.1	0	0	0.2
165	0.0	1.5	20.1	0	0	0.2
180	0.0	1.5	20.1	0	0	0.1

Max CH ₄ (%)	0.0
Max CO ₂ (%)	1.5
Min O ₂ (%)	20.1
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.3

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
-0.1	0.1	0.1	0.00

REMARK: saving of flow data fail



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitori	ng equipment	
		30/03/2022	Instrum	ent:	GA5000. No. G505055
Barometri	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cal	ibration date:	Sept 2022
b)	At start (mB):	1017			
			Notes:		
			Barometric pressure trend and ambient air temperature is recorded from		
Recorded	by:	GW		metoffice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient at	
Surface ground conditions:		Dry		periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture	
Weather conditions:		Overcast	3)	CH ₄ = methane; CO ₂ = carbon dioxide; CO = carbon monoxide;	
Ambient air temp (°C):		16		O ₂ = oxygen; F	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	13:39:56	50	3.21	5.49

Time	CH ₄	CO ₂	O ₂	CO	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ррііі)
0	0.3	0.5	18.7	0	0	0.2
15	0.0	1.7	19.7	0	0	0.2
30	0.0	1.9	19.4	0	0	0.1
45	0.0	2.1	19.2	0	0	0.1
60	0.0	2.2	19.1	0	0	0.0
75	0.0	2.2	19.1	0	0	0.0
90	0.0	2.3	19.1	0	0	0.0
105	0.0	2.3	19.0	0	0	0.0
120	0.0	2.3	19.0	0	0	0.0
135	0.0	2.3	19.0	0	0	0.0
150	0.0	2.3	19.0	0	0	0.0
165	0.0	2.3	19.0	0	0	0.0
180	0.0	2.3	19.0	0	0	0.0

Max CH ₄ (%)	0.3
Max CO ₂ (%)	2.3
Min O ₂ (%)	18.7
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.2

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		20 /05 /2022	Monitorii	ng equipment		
		30/05/2022	Instrume	ent:	GA5000. No. G505055	
Barometr	ic pressure:		Calibrati	on check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next cali	ibration date:	Sept 2022	
b)	At start (mB):	1012				
			Notes:		•	
			1)		ressure trend and ambient air temperature is recorded from	
Recorded	by:	GW		metoffice.gov.uk website on the day of the monitoring visit		
·			2)		ck is performed at start of monitoring against ambient air and also	
Surface ground conditions:		Dry		periodically with a 5% $\mathrm{CH_4}$, 5% $\mathrm{CO_2}$ and 6% $\mathrm{O_2}$ gas mixture		
Weather conditions:		Overcast	3)	CH ₄ = methane; CO ₂ = carbon dioxide; CO = carbon monoxide;		
Ambient air temp (°C):		16		O ₂ = oxygen; H	H ₂ S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	13:46:56	19	3.07	24.20

Time	CH₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.0
Min O ₂ (%)	0.0
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.0

Ī	Flo	w rate (I/	hr)	Relative pressure (mb)
ſ	Initial	Mean	Max	
	0.0	-2.0	-3.0	0.00

REMARK: pump fail



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorir Instrume	ng equipment	GA5000, No. G505055
Barometri	c pressure:			on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022
b)	At start (mB):	1013			
			Notes:		
			1)		
Recorded	by:	GW		metoffice.gov.u	uk website on the day of the monitoring visit
			2)		ck is performed at start of monitoring against ambient air and also
Surface gi	round conditions:	Dry	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture		n a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture
Weather o	conditions:	Overcast	3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide;		
Ambient air temp (°C):		16		O_2 = oxygen; H_2S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН02	10:31:29	50	1.34	2.95

Time	CH ₄	CO ₂	O ₂	CO	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(PPIII)
0	0.1	0.1	21.4	0	0	0.0
15	0.1	1.1	20.7	0	0	0.0
30	0.1	1.1	20.4	0	0	0.0
45	0.1	1.1	20.4	0	0	0.0
60	0.1	1.1	20.4	0	0	0.0
75	0.1	1.1	20.4	0	0	0.0
90	0.0	1.1	20.3	0	0	0.0
105	0.1	1.2	20.3	0	0	0.0
120	0.0	1.2	20.3	0	0	0.0
135	0.0	1.2	20.3	0	0	0.0
150	0.0	1.2	20.3	0	0	0.0
165	0.0	1.2	20.3	0	0	0.0
180	0.0	1.2	20.3	0	0	0.0
						·
						·

Max CH ₄ (%)	0.1
Max CO ₂ (%)	1.2
Min O ₂ (%)	20.3
Max CO (ppm)	0
Max H₂S (ppm)	0
Max PID (ppm)	0.0

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.0	0.1	0.1	0.00

REMARK: PEZO bailed out



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorin Instrume	g equipment nt:	GA5000. No. G505055
Barometric pressure:			Calibration check details:		See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1013			
			Notes:		•
			1)	Barometric pressure trend and ambient air temperature is recorded from	
Recorded	by:	GW	1	metoffice.gov.u	k website on the day of the monitoring visit
			2)		ck is performed at start of monitoring against ambient air and also
Surface ground conditions:		Dry	7	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture $CH_4 = \text{methane}; CO_2 = \text{carbon dioxide}; CO = \text{carbon monoxide}; \\ O_2 = \text{oxygen}; H_2S = \text{hydrogen sulphide}$	
Weather conditions:		Overcast	3)		
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН02	10:31:29	19	14.14	14.83

Time	CH ₄	CO ₂	O ₂	СО	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean Max		

REMARK: PEZO bailed out



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		20 /05 /2022	Monitori	ng equipment	
		30/05/2022	Instrume	ent:	GA5000. No. G505055
Barometr	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	ibration date:	Sept 2022
b)	At start (mB):	1014			
			Notes:		•
			1) Barometric pressure trend and ambient air temperature is recorded fro		·
Recorded	by:	GW		metoffice.gov.u	k website on the day of the monitoring visit
			2)		ck is performed at start of monitoring against ambient air and also
Surface ground conditions:		Dry		periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture	
Weather of	conditions:	Overcast	3) CH ₄ = methane; CO ₂ = carbon dioxide; CO = carbon monoxide;		, -
Ambient air temp (°C):		16		O_2 = oxygen; H_2S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
вн03	12:09:40	50	2.34	8.37

Time	CH ₄	CO ₂	O ₂	CO	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.2	0	0	0.1
15	0.0	0.6	20.9	0	0	0.2
30	0.0	0.5	20.9	0	0	0.2
45	0.0	0.4	20.9	0	0	0.2
60	0.0	0.3	21.0	0	0	0.1
75	0.0	0.3	21.0	0	0	0.1
90	0.0	0.3	21.2	0	0	0.1
105	0.0	0.3	21.0	0	0	0.1
120	0.0	0.3	21.0	0	0	0.0
135	0.0	0.3	21.0	0	0	0.0
150	0.0	0.2	21.0	0	0	0.0
165	0.0	0.2	21.1	0	0	0.0
180	0.0	0.2	21.1	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.6
Min O ₂ (%)	20.9
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.2

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean	Max	
0.1	0.2	0.2	0.00

Remark: Bung not on properly



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorin Instrume	g equipment	GA5000. No. G505055
D					
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1014			
			Notes:		•
			Barometric pressure trend and ambient air temperature is reco		•
Recorded	by:	GW	1	metoffice.gov.u	k website on the day of the monitoring visit
			2)		ck is performed at start of monitoring against ambient air and also
Surface ground conditions: Dry		h a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture			
Weather conditions:		Overcast	3)	${\rm CH_4}=$ methane; ${\rm CO_2}=$ carbon dioxide; ${\rm CO}=$ carbon monoxide; ${\rm O_2}=$ oxygen; ${\rm H_2S}=$ hydrogen sulphide	
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН03	12:09:40	19	2.39	23.55

Time	CH ₄	CO ₂	O ₂	CO	H ₂ S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(PP)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flow rate (I/hr)			Relative pressure (mb)
Initial	al Mean Max		



Site & Location	Kneller Hall,	Report No:
l	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorir Instrume	ng equipment	GA5000, No. G505055		
Barometri	c pressure:			on check details:	See note 2 below		
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022		
b)	At start (mB):	1013					
			Notes:		•		
			1 '		sure trend and ambient air temperature is recorded from		
Recorded	by:	GW	metoffice.gov.uk website on the day of the monitoring visit		ik website on the day of the monitoring visit		
					check is performed at start of monitoring against ambient air and also		
Surface gi	round conditions:	Dry	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture		n a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture		
Weather o	conditions:	Overcast	3) CH ₄ = methane; CO ₂ = carbon dioxide; CO = carbon monoxide;				
Ambient a	nir temp (°C):	16	$O_2 = \text{oxygen}; H_2S$		₂ S = hydrogen sulphide		

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH04	14:52:33	50	3.80	5.18

Time	CH ₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.3	0	0	0.1
15	0.0	0.1	21.4	0	0	0.0
30	0.0	0.1	21.4	0	0	0.0
45	0.0	0.1	21.4	0	0	0.0
60	0.0	0.1	21.4	0	0	0.0
75	0.0	0.1	21.4	0	0	0.1
90	0.0	0.1	21.4	0	0	0.1
105	0.0	0.1	21.4	0	0	0.1
120	0.0	0.1	21.4	0	0	0.1
135	0.0	0.1	21.4	0	0	0.0
150	0.0	0.1	21.4	0	0	0.0
165	0.0	0.1	21.4	0	0	0.0
180	0.0	0.1	21.4	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.1
Min O ₂ (%)	21.3
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.2	0.1	0.4	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorin Instrume	g equipment	GA5000. No. G505055	
Dayanaahu	ia nuacauua.			n check details:	See note 2 below	
barometr	ic pressure:		Calibratio	n check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022	
b)	At start (mB):	1013				
			Notes:		•	
			Barometric press		essure trend and ambient air temperature is recorded from	
Recorded	by:	GW		metoffice.gov.uk website on the day of the monitoring visit		
			2)	Calibration check is performed at start of monitoring against ambient a		
Surface ground conditions:		Dry	7	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture $CH_4 = \text{methane}; CO_2 = \text{carbon dioxide}; CO = \text{carbon monoxide}; \\ O_2 = \text{oxygen}; H_2S = \text{hydrogen sulphide}$		
Weather conditions:		Overcast	3)			
Ambient air temp (°C):		16				

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН04	14:52:33	19	2.64	14.73

Time	CH ₄	CO ₂	O ₂	CO	H ₂ S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(PP)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		20 /05 /2022	Monitori	ng equipment			
		30/05/2022	Instrum	ent:	GA5000. No. G505055		
Barometric pressure:			Calibrati	ion check details:	See note 2 below		
a)	Trend (24hrs):	Rising	Next cal	ibration date:	Sept 2022		
b)	At start (mB):	1013					
			Notes:				
			1 '		ressure trend and ambient air temperature is recorded from		
Recorded	by:	GW		metoffice.gov.uk website on the day of the monitoring visit			
			2)		neck is performed at start of monitoring against ambient air and also		
Surface ground conditions:		Dry		periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture			
Weather conditions:		Overcast	3)	CH ₄ = methane; CO ₂ = carbon dioxide; CO = carbon monoxide;			
Ambient air temp (°C):		16	O ₂ = oxygen;		$H_2S = hydrogen sulphide$		

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS3	13:20:06	50	1.23	3.02

Time (s)	CH₄ (%)	CO ₂ (%)	O ₂ (%)	CO (ppm)	H ₂ S (ppm)	PID (ppm)
0	0.0	0.1	21.6	0	0	0.0
15	2.0	3.8	6.9	0	0	0.0
30	2.0	3.9	2.5	0	0	0.1
45	2.0	3.9	2.1	0	0	0.1
60	2.0	3.9	2.1	0	0	0.0
75	2.0	3.9	1.9	0	0	0.1
90	2.0	3.9	1.7	0	0	0.1
105	2.1	4.0	1.5	0	0	0.1
120	2.1	4.0	1.3	0	0	0.1
135	2.1	4.0	1.3	0	0	0.1
150	2.0	3.9	1.2	0	0	0.1
165	2.0	3.9	1.3	0	0	0.1
180	2.0	3.8	1.4	0	0	0.2

Max CH ₄ (%)	2.1
Max CO ₂ (%)	4.0
Min O ₂ (%)	1.2
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.2

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.0	0.1	0.1	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorir Instrume	ng equipment ent:	GA5000. No. G505055	
Barometric pressure:			Calibration	on check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022	
b)	At start (mB):	1014				
			Notes:		•	
			1 '		essure trend and ambient air temperature is recorded from	
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit		
			2)			
Surface ground conditions: Dry		h a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture				
Weather conditions:		Overcast	3)	3) CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide		
Ambient air temp (°C):		16				

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS6	15:36:14	50	1.25	1.99

Time	CH ₄	CO ₂	O ₂	CO	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.5	0	0	0.1
15	0.0	1.3	20.9	0	0	0.1
30	0.0	1.4	20.7	0	0	0.0
45	0.0	1.4	20.7	0	0	0.0
60	0.0	1.4	20.6	0	0	0.0
75	0.0	1.4	20.6	0	0	0.0
90	0.0	1.4	20.6	0	0	0.0
105	0.0	1.5	20.6	0	0	0.0
120	0.0	1.5	20.6	0	0	0.0
135	0.0	1.5	20.6	0	0	0.0
150	0.0	1.5	20.5	0	0	0.0
165	0.0	1.5	20.5	0	0	0.0
180	0.0	1.5	20.5	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	1.5
Min O ₂ (%)	20.5
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.1	0.4	0.5	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		30/05/2022	Monitorin Instrume	g equipment	GA5000. No. G505055	
D						
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022	
b)	At start (mB):	1014				
			Notes:		•	
			1) Barometric press		ssure trend and ambient air temperature is recorded from	
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit		
			2)	Calibration check is performed at start of monitoring against ambient a		
Surface ground conditions:		Dry	7	periodically with a 5% $\mathrm{CH_{4}}$, 5% $\mathrm{CO_{2}}$ and 6% $\mathrm{O_{2}}$ gas mixture		
Weather conditions:		Overcast	3)		e; CO ₂ = carbon dioxide; CO = carbon monoxide;	
Ambient air temp (°C):		16		O ₂ = oxygen; H	H ₂ S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS10	15:48:42	50	DRY	3.01

Time	CH ₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.3	0	0	0.1
15	0.0	1.2	20.8	0	0	0.1
30	0.0	1.2	20.7	0	0	0.1
45	0.0	1.2	20.7	0	0	0.1
60	0.0	1.2	20.6	0	0	0.1
75	0.0	1.3	20.6	0	0	0.1
90	0.0	1.3	20.6	0	0	0.1
105	0.0	1.3	20.6	0	0	0.1
120	0.0	1.3	20.6	0	0	0.1
135	0.0	1.3	20.6	0	0	0.1
150	0.0	1.3	20.6	0	0	0.0
165	0.0	1.3	20.6	0	0	0.1
180	0.0	1.3	20.6	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	1.3
Min O ₂ (%)	20.6
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
-0.2	-0.4	-0.2	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022	Monitorii	ng equipment	
		06/06/2022	Instrume	ent:	GA5000. No. G505055
Barometr	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	ibration date:	Sept 2022
b)	At start (mB):	1014			
			Notes:		•
			1)		
Recorded	by:	GW		metoffice.gov.u	k website on the day of the monitoring visit
			2) Calibration check is performed at start of monitoring against a		ck is performed at start of monitoring against ambient air and also
Surface g	round conditions:	Wet	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture		h a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide;	
Ambient a	air temp (°C):	16	O ₂ = oxygen; H		H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	11:07:14	50	3.23	5.41

Time	CH ₄	CO ₂	O ₂	CO	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ррііі)
0	0.0	0.1	21.4	0	0	0.1
15	0.0	3.1	19.2	0	0	0.2
30	0.0	3.1	18.7	0	0	0.2
45	0.0	3.1	18.7	0	0	0.1
60	0.0	3.1	18.7	0	0	0.1
75	0.0	3.1	18.7	0	0	0.1
90	0.0	3.1	18.7	0	0	0.1
105	0.0	3.1	18.7	0	0	0.1
120	0.0	3.1	18.7	0	0	0.1
135	0.0	3.1	18.7	0	0	0.1
150	0.0	3.1	18.7	0	0	0.1
165	0.0	3.1	18.7	0	0	0.1
180	0.0	3.1	18.8	0	0	0.1

Max CH ₄ (%)	0.0
Max CO ₂ (%)	3.1
Min O ₂ (%)	18.7
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.2

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.0	-0.1	0.1	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022		<u>ig equipment</u>	CAFOOO No. CEOFOFF
			Instrume	nt:	GA5000. No. G505055
Barometr	ic pressure:		Calibratio	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calil	bration date:	Sept 2022
b)	At start (mB):	1014			
			Notes:		•
			1)		ssure trend and ambient air temperature is recorded from
Recorded	by:	GW	1	metoffice.gov.u	k website on the day of the monitoring visit
·			2)	Calibration check is performed at start of monitoring against ambient a	
Surface ground conditions:		Wet	7	periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture	
Weather conditions:		Overcast	3)		e; CO ₂ = carbon dioxide; CO = carbon monoxide;
Ambient air temp (°C):		16		O ₂ = oxygen; F	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
BH01	11:16:49	19	3.32	24.38

Time	CH ₄	CO ₂	O ₂	СО	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean Max		

REMARK: pump fail



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022		<u>g equipment</u>	
			Instrume	nt:	GA5000. No. G505055
Barometr	ic pressure:		Calibratio	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calil	bration date:	Sept 2022
b)	At start (mB):	1016			
			Notes:		
			1)	Barometric pressure trend and ambient air temperature is recorded from	
Recorded	by:	GW	1	metoffice.gov.u	ık website on the day of the monitoring visit
			2)	Calibration check is performed at start of monitoring against ambient	
Surface ground conditions:		Wet	7	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture	
Weather conditions:		Overcast	3)		e; CO ₂ = carbon dioxide; CO = carbon monoxide;
Ambient air temp (°C):		16		O ₂ = oxygen; F	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН02	10:25:06	50	1.37	3.00

Time	CH ₄	CO ₂	02	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.1	0.1	21.3	0	0	0.1
15	0.1	1.5	20.1	0	0	0.1
30	0.1	1.5	19.7	0	0	0.2
45	0.1	1.5	19.7	0	0	0.2
60	0.1	1.5	19.7	0	0	0.3
75	0.1	1.5	19.7	0	0	0.3
90	0.1	1.5	19.7	0	0	0.3
105	0.0	1.5	19.7	0	0	0.3
120	0.0	1.5	19.7	0	0	0.3
135	0.0	1.5	19.7	0	0	0.3
150	0.0	1.5	19.7	0	0	0.3
165	0.0	1.5	19.6	0	0	0.4
180	0.0	1.5	19.6	0	0	0.4

Max CH ₄ (%)	0.1
Max CO ₂ (%)	1.5
Min O ₂ (%)	19.6
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.4

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.0	-0.1	0.1	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022		g equipment	
		,,	Instrume	nt:	GA5000. No. G505055
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1015			
			Notes:		
			1)	Barometric pressure trend and ambient air temperature is recorded from metoffice.gov.uk website on the day of the monitoring visit	
Recorded	by:	GW	1		
			2)	Calibration check is performed at start of monitoring against ambient	
Surface ground conditions:		Wet		periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture	
Weather conditions:		Overcast	3)		e; CO ₂ = carbon dioxide; CO = carbon monoxide;
Ambient air temp (°C):		16		O ₂ = oxygen; H	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН02	10:33:07	19	12.24	14.84

Time	CH₄ (%)	CO ₂ (%)	O ₂ (%)	CO (ppm)	H ₂ S (ppm)	PID (ppm)
(s)	(70)	(70)	(70)	(ppiii)	(ррпт)	(11.7

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	hr)	Relative pressure (mb)
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022	Monitorii Instrume	ng equipment	GA5000, No. G505055
Barometri	c pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022
b)	At start (mB):	1014			
			Notes:		
			1)		
Recorded	by:	GW	7	metoffice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient a	
Surface gi	round conditions:	Wet	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture		n a 5% CH ₄ , 5% CO $_2$ and 6% O $_2$ gas mixture
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide; O_2 = oxygen; H_2S = hydrogen sulphide	
Ambient air temp (°C):		16			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
вн03	11:37:16	50	2.39	8.22

Time	CH ₄	CO ₂	O ₂	СО	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ррііі)
0	0.0	0.1	21.3	0	0	0.0
15	0.0	1.2	20.4	0	0	0.1
30	0.0	1.1	20.3	0	0	0.1
45	0.0	1.0	20.4	0	0	0.1
60	0.0	1.0	20.5	0	0	0.1
75	0.0	0.9	20.5	0	0	0.1
90	0.0	0.9	20.6	0	0	0.1
105	0.0	0.9	20.6	0	0	0.1
120	0.0	0.8	20.6	0	0	0.1
135	0.0	0.8	20.7	0	0	0.1
150	0.0	0.8	20.7	0	0	0.1
165	0.0	0.7	20.8	0	0	0.1
180	0.0	0.6	20.9	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	1.2
Min O ₂ (%)	20.3
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.0	0.1	0.1	0.00

Remark: Bung not on properly



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022		ng equipment	CAFOOO No CEOFOFF
			Instrume	ent:	GA5000. No. G505055
Barometri	ic pressure:		Calibrati	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022
b)	At start (mB):	1014			
			Notes:		
			1)		
Recorded	by:	GW	1	metoffice.gov.u	uk website on the day of the monitoring visit
			2)	Calibration check is performed at start of monitoring against ambient	
Surface g	round conditions:	Wet	periodically with a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture		n a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide;	
Ambient air temp (°C):		16		$O_2 = oxygen; F$	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН03	11:37:16	19	2.34	23.58

Time	CH ₄	CO ₂	O ₂	CO	H ₂ S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(PP)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022		ng equipment	CAFOOO No CEOFOFF
			Instrume	ent:	GA5000. No. G505055
Barometri	ic pressure:		Calibratio	on check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022
b)	At start (mB):	1020			
			Notes:		•
			1)		
Recorded	by:	GW		metoffice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient a	
Surface ground conditions: Wet periodically with a 5% CH ₄ , 5% CO ₂		h a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture			
Weather conditions:		Overcast	3)		e; CO ₂ = carbon dioxide; CO = carbon monoxide;
Ambient air temp (°C):		16		O_2 = oxygen; H_2S = hydrogen sulphide	

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН04	12:37:36	50	3.82	5.00

Time	CH ₄	CO ₂	O_2	CO	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.4	0	0	0.1
15	0.0	0.2	21.3	0	0	0.0
30	0.0	0.3	21.2	0	0	0.0
45	0.0	0.4	21.2	0	0	0.0
60	0.0	0.4	21.1	0	0	0.0
75	0.0	0.4	21.1	0	0	0.0
90	0.0	0.4	21.1	0	0	0.0
105	0.0	0.4	21.1	0	0	0.0
120	0.0	0.3	21.2	0	0	0.0
135	0.0	0.4	21.1	0	0	0.0
150	0.0	0.4	21.1	0	0	0.0
165	0.0	0.3	21.2	0	0	0.0
180	0.0	0.3	21.2	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	0.4
Min O ₂ (%)	21.1
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.1

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
-0.2	-0.1	0.0	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022	Monitorin Instrume	g equipment nt:	GA5000. No. G505055
Barometr	ic pressure:		Calibratio	n check details:	See note 2 below
a)	Trend (24hrs):	Rising	Next calib	oration date:	Sept 2022
b)	At start (mB):	1018			
			Notes:		
1		Barometric pressure trend and ambient air temperature is recorded from			
Recorded	by:	GW	1	metoffice.gov.uk website on the day of the monitoring visit	
			2)	Calibration check is performed at start of monitoring against ambient	
Surface ground conditions: Wet			periodically with a 5% $\mathrm{CH_4}$, 5% $\mathrm{CO_2}$ and 6% $\mathrm{O_2}$ gas mixture		
Weather conditions:		Overcast	3)	CH_4 = methane; CO_2 = carbon dioxide; CO = carbon monoxide;	
Ambient air temp (°C):		16		O_2 = oxygen; H	H ₂ S = hydrogen sulphide

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
ВН04	12:45:06	19	3.66	14.76

Time	CH ₄	CO ₂	O_2	CO	H ₂ S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flow rate (I/hr)			Relative pressure (mb)
Initial	Mean Max		



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022	Monitoring equipment		CATAGO N. GEOFFE		
			Instrume	nt:	GA5000. No. G505055		
Barometric pressure:			Calibratio	on check details:	See note 2 below		
a)	Trend (24hrs):	Rising	Next calil	bration date:	Sept 2022		
b)	At start (mB):	N/A					
			Notes:		•		
			1)		ssure trend and ambient air temperature is recorded from		
Recorded	by:	GW	2) Calibration chec		gov.uk website on the day of the monitoring visit		
					check is performed at start of monitoring against ambient air and also		
Surface ground conditions:		Wet	7	periodically with a 5% CH_4 , 5% CO_2 and 6% O_2 gas mixture			
Weather conditions:		Overcast	3)		e; CO ₂ = carbon dioxide; CO = carbon monoxide;		
Ambient air temp (°C):		16		O_2 = oxygen; H_2S = hydrogen sulphide			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS3	10:45:00	50	1.10	3.20

Time	CH₄ (%)	CO ₂ (%)	O ₂ (%)	CO (nnm)	H ₂ S (ppm)	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ррпт)	(FF)

Max CH ₄ (%)	
Max CO ₂ (%)	
Min O ₂ (%)	
Max CO (ppm)	
Max H ₂ S (ppm)	
Max PID (ppm)	

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	

Remark: Installation flooded



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06 (06 (2022	Monitorin	ng equipment		
		06/06/2022	Instrume	ent:	GA5000. No. G505055	
Barometric pressure:			Calibration	on check details:	See note 2 below	
a)	Trend (24hrs):	Rising	Next cali	bration date:	Sept 2022	
b)	At start (mB):	1019				
			Notes:		•	
İ			1 '		essure trend and ambient air temperature is recorded from	
Recorded	by:	GW		metoffice.gov.uk website on the day of the monitoring visit		
1			2)	Calibration check is performed at start of monitoring against ambient		
Surface ground conditions:		Wet		periodically with a 5% $\mathrm{CH_4}$, 5% $\mathrm{CO_2}$ and 6% $\mathrm{O_2}$ gas mixture		
Weather conditions:		Overcast	3)	${\rm CH_4}={\rm methane}$; ${\rm CO_2}={\rm carbon}$ dioxide; ${\rm CO}={\rm carbon}$ monoxide; ${\rm O_2}={\rm oxygen}$; ${\rm H_2S}={\rm hydrogen}$ sulphide		
Ambient air temp (°C):		16				

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS6	13:00:48	50	1.31	1.99

Time	CH ₄	CO ₂	O ₂	СО	H₂S	PID (ppm)
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(hhiii)
0	0.0	0.1	21.2	0	0	0.0
15	0.0	1.7	20.2	0	0	0.0
30	0.0	1.7	20.0	0	0	0.0
45	0.0	1.7	20.0	0	0	0.0
60	0.0	1.7	20.0	0	0	0.0
75	0.0	1.7	20.0	0	0	0.0
90	0.0	1.7	20.0	0	0	0.0
105	0.0	1.7	20.0	0	0	0.0
120	0.0	1.7	20.0	0	0	0.0
135	0.0	1.7	20.0	0	0	0.0
150	0.0	1.7	20.0	0	0	0.0
165	0.0	1.7	20.0	0	0	0.0
180	0.0	1.7	20.0	0	0	0.0

Max CH ₄ (%)	0.0
Max CO ₂ (%)	1.7
Min O ₂ (%)	20.0
Max CO (ppm)	0
Max H₂S (ppm)	0
Max PID (ppm)	0.0

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.0	0.1	0.1	0.00



Site & Location	Kneller Hall,	Report No:
	65 Kneller Road, Twickenham,London, TW2 7DN	10728/SG

Date:		06/06/2022	Monitorii	ng equipment			
		06/06/2022	Instrume	ent:	GA5000. No. G505055		
Barometric pressure:			Calibrati	on check details:	See note 2 below		
a) Trend (24hrs):		Rising	Next cali	ibration date:	Sept 2022		
b)	At start (mB):	At start (mB): 1015					
			Notes:		•		
			1)		ssure trend and ambient air temperature is recorded from		
Recorded	by:	GW		metoffice.gov.u	k website on the day of the monitoring visit		
			2)	Calibration check is performed at start of monitoring against ambient air an			
Surface g	Surface ground conditions:			periodically with	n a 5% CH ₄ , 5% CO ₂ and 6% O ₂ gas mixture		
Weather conditions:		Overcast	3)	*	ne; CO ₂ = carbon dioxide; CO = carbon monoxide;		
Ambient air temp (°C):		16		O_2 = oxygen; H_2S = hydrogen sulphide			

BH ID	Time (24hr)	Pipe dia (mm)	GW depth (mbgl)	Depth to pipe base (mbgl)
WS10	13:17:00	50	dry	3.00

Time	CH ₄	CO ₂	O_2	CO	H₂S	PID
(s)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
0	0.0	0.1	21.2	0	0	0.0
15	0.0	1.5	20.4	0	0	0.0
30	0.0	1.5	20.3	0	0	0.0
45	0.0	1.5	20.3	0	0	0.0
60	0.0	1.5	20.3	0	0	0.0
75	0.0	1.5	20.3	0	0	0.0
90	0.0	1.5	20.3	0	0	0.0
105	0.0	1.5	20.3	0	0	0.0
120	0.0	1.5	20.3	0	0	0.0
135	0.0	1.5	20.3	0	0	0.0
150	0.0	1.5	20.3	0	0	0.0
165	0.0	1.5	20.3	0	0	0.0
180	0.0	1.5	20.3	0	0	0.0
		_	_			

Max CH ₄ (%)	0.0
Max CO ₂ (%)	1.5
Min O ₂ (%)	20.3
Max CO (ppm)	0
Max H ₂ S (ppm)	0
Max PID (ppm)	0.0

Flo	w rate (I/	Relative pressure (mb)	
Initial	Mean	Max	
0.0	0.1	0.2	0.00



Site &	Kneller Hall	Report 10728	166
Location	65 Kneller Road, Twickenham, London TW2 7DN	No:	/ 3 G

SUMMARY OF UNDRAINED SHEAR STRENGTH TEST RESULTS

Content Cont			IMAKI							I RESULTS
BHO1 6.50 28 2.01 1.57 130 98 12.00 I 49 BHO1 9.50 27 2.03 1.60 190 92 4.00 B 46 BHO1 12.50 27 2.02 1.59 250 240 10.00 B 120 BHO1 15.50 29 2.03 1.57 370 340 7.00 B 170 BHO1 21.50 26 2.05 1.63 430 258 10.00 B 129 BHO1 24.50 26 2.00 1.59 490 220 13.00 B 110 BHO2 5.00 30 1.96 1.50 100 102 10.00 B 51 BHO2 8.00 28 2.00 1.57 160 134 5.00 B 67 BHO2 11.00 26 2.04 1.62 220 221 9.00 B 111 BHO2 14.00 40 1.83 1.31 280 56 3.00 B (28) Water softened / Disturb BHO3 12.50 27 2.01 1.58 250 168 7.00 B 84 BHO3 15.50 25 2.02 1.62 310 493 6.00 B 247 BHO3 15.50 25 2.02 1.62 310 493 6.00 B 247 BHO3 15.50 26 2.03 1.61 430 276 10.00 B 138 BHO4 9.50 26 2.03 1.61 190 223 9.00 B 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 99 15.00 B 138 BHO4 9.50 26 2.03 1.61 190 223 9.00 B 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 890	Depth (m)) content			pressure	stress	strain		cohesion	Remarks
12.50	6.50	0 28		1.57	130	98	12.00	I	49	
15.50 29 2.03 1.57 310 192 6.00 8 96 170 18.50 28 2.01 1.57 370 340 7.00 8 170 170 18.50 26 2.05 1.63 430 258 10.00 8 129 13.00 24.50 26 2.00 1.59 490 220 13.00 8 110 38102 3.00 31 1.91 1.45 60 97 9.00 I 49 490 38102 8.00 28 2.00 1.57 160 134 5.00 8 67 67 68 67 68 67 68 68	9.50	50 27	2.03	1.60	190	92	4.00	В	46	
BHO1 18.50 28 2.01 1.57 370 340 7.00 B 170 129 BHO1 21.50 26 2.05 1.63 430 258 10.00 B 129 BHO2 3.00 31 1.91 1.45 60 97 9.00 I 49 BHO2 5.00 30 1.96 1.57 160 134 5.00 B 51 BHO2 11.00 26 2.04 1.62 220 221 9.00 B 111 BHO2 14.00 40 1.83 1.31 280 56 3.00 B (28) BHO3 12.50 27 2.01 1.58 250 168 7.00 B 84 BHO3 18.50 27 2.02 1.62 310 493 6.00 B 247 BHO3 18.50 27 2.02 1.59 370 184 5.00 B 247 BHO3 18.50 27 2.02 1.59 370 184 5.00 B 92 BHO3 21.50 26 2.03 1.61 430 276 10.00 B 138 BHO4 9.50 26 2.03 1.61 190 223 9.00 B 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 89 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 89 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 89 112 BHO4 12.50 27 2.05 1.61 190 223 9.00 B 112 BHO4 12.50 27 2.05 1.61 190 223 9.00 B 112 BHO4 12.50 27 2.05 1.61 150 250 177 15.00 B 89	12.50	.50 27	2.02	1.59	250	240	10.00	В	120	
BHO1	15.50	.50 29	2.03	1.57	310	192	6.00	В	96	
BHO1 21.50 26 2.05 1.63 430 258 10.00 B 129 BHO2 3.00 31 1.91 1.45 60 97 9.00 I 49 BHO2 5.00 30 1.96 1.50 100 102 10.00 B 51 BHO2 11.00 26 2.04 1.62 220 221 9.00 B 111 BHO3 8.00 32 1.91 1.45 160 99 15.00 I 50 BHO3 12.50 27 2.01 1.58 250 168 7.00 B 84 BHO3 15.50 25 2.02 1.62 310 493 6.00 B 247 BHO3 18.50 27 2.02 1.59 370 184 5.00 B 92 BHO3 21.50 26 2.03 1.61 430 276 10.00 B 138 BHO4 9.50 26 2.03 1.61 190 223 9.00 B 112 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 891 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 891 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 891 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 891 BHO4 12.50 27 2.05 1.61 250 177 15.00 B 891	18.50	.50 28	2.01	1.57	370	340	7.00	В	170	
BHO1					430		10.00	В	129	
BHO2 3.00 31 1.91 1.45 60 97 9.00 I 49 8HO2 5.00 30 1.96 1.50 100 102 10.00 B 51 8HO2 11.00 26 2.04 1.62 220 221 9.00 B 111 8HO2 14.00 40 1.83 1.31 280 56 3.00 B (28) Water softened / Disturb 8HO3 12.50 27 2.01 1.58 250 168 7.00 B 84 8HO3 18.50 27 2.02 1.59 370 184 5.00 B 92 8HO3 21.50 26 2.03 1.61 430 276 10.00 B 138 8HO4 9.50 26 2.03 1.61 190 223 9.00 B 112 8HO4 12.50 27 2.05 1.61 250 177 15.00 B 89	24.50	.50 26	2.00	1.59	490	220	13.00	В	110	
Section Sect	3.00	00 31	1.91		60			I		
8:00	1			1.50	100	102		В		
38H02	8.00			1.57	160	134	5.00	В		
BHO2	11.00			1.62	220		9.00	В	111	
BHO3			1.83		l		3.00	В	(28)	Water softened / Disturbed
BH03					l			I	-	·
BH03				1.58	250	168		В		
BH03					1					
BH03 21.50 26 2.03 1.61 430 276 10.00 B 138 BH04 6.50 30 1.94 1.49 130 101 8.00 B 51 BH04 9.50 26 2.03 1.61 190 223 9.00 B 112 BH04 12.50 27 2.05 1.61 250 177 15.00 B 89					370		5.00	В	92	
BH04 6.50 30 1.94 1.49 130 101 8.00 B 51 112 130 101 130 101 130 101 130 101 130 101 130 101										
BH04 9.50 26 2.03 1.61 190 223 9.00 B 112 BH04 12.50 27 2.05 1.61 250 177 15.00 B 89	6.50				130	101		В	51	
	9.50	50 26	2.03		190	223	9.00	В	112	

Testing in accordance with BS EN ISO 17892. UU = unconsolidated, undrained; MUU = multistage, unconsolidated, Date: 01 July 22

Unless stated otherwise: a) Rate of strain = 2mm/min and b) Standard latex membrame used with thickness = 0.5mm

Failure modes: B = brittle, I = intermediate, P = plastic

(Triaxial Sheet 1 of 1)



Site & Kneller Hall
Location 65 Kneller Road, Twickenham, London TW2 7DN

Report
10728/SG
No:

SUMMARY OF CLASSIFICATION TEST RESULTS

	SUMMARY OF CLASSIFICATION TEST RESULTS											
BH ID	Depth (m)	Туре	w (%)	w _∟ (%)	W _P (%)	Pass 425 (%)	I _P (%)	Mod I _P (%)	I _L (%)	LOI (%)	Description	
BH01	6.50	U	28	70	29	>95	41		-0.02		Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH01	9.50	U	27								Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH01	12.50	U	27	75	31	>95	44		-0.09		Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH01	15.50	U	29	76	30	>95	46		-0.02		Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH01	18.50	U	28	78	31	>95	47		-0.07		Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH01	21.50	U	26	73	31	>95	42		-0.13		Dark grey, fissured, silty CLAY with infilled burrows.	
BH01	24.50	U	26	71	31	>95	40		-0.13		Dark grey, fissured, silty CLAY with infilled burrows.	
BH02	3.00	U	31	72	32	>95	40		-0.02		MADE GROUND: Dark grey silty, slightly gravelly, slightly sandy clay with rare pyrite nodules. Gravel is subangular to rounded, fine and medium flint and brick fragments.	
											Dark brownish grey fissured, silty CLAY with rare infilled burrows.	
BH02	5.00	D	19	74	32	>95	42		-0.33		Dark brownish grey fissured, silty CLAY with rare infilled burrows.	
BH02	5.00	U	30	76	33	>95	43		-0.07		Dark brownish grey fissured, silty CLAY with rare infilled burrows.	
BH02	8.00	U	28	68	29	>95	39		-0.04		Dark brownish grey, fissured, silty CLAY.	
BH02	11.00	U	26								Dark brownish grey, fissured, silty CLAY.	
BH02	14.00	U	40	73	32	>95	41		0.19		Orange brown slightly sandy silty CLAY.	
BHUS	7.40	D	23	73	31	>95	42		0.10		Dark grey, silty CLAY.	
כטרום	7.40	ט ן	23	/3	21	/93	44		-0.19		Doub const financed aith CLAV with const-filled burning	
BH03	8.00	U	32								Dark grey, fissured, silty CLAY with rare infilled burrows.	
вн03	12.50	U	27	74	29	>95	45		-0.04		Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH03	15.50	U	25								Dark grey, fissured, silty CLAY with rare infilled burrows.	
BH03	18.50	U	27	79	32	>95	47		-0.11		Dark grey, fissured, silty CLAY with rare and infilled burrows. Locally slightly sandy.	
BH03	21.50	U	26	73	30	>95	43		-0.10			

Testing in accordance with BS EN ISO 17892 unless specified otherwise

Date: 26 Jun 17

Modified Plasticity Index calculated in accordance with NHBC Standards Chapter 4.2 (reported if %passing 425mm <95%)

Percent passing 425µm: by estimation, by hand* or by sieving**



(Classification Sheet 1 of 2)

Site & Kneller Hall

Location 65 Kneller Road, Twickenham, London TW2 7DN

Report No:

10728/SG

SUMMARY OF CLASSIFICATION TEST RESULTS

	SUMMARY OF CLASSIFICATION TEST RESULTS										
BH ID	Depth (m)	Туре	w (%)	w _∟ (%)	W _P (%)	Pass 425 (%)	I _P (%)	Mod I _P (%)	I _L (%)	LOI (%)	Description
BH04	6.50	U	30	79	33	>95	46		-0.06		Dark brownish grey, fissured silty CLAY with rare infilled burrows.
BH04	8.00	D	25	71	29	>95	42		-0.11		Dark brownish grey, fissured silty CLAY with rare infilled burrows.
BH04	9.50	U	26								Dark brownish grey, fissured silty CLAY with rare infilled burrows.
BH04	12.50	U	27	71	30	>95	41		-0.07		Dark brownish grey, fissured silty CLAY with rare infilled burrows.
WS1	2.30	D	14								Orange silty, slightly gravelly fine and medium SAND. Gravel is subrounded to rounded fine to medium flint. Locally slightly clayey.
WS2A	2.30	D	14	26	20	27.1**	6	2	-0.97		Orange grey slightly silty very sandy GRAVEL. Gravel is subangular and subrounded, fine to coarse, flint. Locally gravelly sand.
WS3	1.00	D	37	66	31	>95	35		0.18		Orange grey slightly silty very sandy, very clayey GRAVEL. Gravel is subangular and subrounded, fine to coarse, flint
WS3	2.10	D	32	75	30	>95	45		0.05		Mottled orange brown and blue grey silty CLAY with occasional to frequent decaying rootlets. Composed of gravel sized lithorelicts in a silty clay matrix.
WS3	3.30	D	29	70	30	>95	40		-0.03		Dark grey silty CLAY with occasional decaying rootlets and occasional lithorelicts.
WS6	2.30	D	28								Orange brown silty CLAY composed of gravel sized lithorelicts in a brown silty clay matrix.
WS9	1.00	D	34	72	31	>95	41		0.08		Orange brown, mottled, grey and red, very silty, slightly sandy CLAY. Composed of gravel sized lithorelicts in a very silty sandy clay matrix.
WS9	3.00	D	31	63	21	>95	42		0.25		Dark grey, silty CLAY. Composed of gravel sized lithorelicts in a silty clay matrix.

Testing in accordance with BS EN ISO 17892 unless specified otherwise

Date: 26 Jun 17

Modified Plasticity Index calculated in accordance with NHBC Standards Chapter 4.2 (reported if %passing 425mm <95%)

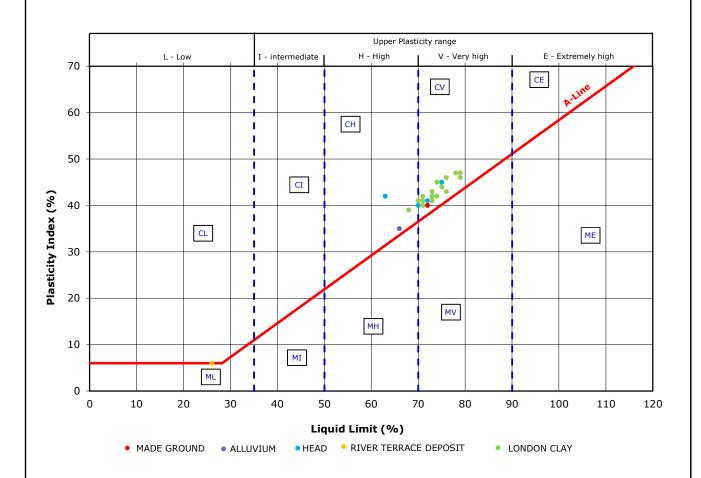
Percent passing 425_µm: by estimation, by hand* or by sieving** (Classification Sheet 2 of 2)



Site & Kneller Hall
Location 65 Kneller Road, Twickenham, London TW2 7DN

Report
10728/SG
No:

Plasticity Chart



M - SILT [plots below the A-Line}

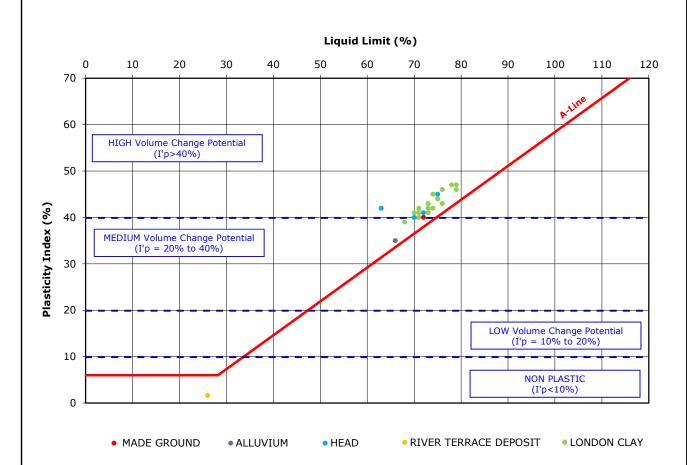
C - CLAY [plots above the A-Line]

Classification in accordance with BS5930:2015 "Code of practice for site investigations"



Site & Kneller Hall
Location 65 Kneller Road, Twickenham, London TW2 7DN
Report 10728/SG

Plasticity Chart



Modified Plasticity Index, I'p:

$$I'p = Ip x (\% passing 425mm)$$
 (where Ip = Plasticity Index)

$$100\%$$

Classification in accordance with NHBC Standards, Part 4 'Foundations', Chapter 4.2 'Building near trees'



무 5 5 4 5 8 4 5 5 Ŧ = 9 **South South East** 23646 RIVER TERRACE DEPOSIT WADE GROUND TONDON CLAY 18.741 OT.71 SE AT River Terrace Deposits Made Ground London Clay RIVER TERRACE DEPOSIT LONDON CLAY 19.37 89.98 13.30 Engineer: AKS Ward London Clay 18.22 38.57 15.25 Soliflucted London Clay **MSSW** 80°EZ 12.50 North Client: Radnor House School Ltd Elevation (mAOD) 9 0 q 7 8 Ŧ 7 7 4 5 Chainage (m) Offset (m)

Soil Consultants

Title: Cross Section North to South South East

Vertical Scale: 1:238

Location: 65 Kneller Road, Twickenham, London, TW2 7DN Horizontal Scale: 1:1370

Project Title: Kneller Hall

Project Id: 10728/SG

Soil Consultants 2 54 **East** WUE GROUND 0810 Soliflucted London Clay 21.06 366.24 04.01 LONDON GLAY 16 45 Z76.09 67 11 **London Clay** RIVER TERRACE DEPOSIT LONDON CLAY вноч 67.0 14 35 Title: West to East Section Location: 65 Kneller Road, Twickenham, London, TW2 7DN Horizontal Scale: 1:2328 Vertical Scale: 1:199 Engineer: AKS Ward **Made Ground** MADE GROUND LONDON GLAY вноз 30.8 Et.8f 15.55 250 Geologically Reworked soils 00.0 West Client: Radnor House School Ltd Elevation (mAOD) 42 4 n 12 = 2 0 Τ 9 φ 17 m Project Title: Kneller Hall Chainage (m) Project Id: 10728/SG Offset (m)

FOREWORD TO CONTAMINATION TESTING AND ASSESSMENT

The following statements are designed to inform and guide the Client and other potential parties intending to rely upon this report, with the express intent of protecting them from misunderstanding as to the extent and thus the potential associated risks that may result from proceeding without further evaluations or guidance.

- 1] Unless otherwise stated in this report, the testing of soils and waters is based on a range of commonly occurring potential contaminants for the specific purpose of providing a general guidance evaluation for the proposed form of development. Thus, the range of potential contaminants is neither exhaustive nor specifically targeted to any previous known uses or influences upon the site.
- 2] The amount and scope of the testing should not be assumed to be exhaustive but has been selected, at this stage, to provide a reasonable, general view of the site ground conditions. In many cases this situation is quite sufficient for the site to be characterised for the purposes of development and related Health and Safety matters for persons involved in or directly affected by the site development works. It must be understood, however, that in certain circumstances aspects or areas of the site may require further investigation and testing in order to fully clarify and characterise contamination issues, both for regulatory compliance and for commercial reasons.
- 3] The scope of the contamination testing must not automatically be regarded as being sufficient to fully formulate a remediation scheme. For such a scheme it may be necessary to consider further testing to verify the effectiveness of the remedial work after the site has been treated. It must be understood that a remediation scheme which brings a site into a sufficient state for the proposed development ("fit for purpose") under current legislation and published guidance, may result in some contamination being left in-situ. It is possible that forthcoming legislation may result in a site being classified by the Local Authority and assigned a "Degree of Risk" related to previous use or known contamination.
- 4] The scope of the environmental investigation and contamination testing must not be automatically regarded as sufficient to satisfy the requirements in the wider environmental setting. The risks to adjacent properties and to the water environment are assessed by the regulatory authorities and there may be a requirement to carry out further exploration, testing and, possibly monitoring in the short or long term. It is not possible to sensibly predict the nature and extent of such additional requirements as these are the direct result of submissions to and liaison with the regulatory authorities. It is imperative, therefore, that such submissions and contacts are made as soon as possible, especially if there are perceived to be critical features of the site and proposed scheme, in this context.
- 5] New testing criteria have been implemented by the Environment Agency to enable a waste disposal classification to be made. The date of implementation of this Waste Acceptance Criteria [WAC] was July 2005. It is this testing that will be used by the waste regulatory authorities, including waste disposal sites, to designate soils for disposal in landfill sites. In certain circumstances, to satisfy the waste regulations, there may be the necessity to carry out additional testing to clarify and confirm the nature of any contamination that may be present. If commercial requirements are significant then this process may also necessitate further field operations to clarify the extent of certain features. Thus, the waste classification must be obtained from the waste regulation authorities or a licensed waste disposal site and we strongly recommend that this classification is obtained as soon as possible and certainly prior to establishing any costings or procedures for this or related aspects of the scheme.







Steph Grimes Soil Consultants Ltd Chiltern House Earl Howe Road Holmer Green High Wycombe Buckinghamshire HP15 6QT

Derwentside Environmental Testing Services Ltd

Unit 1
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Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04875

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 01/06/2022

Sample Scheduled Date: 01/06/2022

Report Issue Number: 1

Reporting Date: 10/06/2022

Authorised by:

Ela Mysiara Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



DETS Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane Lenham Heath** Maidstone Kent ME17 2JN Tel: 01622 850410



Water Analysis Certificate											
DETS Report No: 22-04875	Date Sampled	30/05/22									
Soil Consultants Ltd	Time Sampled	None Supplied									
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	BH4/3.80									
Twickenham, London, TW2 7DN											
Project / Job Ref: 10728/SG	Additional Refs	None Supplied									
Order No: 10728/SG	Depth (m)	3.80									
Reporting Date: 10/06/2022	DETS Sample No	599942									

Determinand	Unit	RL	Accreditation			
pH	pH Units	N/a	ISO17025	6.8		
Electrical Conductivity	uS/cm	< 5	NONE	745		
Total Cyanide	ug/l	< 5	ISO17025	< 5		
Sulphate as SO ₄	mg/l	< 1	ISO17025	51		
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	9		
Arsenic (dissolved)	ug/l	< 5	ISO17025	13		
Boron (dissolved)	ug/l	< 5	ISO17025	49		
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	0.7		
Chromium (dissolved)	ug/l	< 5	ISO17025	< 5		
Chromium (hexavalent)	ug/l	< 20	NONE	< 20		
Copper (dissolved)	ug/l	< 5	ISO17025	20		
Lead (dissolved)				109		
Mercury (dissolved)	ug/l	< 0.05	ISO17025	< 0.05		
Nickel (dissolved)	ug/l	< 5	ISO17025	22		
Selenium (dissolved)	ug/l	< 5	ISO17025	7		
Zinc (dissolved)	ug/l	< 2	ISO17025	61		
Total Phenols (monohydric)	ug/l	< 10	ISO17025	< 10		
EPH (C10 - C40)	ug/l	< 10	NONE	< 10		

Subcontracted analysis ^(S) Insufficient sample ^{I/S} Unsuitable Sample ^{U/S}



DETS Ltd Unit 1, Rose Lane Industrial Estate Rose Lane Lenham Heath Maidstone Kent ME17 2JN

Tel: 01622 850410

Water Analysis Certificate - Speciated PAH								
DETS Report No: 22-04875	Date Sampled	30/05/22						
Soil Consultants Ltd	Time Sampled	None Supplied						
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	BH4/3.80						
Road, Twickenham, London, TW2 7DN								
Project / Job Ref: 10728/SG	Additional Refs	None Supplied						
Order No: 10728/SG	Depth (m)	3.80						
Reporting Date: 10/06/2022	DETS Sample No	599942						

Determinand	Unit	RL	Accreditation			
Naphthalene	ug/l	< 0.01	NONE	< 0.01		
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01		
Acenaphthene	ug/l	< 0.01	NONE	< 0.01		
Fluorene	ug/l	< 0.01	NONE	< 0.01		
Phenanthrene	ug/l	< 0.01	NONE	< 0.01		
Anthracene	ug/l	< 0.01	NONE	< 0.01		
Fluoranthene	ug/l	< 0.01	NONE	< 0.01		
Pyrene	ug/l	< 0.01	NONE	< 0.01		
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01		
Chrysene	ug/l	< 0.01	NONE	< 0.01		
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01		
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01		
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01		
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01		
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01		·
Benzo(ghi)perylene	ug/l	0.008	NONE	< 0.008		
Total EPA-16 PAHs	ug/l	< 0.16	NONE	< 0.16		



DETS Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane Lenham Heath** Maidstone Kent ME17 2JN Tel: 01622 850410



4480

Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-04875
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Reporting Date: 10/06/2022

Matrix	Analysed	Determinand	Brief Method Description	Method
	On		•	No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF		Determination of BTEX by headspace GC-MS	E101
Water	F		Determination of cations by filtration followed by ICP-MS	E102
Water	UF		Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF		Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Makes	F	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by	F104
Water	-	C12-C16, C16-C21, C21-C40)		E104
Water	F		Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F		Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F		Based on National Rivers Authority leaching test 1994	E301
Leachate	F		Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F		Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	DCP 7 Congonore	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethal	E108
Water	ÜF		Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF		Determination of pH by electrometric measurement	E107
Water	F		Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of phosphate by flittation & analysed by for chromatography Determination of redox potential by electrometric measurement	E113
Water	F		Determination of redox potential by electronietic measurement Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection	E106
			in dichloromethane followed by GC-MS	
Water	UF		Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F		Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF		Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered **UF Unfiltered**





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Derwentside Environmental Testing Services Ltd

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DETS Report No: 22-04869

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 20/05/2022

Sample Scheduled Date: 01/06/2022

Report Issue Number: 1

Reporting Date: 16/06/2022

Authorised by:

Dave Ashworth Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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DETS Ltd Unit 1, Rose Lane Industrial Estate Rose Lane Lenham Heath Maidstone Kent ME17 2JN Tel: 01622 850410



4480

Soil Analysis Certificate								
DETS Report No: 22-04869	Date Sampled	11/05/22						
Soil Consultants Ltd	Time Sampled	None Supplied						
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	WS1/0.50						
Twickenham, London, TW2 7DN								
Project / Job Ref: 10728/SG	Additional Refs	None Supplied						
Order No: 10728/SG	Depth (m)	0.50						
Reporting Date: 16/06/2022	DETS Sample No	599932						

Determinand	Unit	RL	Accreditation			
Asbestos Quantification (S)	%	< 0.001	ISO17025	0.004		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion Subcontracted analysis (S)



DETS Ltd Unit 1, Rose Lane Industrial Estate Rose Lane Lenham Heath Maidstone Kent ME17 2JN

Tel: 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04869
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 16/06/2022

Soil D Born - Water Soluble Determination of water soluble born in soil by 215 bot water cotact, followed by ICP-OES 501 D Cations Determination of Extending the Property of	Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil AR	Soil		Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 bot water extract followed by ICP-DES	
Soil D Cations Determination of cations in soil by assua-resid allegation followed by ICP-CES 500; Soil AR Chromium - Heavalett Determination of house/left chromium is poly particular by particular by the product of					
Soil D					
Soil AR		D			E009
Soil AR	Soil	AR	Chromium - Hexavalent		E016
Soil AR Cyanide - Free Determination of free cyanide by desillation followed by colorimetry E015	Soil	AR	Cvanide - Complex		E015
Soil AR Cychelane Text Cychelane					
Soil AR Bectrical Conductivity Bectrimation of hexane/actories extractable hydrocarbons by CC-FID Bectrical Conductivity Bectrical Con	Soil	AR			E015
Soil AR Electrical Conductivity Electrical Conductivity Electronetric measurement Electrical Conductivity Electronetrical Conductivity Electr	Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil AR Belcrical Conductivity Determination of electrical conductivity by addition of valeer followed by electrometric measurement (2023) Soil AR Perf (210 - C40) Determination of electrical conductivity by addition of valeer followed by GC-MS (210) Determination of electrone-breame extractable hydrocarbons by GC-FID (2004) Soil AR Perf (210 - C40) Determination of electrone-breame extractable hydrocarbons by GC-FID (2004) Soil AR Perf (210 - C40) Determination of electrone-breame extractable hydrocarbons by GC-FID (2004) Soil AR Perf (210 - C40) Determination of electrone-breame extractable hydrocarbons by GC-FID (2004) Soil De Fraction Organic Carbon (PCC) Soil De Fraction Organic Carbon (PCC) Soil De Organic Matter (Sob) Determination of Toto by combustion analyser. Soil AR Exchangeable Ammoult Determination of TOC by combustion analyser. Soil AR Exchangeable Ammoult Determination of TOC by combustion analyser. Soil De Magnesium - Water (Sob) Determination of Toc by combustion analyser. Soil De Magnesium - Water (Sob) Determination of Toc by combustion analyser. Soil AR Mineral Oli (C10 - C40) Soil De Magnesium - Water Soulbed (210) Soil De Magnesium - Water Soulbed (211) Soil AR Mineral Oli (C10 - C40) Soil AR PAH - Speciated (CPA 16) Soil AR Phenols - Total (monohydric) Soil De Total (Organic C	Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil AR FPH CTD. 400 Semination of elemental suphus by extraction followed by CC-MS Soil AR FPH CTD. 400 Semination of accordance was added in the Committed Source of the CTD. 400 Semination of accordance was accordance and accordance by CC-FID Soil AR CPH TEXAS (GS-GR, GR-CID, CLO-CID) Elementation of acctonor/hexance extractable hydrocarbons by GC-FID for CR to C40, C6 to C8 by E004 Soil D Fination Organic Carbon (FCC) Soil D Fraction Organic Carbon (FCC) D Fraction Organic Carbon (FCC) Soil D Organic Matter (SOM) Determination of TEX by Combustion analyser. E027 Soil D TOC (Total Organic Carbon (FCC) Soil D TOC (Total Organic Carbon (FCC) Soil D FOC (Fraction Organic Carbon (FCC) Soil D FOC (Fraction Organic Carbon) D Loss on Ignition @ 450cc Soil D Magnesium - Water Soil-Be Edition of Text organic Carbon by codes analyser. Soil D Magnesium - Water Soil-Be Edition of Text organic Carbon by Codes analyser. Soil D Magnesium - Water Soil-Be Edition of Soil D Magnesium - Water Soil-Be Edition Soil D Magnesium - Water Soil-B	Soil	AR	Electrical Conductivity		E022
Soil AR EPH CID — C40) Determination of acctone/hexane extractable hydrocarbons by GC-FID E004	Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil AR EPH FEAS (C6-C8, C8-C10, C10-C12, Determination of acetone/hexane extractable hydrocarbons by C6-FID for 8 to C40, C6 to C8 by C12-C16, C16-C21, C21-C40) headspace GC-MS E004	Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil AR EPH TEXAS (CG-C3, G3-C1-C1, C1-C1-L2) Determination of acetone/hexane extractable hydrocarbons by CG-FID for C8 to C40. C6 to C8 by C12-C16, C16-C21, C21-C40) headsgase GC-M5 E004	Soil	AR			E004
Soil D Floration - Visiter Soluble Determination of Florating by extraction with water & analysed by ion chromatography E009	Soil	AR			E004
Soil D Fluoride - Water Soluble Determination of Fluoride by extraction with water & analysed by ion chromatography E0097		AR	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	E004
Soil D Graptic Matter (SOM) Determination of TOC by combustion analyser. E027 Soil D TOC (Total Organic Carbon) Determination of TOC by combustion analyser. E027 Soil AR Exchangeable Ammolium Determination of TOC by combustion analyser. E027 Soil AR Exchangeable Ammolium Determination of amount by discrete analyser. E029 Soil D FOC (Fraction Organic Carbon) Determination of amount by discrete analyser. E029 Soil D Loss on Ignition @ 450c Determination of Indication of organic carbon by oxidising with potassium dichromate followed by the pattern of the patte	Soil	D			E009
Soil D Organic Matter (SOM) Determination of TOC by combustion analyser. E027					
Soil AR Exchangeable Ammonium Determination of ammonium by discrete analyser. E629		D			
Soil AR Exchangeable Ammonium Determination of ammonium by discrete analyser. E629					
Determination of fraction of organic carbon by oxidising with potassium dichromate followed by tration with intent (II) sulphate Entration with intent (III) sulphate Entration with intent (III) sulphate Entration with water (III) sulphate Entration (III) sulphate Entration with water (III) sulphate Entration with water (III) sulphate Entration (III) sulphate Entration with water (III) sulphate Entration (III) sulphate Entration with water (III) sulphate Entrat		AR			
D				Determination of fraction of organic carbon by oxidising with potassium dichromate followed by	
Soil D Magnesium - Water Soluble Determination of water soluble magnesium by extraction with water followed by ICP-OES E025	Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle	E019
Soil AR Mineral Oil (C10 - C40) Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE (artifuge cartridge cartridge) E003	Soil	D	Magnesium - Water Soluble		E025
Soil AR Mineral Oil (C10 - C40) Determination of hexane/acctone extractable hydrocarbons by GC-FID fractionating with SPE artifuge E004					
Soil AR		AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE	
Soil D Nitrate - Water Soluble (2:1) Determination of nitrate by extraction with water & analysed by ion chromatography E009	Soil	AR	Moisture Content		E003
Determination of organic matter by oxidising with potassium dichromate followed by titration with incomposed process. Edition					
Soil AR	Soil	D		Determination of organic matter by oxidising with potassium dichromate followed by titration with	E010
Soil AR	Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the	E005
Soil D Petroleum Ether Extract (PEE) Gravimetrically determined through extraction with petroleum ether E011	Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil AR	Soil	D			E011
Soil AR Phenols - Total (monohydric) Determination of phenols by distillation followed by colorimetry E021	Soil	AR			E007
Soil D Phosphate - Water Soluble (2:1) Determination of phosphate by extraction with water & analysed by ion chromatography E009	Soil	AR			E021
Soil D Sulphate (as SO4) - Total Determination of total sulphate by extraction with 10% HCl followed by ICP-OES E013	Soil	D			E009
Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography E009	Soil	D			E013
Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of water soluble sulphate by extraction with water followed by ICP-OES E018 Soil AR Sulphide Determination of Sulphide by distillation followed by colorimetry E018 Soil D Sulphur - Total Determination of total sulphur by extraction with aqua-regia followed by ICP-OES E024 Soil AR SVOC Determination of semi-volatile organic compounds by extraction in acustone and hexane followed by GC-MS Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction with toluene Soil D Total Organic Carbon (TOC) Soil AR THIOCYANA (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) AR TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16	Soil	D			E009
Soil AR Sulphide Determination of sulphide by distillation followed by colorimetry E018 Sulphur - Total Determination of total sulphur by extraction with aqua-regia followed by ICP-OES E024 Soil AR SVOC Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS Soil AR Thiocyanate (as SCN) Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry Soil D Toluene Extractable Matter (TEM) Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry Soil D Toluene Extractable Matter (TEM) Determination of thiocyanate by extraction in caustic soda followed by acidification foliowed by acidification foliowed by acidificati					
Soil AR Suphur - Total Determination of total sulphur by extraction with aqua-regia followed by ICP-OES E024 Soil AR Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS E006 Soil AR Thiocyanate (as SCN) Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS E006 Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction with toluene E011 Soil D Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C35-C35-C44, aro: C5-C7, C7	Soil	AR			E018
Soil AR Summer S	Soil	D			E024
Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction with toluene Soil D Total Organic Carbon (TOC) Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, cartridge for C8 to C35. C5 to C8 by headspace GC-MS TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) AR TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C21-	Soil	AR	SVOC		E006
Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction with toluene E011 Soil D Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, cartridge for C8 to C35. C5 to C8 by headspace GC-MS TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44) Soil AR VOCS Determination of volatile organic compounds by headspace GC-MS C8-C10 by GC-FID Footing E001 VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001	Soil	AR	Thiocyanate (as SCN)		E017
Soil D Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34) AR TPH LQM (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE aro: C5-C7, C7-C8, C8-C10, C10-C12, Cartridge for C8 to C44. C5 to C8 by headspace GC-MS Soil AR VOCS Determination of volatile organic compounds by headspace GC-MS E001 Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001	Soil	D	Toluene Extractable Matter (TEM)		E011
Soil AR TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C10-C12, C10-C12, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44) Soil AR VOCS Determination of volatile organic compounds by headspace GC-MS E001 Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID Factionating with SPE E001	Soil	D	Total Organic Carbon (TOC)	1	E010
Soil AR C10-C12, C12-C16, C16-C35, C35-C44, Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE aro: C5-C7, C7-C8, C8-C10, C10-C12, Cartridge for C8 to C44. C5 to C8 by headspace GC-MS Soil AR VOCs Determination of volatile organic compounds by headspace GC-MS E001 Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001	Soil	AR	C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12,	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE	E004
Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001			C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	cartridge for C8 to C44. C5 to C8 by headspace GC-MS	
			VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried AR As Received





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Derwentside Environmental Testing Services Ltd

Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04766

Site Reference: Kneller Hall, 65 Kneller Road, Twikenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 27/05/2022

Sample Scheduled Date: 30/05/2022

Report Issue Number: 1

Reporting Date: 08/06/2022

Authorised by:

Dave Ashworth Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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DETS Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane Lenham Heath** Maidstone Kent ME17 2JN Tel: 01622 850410



Water Analysis Certificate					
DETS Report No: 22-04766	Date Sampled	27/05/22	27/05/22		
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	WS3	WS6		
Twikenham, London, TW2 7DN					
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied		
Order No: 10728/SG	Depth (m)	1.26	1.23		
Reporting Date: 08/06/2022	DETS Sample No	599609	599610		

Determinand	Unit	RL	Accreditation			
pH	pH Units	N/a	ISO17025	7.4	6.9	
Electrical Conductivity	uS/cm	< 5	NONE	2030	299	
Total Cyanide	ug/l	< 5	ISO17025	62	< 5	
Sulphate as SO ₄	mg/l	< 1	ISO17025	288	10	
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	141	5.3	
Arsenic (dissolved)	ug/l	< 5	ISO17025	22	5	
Boron (dissolved)	ug/l	< 5	ISO17025	339	71	
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	< 0.4	0.9	
Chromium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20	
Copper (dissolved)	ug/l	< 5	ISO17025	< 5	25	
Lead (dissolved)	ug/l	< 5	ISO17025	18	20	
Mercury (dissolved)	ug/l	< 0.05	ISO17025	< 0.05	< 0.05	
Nickel (dissolved)	ug/l	< 5	ISO17025	< 5	39	
Selenium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	
Zinc (dissolved)	ug/l	< 2	ISO17025	62	24	
Total Phenols (monohydric)	ug/l	< 10	ISO17025	< 10	< 10	
EPH (C10 - C40)	ug/l	< 10	NONE	26	1835	

Subcontracted analysis ^(S) Insufficient sample ^{I/S} Unsuitable Sample ^{U/S}



DETS Ltd Unit 1, Rose Lane Industrial Estate Rose Lane Lenham Heath Maidstone Kent ME17 2JN

Tel: 01622 850410

Water Analysis Certificate - Speciated PAH									
DETS Report No: 22-04766	Date Sampled	27/05/22	27/05/22						
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied						
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	WS3	WS6						
Road, Twikenham, London, TW2 7DN									
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied						
Order No: 10728/SG	Depth (m)	1.26	1.23						
Reporting Date: 08/06/2022	DETS Sample No	599609	599610						

Determinand	Unit	RL	Accreditation			
Naphthalene	ug/l	< 0.01	NONE	0.02	0.01	
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Acenaphthene	ug/l	< 0.01	NONE	0.03	< 0.01	
Fluorene	ug/l	< 0.01	NONE	0.03	< 0.01	
Phenanthrene	ug/l	< 0.01	NONE	0.09	< 0.01	
Anthracene	ug/l	< 0.01	NONE	0.02	< 0.01	
Fluoranthene	ug/l	< 0.01	NONE	0.10	0.01	
Pyrene	ug/l	< 0.01	NONE	0.08	0.01	
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	
Benzo(ghi)perylene	ug/l	0.008	NONE	< 0.008	< 0.008	
Total EPA-16 PAHs	ug/l	< 0.16	NONE	0.37	< 0.16	



DETS Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane Lenham Heath** Maidstone Kent ME17 2JN Tel: 01622 850410



4480

Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-04766
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twikenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Reporting Date: 08/06/2022

Matrix	Analysed	Determinand	Brief Method Description	Method
	On		·	No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF		Determination of BTEX by headspace GC-MS	E101
Water	F		Determination of cations by filtration followed by ICP-MS	E102
Water	UF		Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF		Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Makes	F	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by	F104
Water	-	C12-C16, C16-C21, C21-C40)		E104
Water	F		Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F		Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F		Based on National Rivers Authority leaching test 1994	E301
Leachate	F		Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F		Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	DCP 7 Congonore	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethal	E108
Water	ÜF		Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF		Determination of pH by electrometric measurement	E107
Water	F		Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of phosphate by flittation & analysed by for chromatography Determination of redox potential by electrometric measurement	E113
Water	F		Determination of redox potential by electronietic measurement Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection	E106
			in dichloromethane followed by GC-MS	
Water	UF		Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F		Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF		Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered **UF Unfiltered**





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Derwentside Environmental Testing Services Ltd

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Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04691

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 26/05/2022

Sample Scheduled Date: 26/05/2022

Report Issue Number: 1

Reporting Date: 06/06/2022

Authorised by:

Dave Ashworth Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate									
DETS Report No: 22-04691	Date Sampled	10/05/22							
Soil Consultants Ltd	Time Sampled	None Supplied							
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	WS5/1.30							
Twickenham, London, TW2 7DN									
Project / Job Ref: 10728/SG	Additional Refs	None Supplied							
Order No: 10728/SG	Depth (m)	1.30							
Reporting Date: 06/06/2022	DETS Sample No	599262							

Determinand	Unit	RL	Accreditation			
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected		
pH	pH Units	N/a	MCERTS	7.2		
Electrical Conductivity	uS/cm	< 5	NONE	329		
Total Cyanide	mg/kg	< 2	NONE	< 2		
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	1241		
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.12		
W/S Sulphate as SO ₄ (2:1)		< 10	MCERTS	489		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.49		
Total Sulphur	%	< 0.02	NONE	0.29		
Organic Matter (SOM)	%	< 0.1	MCERTS	13.9		
Arsenic (As)	mg/kg	< 2	MCERTS	3		
W/S Boron	mg/kg	< 1	NONE	< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	2		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	4		
Lead (Pb)	mg/kg	< 3	MCERTS	13		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	4		
Selenium (Se)	mg/kg	< 2	MCERTS	< 3		
Zinc (Zn)		< 3		59		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	 	
EPH (C10 - C40)	mg/kg	< 6	MCERTS	2330		





Soil Analysis Certificate - Speciated PAHs									
DETS Report No: 22-04691	Date Sampled	10/05/22							
Soil Consultants Ltd	Time Sampled	None Supplied							
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	WS5/1.30							
Road, Twickenham, London, TW2 7DN									
Project / Job Ref: 10728/SG	Additional Refs	None Supplied							
Order No: 10728/SG	Depth (m)	1.30		•					
Reporting Date: 06/06/2022	DETS Sample No	599262							

Determinand	Unit	RL	Accreditation	
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6





Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04691	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 06/06/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
\$ 599262	WS5/1.30	None Supplied	1.30	29	Black loamy sand with stones

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample $^{\rm IVS}$ Unsuitable Sample $^{\rm U/S}$

\$ samples exceeded recommended holding times





Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04691
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 06/06/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR		Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D		Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of	E016
3011			1,5 diphenylcarbazide followed by colorimetry	
Soil	AR		Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D		Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D		Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D		Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of TOC by combustion analyser.	E027
Soil	D		Determination of TOC by combustion analyser.	E027
Soil	D		Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content		E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D		Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of total sulphate by extraction with 10% HCI followed by ICP-OES	E013
Soil	D		Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE	E004
Soil	AR	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001





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Derwentside Environmental Testing Services Ltd

Unit 1
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Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04653

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 26/05/2022

Sample Scheduled Date: 26/05/2022

Report Issue Number: 1

Reporting Date: 13/06/2022

Authorised by:

Ela Mysiara Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



DETS Ltd ane Industrial Estate Rose Lane nham Heath Maidstone nt ME17 2JN 01622 850410





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		Date					
DETS Report No: 22-04	553 	Sampled	11/05/2022		Compliance	with Range	
Soil Consultants Ltd		Time Sampled	None Supplied]			
Site Reference: Kneller Road, Twickenham, Lon		TP / BH No	WS6	8		≥	_ ر
Project / Job Ref: 1072	8/SG	Additional Refs	None Supplied	urpo	Acidic	ertili	reou
Order No: 10728/SG		Depth (m)	0.60	Multipurpose	Aci	Low Fertility	Calcareous
Reporting Date: 13/06/	2022	DETS Sample No	599152	_		_	
Determinand	Reporting Unit	RL		1			
Soil Texture		-					
Clay Content (S)	%	N/a	25.3		5 -	35	
Silt Content (S)	%	N/a	42.2			65	
Sand Content (S)	%	N/a	32.5	 		- 85	
Textural Class (S)	N/a	N/a	Clay Loam		30	-	
rextural class (7)	IN/a	IV/a	Clay Luaili		Clay Conto	nt 5 - 20%	
				2 20			2 20
Loss on Ignition	%	< 0.01	2.90	3 - 20	3 - 30	2 - 20 nt 20 - 35%	3 - 20
_							
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Conte							
>2mm ^(S)	%	N/a	7.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm ^(S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm ^(S)	%	N/a	0.0	0	0	0	0
oH ^{MU}	pH Units	N/a	5.9	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrient	ts						
Total Nitrogen ^(S)	%	< 0.01	< 0.01	≥ 0.15	≥ 0.15		≥ 0.15
Phosphorus (Extractable)	mg/l	< 3	4	16 - 140	16 - 140	≤ 15	16 - 140
Potassium (Extractable)	mg/l	< 20	140	121 - 1500	121 - 1500		121 - 150
Magnesium (Extractable)	mg/l	< 1	140	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	< 0.1	< 20:1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium (S)	%	< 0.1	< 0.1			-	
Phytotoxic Elements (by	y soil pH)	_		Multipurpos	se & Specific rar	Purpose To	psoils at p
				< 6.0	6.0	- 7.0	> 7.0
Zinc ^{MU}	mg/kg	< 3	36	< 200	< 200		< 300
Copper ^{MU}	mg/kg	< 4	11	< 100	< 135		< 200
Nickel MU	mg/kg	< 3	16	< 60	<	75	< 110
Visible Contaminants (A	ir Dried Soil)						
>2mm	%	N/a	0.0		<	0.5	
Plastics	%	N/a	0.00		< 0).25	
Sharps	%	N/a	0.0			0	
Additional Analytes		-	•	Ī			
Available Sodium (S)	mg/l	< 1	80				
	mg/l	< 1	2900	†			
Available Calcium (°)							
Available Calcium ^(S) Electrical Conductivity	uS/cm	< 5	2200	3300			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation

M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

Subcontracted analysis (S)



DETS Ltd ane Industrial Estate Rose Lane nham Heath Maidstone nt ME17 2JN 01622 850410





4480

Potassium (Extractable) mg/l < 20 110 121 - 1500 121 - 1500 121 - 1500 Magnesium (Extractable) mg/l < 1 54 51 - 600 51 - 600 51 - 600					Compliance with Range				
Road, Twickenham, London, TW2 7DN IP / BH No No.	ite Reference: Kneller		Time	None Supplied					
Determinand Reporting Unit RL Sample No Sepp153		TP / BH No	WS10	a a		>			
Determinand Reporting Unit RL Sample No S99153 Sample No Semple No N/a Soli Texture		•		None Supplied	rrpos	dic	iji Fi	.eons	
Determinand Reporting Unit RL Sample No Sepp153 Order No: 10728/SG			GL - 0.50	ultipı	Aci	ow Fe	alcar		
Color Colo	Reporting Date: 13/06/	2022		599153	Σ		۲		
Soil Texture Clay Content (S) % N/a 16.7 5 - 35	Determinand	Reporting Unit			1				
Clay Content S 96		reporting ome							
Silt Content (S) %		0/-	N/a	16.7		5 -	35		
Sand Content (S)	Cilt Content (S)				 				
Textural Class S					 				
Clay Content 5 - 20% 3 - 20 3 - 30 2 - 20 3 - 20 5 - 2					-	30 -	- 03		
Coarse Fragment Content South Provided Plant Nutrients South Physician (Extractable) S	extural Class (3)	IN/a	N/a	Sandy Loam		Class Casala			
Coarse Fragment Content Solution Solution Clay Content 20 - 35%								2 22	
Clay Collection 2 - 3 - 3 - 2 5 - 20 2 - 20 5 - 20 2 - 20 5 - 20 2 - 20 5 -	oss on Ignition	%	< 0.01	3.10	3 - 20			3 - 20	
Coarse Fragment Content S S S S S S S S S	.000 011 191110011	,,	1 0.01	5.25					
N/a					5 - 20	5 - 30	2 - 20	5 - 20	
N/a 0.0 0 - 10 0 0 0 0 0 0 0 0 0		nt							
No	>2mm ^(S)	%	N/a	14.0	0 - 30	0 - 30	0 - 30	0 - 30	
Somm	>20mm ^(S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10	
DH MU	>50mm ^(S)	%	N/a	0.0	0	0	0	0	
Carbonate % < 1.4 < 1.4	oH ^{MU}	pH Units	N/a	5.4	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0	
Available Plant Nutrients			< 1.4						
Fotal Nitrogen (S)		s	•						
Phosphorus (Extractable) mg/l < 3 19 16 - 140 16 - 140 ≤ 15 16 - 140 Potassium (Extractable) mg/l < 20 110 121 - 1500 121 - 1500 Magnesium (Extractable) mg/l < 1 54 51 - 600 51 - 600 51 - 600 Carbon / Nitrogen Ratio (S) :1 < 0.1 < 0.1 < 20 : 1 < 20 : 1 < 20 : 1 < 20 : 1 < 20 : 1 Exchangeable Sodium (S) % < 0.1 < 0.1 Exchangeable Sodium (S) % < 0.1 < 0.1 Phytotoxic Elements (by soil pH) mg/kg < 3 36 < 200 < 200 < 200 < 300 Copper MU mg/kg < 3 11 < 60 < 75 < 110 Visible Contaminants (Air Dried Soil)	Total Nitrogen (S)	%	< 0.01	< 0.01	≥ 0.15	≥ 0.15		≥ 0.15	
Magnesium (Extractable)		mg/l	< 3				≤ 15	16 - 140	
Carbon / Nitrogen Ratio S1 - 600 S1 -	otassium (Extractable)	mg/l	< 20	110	121 - 1500	121 - 1500		121 - 150	
Multipurpose & Specific Purpose Topsoils at prange Co.0	1agnesium (Extractable)	mg/l	< 1	54	51 - 600	51 - 600		51 - 600	
Multipurpose & Specific Purpose Topsoils at prange Co.0	Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	< 0.1	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1	
Phytotoxic Elements (by soil pH) range	xchangeable Sodium (S)	%	< 0.1	< 0.1					
Time Mu	Phytotoxic Elements (by	y soil pH)			Multipurpos	-	-	psoils at p	
Copper MU mg/kg < 4 13 < 100 < 135 < 200 Nickel MU mg/kg < 3					< 6.0	6.0	7.0	> 7.0	
Nickel MU mg/kg < 3 11 < 60 < 75 < 110 Visible Contaminants (Air Dried Soil) >2mm							< 200		
Visible Contaminants (Air Dried Soil) >2mm % N/a 0.0 < 0.5 Plastics % N/a 0.00 < 0.25	Copper MU								
Visible Contaminants (Air Dried Soil) V/a 0.0 < 0.5 >2mm % N/a 0.00 < 0.25	√ickel ^{MU}	mg/kg	< 3	11	< 60	<	75	< 110	
Plastics		ir Dried Soil)							
Sharps % N/a 0.0 0 Additional Analytes Available Sodium (S) mg/l < 1 39 39 Available Calcium (S) mg/l < 1 2200 2200	>2mm	%	N/a	0.0		< 1	0.5		
Additional Analytes Available Sodium (S) mg/l < 1	Plastics	%	N/a	0.00		< 0	.25		
Additional Analytes Available Sodium (S) mg/l < 1	Sharps	%	N/a	0.0	1	()		
Available Sodium (S) mg/l < 1		<u> </u>	•						
Available Calcium ^(S) mg/l < 1 2200		ma/l	< 1	39					
					3300				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

Subcontracted analysis (S)





Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04653	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	
Order No: 10728/SG	
Reporting Date: 13/06/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	I Sample Matrix Description I
\$ 599152	WS6	None Supplied	0.60	14	Brown sandy clay
\$ 599153	WS10	None Supplied	GL - 0.50	9.4	Brown sandy clay with stones and vegetation

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample $^{\rm IVS}$ Unsuitable Sample $^{\rm IVS}$

\$ samples exceeded recommended holding times





Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-04653 Soil Consultants Ltd

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 13/06/2022

Netrox Post		ng Date: 13			
Sept	Matrix		Determinand	Brief Method Description	Method No
Sept	Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	
Soil AR Chronium - Hosevaleur Commission of historia by extraction with water & analysed by in chromatography E003			BTEX	Determination of BTEX by headspace GC-MS	
Soil AR Chromium - Heasvaler Determination of heasvalent dromnium in soil by extraction in water then by additication, addition of Soil AR Cyanide - Compile Determination of compiles counted by distillation followed by colorimetry (2015) and AR Cyanide - International Compiles counted by distillation followed by colorimetry (2015) and AR Dissel Rarge Organics (CIV - CIV					
Soil AR Cynniès - Croppe Determination of complex cynniès by distillation followed by colorimetry [51] Soil AR Cynniès - Free Determination of free cynniès by distillation followed by colorimetry [51] Soil AR Cynniès - Croppe Determination of free cynniès by distillation followed by colorimetry [51] Soil AR Determination of tract cynniès by distillation followed by colorimetry [51] Soil AR Determination of tract cynniès by distillation followed by colorimetry [51] Soil AR Determination of tract cynniès by distillation followed by colorimetry [51] Soil AR BEctrical Conductively Determination of return determination of hexane factore exercitable hydrocarbone by CC-FID [52] Soil AR BECtrical Conductively Determination of electrical conductivity by addition of saturated calcium sulphate followed by electroneric measurement [52] Soil AR BECTrical Conductively Determination of electrical conductivity by addition of saturated calcium sulphate followed by electroneric measurement [52] Soil AR BERITANI DETERMINATION [52] Soil AR BERITANI DETERMINATION [53] Soil AR BERITANI DETERMINATION [54] Soil D Finction Organic Carbon [56] Soil D FOC (Fraction Organic Carbon [56]) Determination of TiC-by combustion analyses. Soil D Fock (Fraction Organic Carbon [56]) Determination of TiC-by combustion analyses. Soil D Fock (Fraction Organic Carbon [56]) Determination of Place by estraction with water & analysed by ion chromatography [56] Soil AR BERTANIA DETERMINATION [56] Soil AR BERTANIA D	Soil	D	Chloride - Water Soluble (2:1)		E009
Soil AR Cyande - Free Determination of free cyande by detaillation followed by colorimetry E015				1,5 diphenylcarbazide followed by colorimetry	
Soil AR Cyclehoeane Extractable Matter (CPM) Grammetroup determination followed by colorimetry E015					
Soil D					
Soil AR Diesel Range Organics (CIO - C24) Electrical Conductivity Electrical Conductiv					
Soil AR Bectrical Conductivity Betermination of electrical conductivity by addition of saturated calcium sulphate followed by Bectrometric measurement E023					
Soil AR Belcrical Conductivity by addition of water followed by electrometric measurement (2023) Soil AR Belcrical Conductivity by Electrometric measurement (2023) Soil AR Bell Crical Conductivity by Electrometric measurement (2023) Soil AR Bell Crical Conductivity by Electrometric measurement (2023) Soil AR Bell Crical Conductivity by Electrometric measurement (2023) Soil AR Bell Crical Conductivity by Electrometric measurement (2023) Soil AR Bell Crical Conductivity by Electrometric measurement (2023) Soil AR Bell Crical Conductivity (2024) Soil De Fraction Organic Carbon (PCC) Soil De Fraction Organic Carbon (PCC) Soil De Trock Organic Carbon (PCC) Soil De Magnesium - Varies (Sol) Beleasing of Trock organic Carbon (PCC) Soil De Magnesium - Varies (Sol) Beleasing of Trock organic Carbon (PCC) Soil De Magnesium - Varies (Sol) Beleasing of Trock organic Carbon (PCC) Soil De Magnesium - Varies (Sol) Beleasing of Trock organic Carbon (PCC) Soil De Magnesium - Varies (Sol) Beleasing of Trock organic Carbon (PCC) Soil AR Mineral Oli (C10 - C40) Soil AR PAH - Speciated (FPA 16) Soi					
Soil D Elemental Sulphus Setemination of elemental sulphus by solvent extraction followed by GC-MS (Soil AR BPHTC10 - COID Externitation of actors/phosane extractable hydrocarbons by GC-PID (Soil AR CLC-CLC, CLC-CLC) CLC-CLC Determination of actors/phosane extractable hydrocarbons by GC-PID for C8 to C40, C6 to C8 by (Soil D Fraction Organic Carbon, (FOC) Determination of actors/phosane extractable hydrocarbons by GC-PID for C8 to C40, C6 to C8 by (Soil D Fraction Organic Carbon, (FOC) Determination of actors/phosane extractable hydrocarbons by GC-PID for C8 to C40, C6 to C8 by (Soil D Fraction Organic Carbon, (FOC) Determination of Tool by combustion analyses. Soil D Fraction Organic Carbon, (FOC) Determination of Tool by combustion analyses. Soil AR Exchangeable Ammount Determination of Tool by combustion analyses. Soil D FOC (Fraction Organic Carbon) Determination of Tool by combustion analyses. Soil D Magnesium - Water Soluble of Determination of Tool by combustion analyses. Soil D Magnesium - Water Soluble of Determination of Magnesium by activation with water followed by ICP-OES (Soil AR Mineral OII (CLD - C40) Determination of moral by gravimetrically with the sample being ignited in a muffle furnish of the property of the sample solution of the property of the property of the sample solution of the property of	Soil	AR	Electrical Conductivity		E022
Soil AR EPH CIO_C40) Determination of acctone/hexane extractable hydrocarbons by CG-FID 6004			<u> </u>		
Soil AR EPH TEXAS (C6-C8, C8-C10, C10-C12, Determination of acctone/hexane extractable hydrocarbons by C6-FID for C8 to C40, C6 to C8 by C12-C16, C16-C21, C21-C40) headspace GC-MS EPH TEXAS (C6-C8, C8-C10, C10-C12, Determination of acctone/hexane extractable hydrocarbons by C6-FID for C8 to C40, C6 to C8 by C12-C16, C16-C21, C21-C40) headspace GC-MS EPH TEXAS (C6-C8, C8-C10, C10-C12, Determination of Too by combustion analyser. E007 E009 End C70-C10-C10 E009 EPH C70-C10-C10-C10-C10-C10-C10-C10-C10-C10-C1					
Soil AR					
Soil D Fluoride Water Soluble Determination of Fluoride by extraction with water & analysed by ion chromatography [50] Soil D Fraction Organic Carbon (FOC) Determination of Fluoride by extraction with water & analysed by ion chromatography [50] Soil D Organic Matter (SOM) Determination of TOC by combustion analyser. [50] Soil AR Exchangeable Ammonium Determination of TOC by combustion analyser. [50] Soil D FOC (Fraction Organic Carbon) Determination of TOC by combustion analyser. [50] Soil D FOC (Fraction Organic Carbon) Determination of TOC by combustion analyser. [50] Soil D Loss on Ignition @ 450oc [6] Soil D Magnesium - Water Soluble Determination of fraction of organic carbon by coidsing with potassium dichromate followed by Epo-105 Soil D Magnesium - Water Soluble Determination of macronium by discrete analyser. [50] Edemination of fraction of organic carbon by coidsing with potassium dichromate followed by Epo-105 Soil D Magnesium - Water Soluble Determination of water soluble magnesium by extraction with water followed by ICP-0ES [50] Soil AR Mineral Oil (CLD - C40) Determination of metas by aqua-regia digestion followed by ICP-0ES [50] Soil AR Mineral Oil (CLD - C40) Determination of metas by aqua-regia digestion followed by ICP-0ES [50] Soil AR Mineral Oil (CLD - C40) Determination of metas by aqua-regia digestion followed by ICP-0ES [50] Soil AR PAH - Speciated (EPA 16) Determination of metar by oxidising with potassium dichromate followed by ICP-0ES [50] Soil AR PAH - Speciated (EPA 16) Determination of PAH compounds by extraction with water & analysed by ion chromatography [50] D Petroleum Ether Extract (PEE) Generalization of Aphractic vertication with water & analysed by ion chromatography [50] D Petroleum Ether Extract (PEE) Generalization of PAH compounds by extraction with aean followed by ICP-0ES [50] Soil AR Phenois - Total (monohylic) Determination of PAH compounds by extraction with water & analysed by ion chromatography [50] D Petroleum Ether Extract (PEE) Generalization followed by ICP					
Soil D Fraction Organic Carbon (FOC) Determination of TOC by combustion analyser. 6027			C12-C16, C16-C21, C21-C40)	headspace GC-MS	
Soil D Organic Matter (SOM) Determination of TOC by combustion analyser. 6027					
Soil D					
Soil AR Exchangeable Ammonium Determination of ammonium by discrete analyser. E029			TOC (Total Organic Carbon)	Determination of TOC by combustion analyser	
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Soil D Loss on Ignition @ 450cc Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a murfle firmace E019				Determination of fraction of organic carbon by oxidising with potassium dichromate followed by	
Soil D Magnesium - Water Soluble Determination of water soluble magnesium by extraction with water followed by ICP-OES E025	Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle	E019
Soil D	Soil	D	Magnesium - Water Soluble		E025
Soil AR Mindsture Content Moisture content: determined gravimetrically Soil D Nitrate - Water Soluble (2:1) Determination of nitrate by extraction with water & analysed by ion chromatography E009 Soil D Organic Matter Soil AR PAH - Speciated (EPA 16) Soil AR PAH - Speciated (EPA 16) Soil AR PAH - Speciated (EPA 16) Soil D Petroleum Ether Extract (EPA 16) Soil AR PCB - 7 Congeners Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards soil D Petroleum Ether Extract (EPA 16) Soil AR Phenols - Total (monohytric) Determination of PAH compounds by extraction with petroleum ether E011 Soil AR Phenols - Total (monohytric) Determination of PAH by addition of water followed by electrometric measurement E007 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of phenols by distillation followed by colorimetry E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water 8 analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water 8 analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water 8 analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water 8 analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water 8 analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water 8 analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water followed by ICP-OES E014 Soil AR Thiocyanate (as SCH) Soil AR Thiocyanate (as SCH) The CWG (ali: CS-C6, C6-C8, C8-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C39, Petermination of patient patients of the sul					
Soil AR	Soil	AR	Mineral Oil (C10 - C40)	, , ,	E004
Soil D	Soil	AR	Moisture Content		E003
Soil AR PAH - Speciated (EPA 16) Soil AR PCB - 7 Congeners Determination of PCB by extraction with action with action with personal policy by extraction with water & analysed by ion chromatography E009 Soil AR Phenols - Total (monohydric) Determination of phenols by distillation followed by electrometric measurement E001 Soil AR Phenols - Total (monohydric) Determination of phenols by distillation followed by electrometric measurement E001 Soil D Phosphate - Water Soluble (2:1) Determination of phenols by distillation followed by colorimetry E009 Soil D Sulphate (as SO4) - Total Determination of phenols by distillation followed by colorimetry E009 Soil D Sulphate (as SO4) - Total Determination of phenols by distillation followed by colorimetry E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of such sulphate by extraction with water & analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of water soluble sulphate by extraction with water & analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of water soluble sulphate by extraction with water & analysed by ion chromatography E009 Soil AR Thiocyanate (as SCN) Soil AR Thiocyanate (as SCN) Determination of semi-volatile organic compounds by extraction with water followed by colorimetry Soil AR Thiocyanate (as SCN) Soil AR Thiocyanate (as SCN) Total Organic Carbon (TOC) Grayimetrically determined through extraction with page are page followed by acidification followed by addition of ferric intrate followed by colorimetry are: C5-C7, C7-G8, C8-C10, C10-C12, C12-C14, C12-C14, C12-C14, C12-C15, C16-C21, C21-C34, C12-C34, C10-C12, C12-C16, C16-C21, C21-C34, C12-C34, C10-C12, C12-C16	Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil AR PERF-Speciated (EPA 16) use of surrogate and internal standards Soil AR PCB - 7 Congeners Soil D Petroleum Ether Extract (PED) Gravimetrically determined through extraction with petroleum ether Soil AR Penols - Total (monohydric) Phosphate - Water Soluble (2:1) Phosphate - Water Soluble (2:1) D Phosphate - Water Soluble (2:1) D Phosphate - Water Soluble (2:1) D Sulphate (as SO4) - Total of Determination of phosphate by extraction with water & analysed by ion chromatography Soil D Sulphate (as SO4) - Water Soluble (2:1) D Sulphate (as SO4) - Water Soluble (2:1) D Etermination of the Sulphate by extraction with water & analysed by ion chromatography Soil D Sulphate (as SO4) - Water Soluble (2:1) D Etermination of water soluble sulphate by extraction with water & analysed by ion chromatography Soil AR Sulphate Soil AR Sulphate D Sulphate (as SO4) - Water Soluble (2:1) D Etermination of water soluble sulphate by extraction with water followed by ICP-OES E013 Soil AR Sulphate D Sulphate (as SO4) - Water Soluble (2:1) D Etermination of sulphide between the water of water soluble sulphate by extraction with water followed by ICP-OES E024 Soil AR Sulphar - Total D Etermination of sulphide by distillation followed by colorimetry Soil AR Thiocyanate (as SCN) D Sulphare (as SCN) D Sulphare (as SCN) Soil AR Thiocyanate (as SCN) D Total Organic Carbon (TCC) Soil AR Though (as SCN) D Total Organic Carbon (TCC) TOtal Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) TOTAL Organic Carbon (TCC) T	Soil	D	Organic Matter		E010
Soil D Petroleum Ether Extract (PEE) Gravimetrically determined through extraction with petroleum ether Edition of the property process of the property of the	Soil	AR	PAH - Speciated (EPA 16)		E005
Soil AR Phenols - Total (monohydro) Determination of pH by addition of water followed by electrometric measurement E007	Soil			Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil AR					
Soil D Phosphate - Water Soluble (2:1) Determination of phosphate by extraction with water & analysed by ion chromatography E009					
Soil D Sulphate (as SO4) - Total Determination of total sulphate by extraction with 10% HCI followed by ICP-OES E013 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water followed by ICP-OES E014 Soil AR Sulphide Sulphur - Total Determination of sulphide by distillation followed by colorimetry E018 Soil AR Sulphur - Total Determination of total sulphur by extraction with aqua-regia followed by ICP-OES E024 Determination of sulphide by distillation followed by colorimetry E018 Soil AR Thiocyanate (as SCN) Soil D Toluene Extractable Matter (TEM) Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry Soil D Total Organic Carbon (TOC) TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C34, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C34, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C35 Soil AR TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C35 Soil AR VPL CG-C8 & C8-C10, C10-C12, C12-C35 Soil AR VPC C6-C8 & C8-C10, C10-C12, C12-C35 Soil AR VPC C6-C8 & C8-C10, Determination of volatile organic compounds by headspace GC-MS Soil AR VPC C6-C8 & C8-C10) Determination of volatile organic compounds by headspace GC-MS C8-C10 by GC-FID Fe001					
Soil D Sulphate (as SO4) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography					
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Soil AR Svoc Soil D Toluene Extractable Matter (TEM) Gravimetrically determination of total sulphur by extraction with aqua-regia followed by ICP-OES Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction with toluene E011 Soil D Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C35-C35-C44, aro: C5-C7, C7-C8, C8-C10,					
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Soil D Toluene Extractable Matter (TEM) Gravimetrically determined through extraction with toluene E011 Soil D Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) AR TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C35. C5 to C8 by headspace GC-MS TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C10-C12, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C	Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by	E017
Soil D Total Organic Carbon (TOC) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) AR TPH LQM (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C44. C5 to C8 by headspace GC-MS E004 Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate E010 E010 E010 E010 TPH CWG (ali: C5- C6, C6-C8, C8-C10, Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C44. C5 to C8 by headspace GC-MS E004 Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001	Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil AR TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35) TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C10-C12, C10-C12, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44) Soil AR VOCs Determination of volatile organic compounds by headspace GC-MS F001 Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID fractionating with SPE E001				Determination of organic matter by oxidising with potassium dichromate followed by titration with	
Soil AR C10-C12, C12-C16, C16-C35, C35-C44, Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE aro: C5-C7, C7-C8, C8-C10, C10-C12, cartridge for C8 to C44. C5 to C8 by headspace GC-MS Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001	Soil	AR	C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12,	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE	E004
Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001			C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	cartridge for C8 to C44. C5 to C8 by headspace GC-MS	
			VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pН	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%





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t: 01622 850410

DETS Report No: 22-04609

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 25/05/2022

Sample Scheduled Date: 25/05/2022

Report Issue Number: 1

Reporting Date: 30/05/2022

Authorised by:

Dave Ashworth Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.





Soil Analysis Certificate						
DETS Report No: 22-04609	Date Sampled	None Supplied				
Soil Consultants Ltd	Time Sampled	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	BH01/8.0	BH01/20.0	BH02/3.0	BH02/7.0	BH03/17.0
Twickenham, Twickenham, London, TW2 7DN						
Project / Job Ref: 10728/SG	Additional Refs	None Supplied				
Order No: 10728/SG	Depth (m)	8.00	20.00	3.00	7.00	17.00
Reporting Date: 30/05/2022	DETS Sample No	598989	598990	598991	598992	598993

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.1	8.4	7.3	8.0	8.2
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	926	1024	1023	1585	1130
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.09	0.10	0.10	0.16	0.11
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	303	301	198	474	330
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.30	0.30	0.20	0.47	0.33
Total Sulphur	%	< 0.02	NONE	0.34	0.36	0.51	0.65	0.33

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion Subcontracted analysis (S)

(n) 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





Soil Analysis Certificate						
DETS Report No: 22-04609	Date Sampled	None Supplied				
Soil Consultants Ltd	Time Sampled	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN	TP / BH No	BH04/11.0	WS1/2.30	WS2A/5.0	WS3/2.30	WS4/0.90
Project / Job Ref: 10728/SG	Additional Refs	None Supplied				
Order No: 10728/SG	Depth (m)	11.00	2.30	5.00	2.30	0.90
Reporting Date: 30/05/2022	DETS Sample No	598994	598995	598996	598997	598998

Determinand	Unit	RL	Accreditation					
рН	pH Units	N/a	MCERTS	7.7	8.0	8.0	8.1	6.1
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	1125	< 200	492	227	< 200
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.11	< 0.02	0.05	0.02	< 0.02
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	327	18	129	32	< 10
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.33	0.02	0.13	0.03	< 0.01
Total Sulphur	%	< 0.02	NONE	0.66	< 0.02	0.14	0.02	< 0.02





Soil Analysis Certificate						
DETS Report No: 22-04609	Date Sampled	None Supplied				
Soil Consultants Ltd	Time Sampled	None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	WS5/0.70	WS6/1.00	WS7/0.70	WS9/4.00	WS10/0.80
Twickenham, Twickenham, London, TW2 7DN						
Project / Job Ref: 10728/SG	Additional Refs	None Supplied				
Order No: 10728/SG	Depth (m)	0.70	1.00	0.70	4.00	0.80
Reporting Date: 30/05/2022	DETS Sample No	598999	599000	599001	599002	599003

Determinand	Unit	RL	Accreditation		(n)			
рН	pH Units	N/a	MCERTS	7.9	7.3	6.7	8.0	6.7
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	480	< 200	< 200	892	< 200
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.05	< 0.02	< 0.02	0.09	< 0.02
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	< 10	< 10	< 10	196	< 10
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	< 0.01	< 0.01	< 0.01	0.20	< 0.01
Total Sulphur	%	< 0.02	NONE	0.02	< 0.02	< 0.02	0.41	< 0.02





Soil Analysis Certificate				
DETS Report No: 22-04609	Date Sampled	None Supplied		
Soil Consultants Ltd	Time Sampled	None Supplied		
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	SK1/0.50		
Twickenham, Twickenham, London, TW2 7DN				
Project / Job Ref: 10728/SG	Additional Refs	None Supplied		
Order No: 10728/SG	Depth (m)	0.50		
Reporting Date: 30/05/2022	DETS Sample No	599004		

Determinand	Unit	RL	Accreditation			
pH	pH Units	N/a	MCERTS	8.0		
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	2563		
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.26		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	15		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.01		
Total Sulphur	%	< 0.02	NONE	0.08		





Soil Analysis Certificate - Sample Descriptions DETS Report No: 22-04609 Soil Consultants Ltd Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 30/05/2022

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
^ 598989	BH01/8.0	None Supplied	8.00	17.3	Brown clay
^ 598990	BH01/20.0	None Supplied	20.00	16	Brown clay
^ 598991	BH02/3.0	None Supplied	3.00	15.1	Brown clay
^ 598992	BH02/7.0	None Supplied	7.00	18.1	Brown clay
^ 598993	BH03/17.0	None Supplied	17.00	18.6	Brown clay
^ 598994	BH04/11.0	None Supplied	11.00	18.5	Brown clay
^ 598995	WS1/2.30	None Supplied	2.30	13	Brown sandy clay
^ 598996	WS2A/5.0	None Supplied	5.00	14.9	Brown sandy clay with stones
^ 598997	WS3/2.30	None Supplied	2.30	23.9	Brown clay
^ 598998	WS4/0.90	None Supplied	0.90		Brown sandy clay with stones
^ 598999	WS5/0.70	None Supplied	0.70	16	Brown sandy clay with stones and concrete
^ 599000	WS6/1.00	None Supplied	1.00	5.3	Brown sandy gravel with stones
^ 599001	WS7/0.70	None Supplied	0.70	13	Brown sandy clay
^ 599002	WS9/4.00	None Supplied	4.00	20.4	Brown clay
^ 599003	WS10/0.80	None Supplied	0.80	6.5	Brown sandy clay with stones
^ 599004	SK1/0.50	None Supplied	0.50	5.2	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample $^{\rm I/S}$ Unsuitable Sample $^{\rm U/S}$

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 22-04609 Soil Consultants Ltd

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 30/05/2022

Matrix Analysed Determinand **Brief Method Description** Method On No E012 Soi D Boron - Water Soluble Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES Soil AR BTE Determination of BTEX by headspace GC-MS E001 Soil D Cations Determination of cations in soil by aqua-regia digestion followed by ICP-OES E002 D E009 Chloride - Water Soluble (2:1 Determination of chloride by extraction with water & analysed by ion chromatography Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of Soil AR Chromium - Hexavalen E016 ,5 diphenylcarbazide followed by colorimetry E015 AR Determination of complex cyanide by distillation followed by colorimetry Soil Cyanide - Complex Soil AR Cyanide - Free Determination of free cyanide by distillation followed by colorimetry E015 Cyanide - Tota Soil AR Determination of total cyanide by distillation followed by colorimetry E015 Soil D Cyclohexane Extractable Matter (CEM) Gravimetrically determined through extraction with cyclohexane E011 Soil ΔR Diesel Range Organics (C10 - C24) Determination of hexane/acetone extractable hydrocarbons by GC-FID E004 Determination of electrical conductivity by addition of saturated calcium sulphate followed by Soil AR **Electrical Conductivity** E022 electrometric measurement AR **Electrical Conductivity** E023 Soil Determination of electrical conductivity by addition of water followed by electrometric measurement Soil D Elemental Sulphur Determination of elemental sulphur by solvent extraction followed by GC-MS E020 AR EPH (C10 - C40 Determination of acetone/hexane extractable hydrocarbons by GC-FID E004 Soil Soil ΔR EPH Product II Determination of acetone/hexane extractable hydrocarbons by GC-FID E004 EPH TEXAS (C6-C8, C8-C10, C10-C12 Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by Soil AR E004 C12-C16, C16-C21, C21-C40 neadspace GC-MS Soil D Fluoride - Water Soluble Determination of Fluoride by extraction with water & analysed by ion chromatography F009 Soil D Fraction Organic Carbon (FOC Determination of TOC by combustion analyser E027 Soil D Organic Matter (SOM Determination of TOC by combustion analyser. E027 Soil D TOC (Total Organic Carbon Determination of TOC by combustion analyser E027 Soil AR Exchangeable Ammonium Determination of ammonium by discrete analyser. E029 Determination of fraction of organic carbon by oxidising with potassium dichromate followed by Soil D FOC (Fraction Organic Carbon E010 itration with iron (II) sulphate Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle D Soil Loss on Ignition @ 450o0 Soil D Magnesium - Water Soluble Determination of water soluble magnesium by extraction with water followed by ICP-OES E025 D Determination of metals by aqua-regia digestion followed by ICP-OES E002 Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE Soil AR Mineral Oil (C10 - C40 E004 AR E003 Soil Moisture Content Moisture content; determined gravimetrically Soil D Nitrate - Water Soluble (2:1) Determination of nitrate by extraction with water & analysed by ion chromatography E009 Determination of organic matter by oxidising with potassium dichromate followed by titration with Soil D Organic Matte E010 Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the Soil AR PAH - Speciated (EPA 16 E005 use of surrogate and internal standards AR PCB - 7 Congeners F008 Soil Determination of PCB by extraction with acetone and hexane followed by GC-MS Soil D Petroleum Ether Extract (PEE) Gravimetrically determined through extraction with petroleum ether E011 Soil AR Determination of pH by addition of water followed by electrometric measurement E007 pŀ Soil AR Phenols - Total (monohydric) Determination of phenols by distillation followed by colorimetry E021 Soil D Phosphate - Water Soluble (2:1) Determination of phosphate by extraction with water & analysed by ion chromatography E009 Soil D Sulphate (as SO4) - Total Determination of total sulphate by extraction with 10% HCl followed by ICP-OES E013 D Sulphate (as SO4) - Water Soluble (2:1) Soil Determination of sulphate by extraction with water & analysed by ion chromatography E009 Sulphate (as SO4) - Water Soluble (2:1) Soil D Determination of water soluble sulphate by extraction with water followed by ICP-OES E014 Soil AR Sulphide Determination of sulphide by distillation followed by colorimetry E018 Soil D Sulphur - Tota Determination of total sulphur by extraction with aqua-regia followed by ICP-OES F024 Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by Soil AR E006 Determination of thiocyanate by extraction in caustic soda followed by acidification followed by AR Soil Thiocvanate (as SCN F017 addition of ferric nitrate followed by colorimetry D Soil Toluene Extractable Matter (TEM Gravimetrically determined through extraction with toluene E011 Determination of organic matter by oxidising with potassium dichromate followed by titration with D Total Organic Carbon (TOC E010 Soil iron (II) sulphate TPH CWG (ali: C5- C6, C6-C8, C8-C10 C10-C12, C12-C16, C16-C21, C21-C34, Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE AR E004 Soil aro: C5-C7, C7-C8, C8-C10, C10-C12, cartridge for C8 to C35. C5 to C8 by headspace GC-MS C12-C16, C16-C21, C21-C35 TPH LQM (ali: C5-C6, C6-C8, C8-C10 C10-C12, C12-C16, C16-C35, C35-C44 Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE AR E004 Soil aro: C5-C7, C7-C8, C8-C10, C10-C12 cartridge for C8 to C44. C5 to C8 by headspace GC-MS C12-C16, C16-C21, C21-C35, C35-C44 Soil AR VOC Determination of volatile organic compounds by headspace GC-MS F001 Soil AR VPH (C6-C8 & C8-C10 Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID F001

D Dried AR As Received





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DETS Report No: 22-04512

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 20/05/2022

Sample Scheduled Date: 20/05/2022

Report Issue Number: 1

Reporting Date: 09/06/2022

Authorised by:

Ela Mysiara Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



DETS Ltd ane Industrial Estate Rose Lane nham Heath Maidstone nt ME17 2JN 01622 850410





4480

		Date						
DETS Report No: 22-04!	512	Sampled	11/05/2022		Compliance	with Range		
Soil Consultants Ltd		Time Sampled	None Supplied					
Site Reference: Kneller Road, Twickenham, Lon		TP / BH No	WS7	Se		₽	ر س	
Project / Job Ref: 1072	8/SG	Additional Refs	None Supplied	dr.p	Acidic	ertili	Calcareous	
Order No: 10728/SG		Depth (m)	0.10	Multipurpose	Ac	Low Fertility	Calca	
Reporting Date: 09/06/	2022	DETS Sample No	598619	_				
Determinand	Reporting Unit	RL		1				
Soil Texture	•	-						
Clay Content (S)	%	N/a	17.6	 	5 -	35		
Silt Content (S)	%	N/a	31.9	 		65		
Sand Content (S)	%	N/a	50.5	 				
Textural Class (S)	N/a	N/a	Sandy Loam		30	30 - 85		
rextural class (7)	IN/a	IV/a	Saliuy Luaili		Clay Conto	Clay Content 5 - 20%		
				2 20		3 - 20		
oss on Ignition	%	< 0.01	4.90	3 - 20	3 - 30 2 - 20 3 Clay Content 20 - 35%			
Ĭ						2 - 20		
				5 - 20	5 - 30	5 - 20		
Coarse Fragment Conte								
>2mm ^(S)	%	N/a	9.0	0 - 30	0 - 30	0 - 30	0 - 30	
>20mm ^(S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10	
>50mm ^(S)	%	N/a	0.0	0	0	0	0	
oH ^{M∪}	pH Units	N/a	5.2	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0	
Carbonate	%	< 1.4	< 1.4				> 1	
Available Plant Nutrient	s							
Total Nitrogen ^(S)	%	< 0.01	< 0.01	≥ 0.15	≥ 0.15		≥ 0.15	
Phosphorus (Extractable)	mg/l	< 3	28	16 - 140	16 - 140	≤ 15	16 - 140	
Potassium (Extractable)	mg/l	< 20	70	121 - 1500	121 - 1500		121 - 150	
Magnesium (Extractable)	mg/l	< 1	56	51 - 600	51 - 600		51 - 600	
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	360	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1	
Exchangeable Sodium (S)	%	< 0.1	< 0.1					
Phytotoxic Elements (by	y soil pH)			Multipurpos	e & Specific ran	Purpose To	psoils at p	
				< 6.0	6.0	- 7.0	> 7.0	
Zinc ^{MU}	mg/kg	< 3	33	< 200		200	< 300	
Copper ^{MU}	mg/kg	< 4	14	< 100		135	< 200	
Nickel MU	mg/kg	< 3	8	< 60	<	75	< 110	
Visible Contaminants (A	ir Dried Soil)							
>2mm	%	N/a	0.0		< 1	0.5		
Plastics	%	N/a	0.00		< 0).25		
Sharps	%	N/a	0.0		(0		
Additional Analytes		-		Ī				
Available Sodium (S)	mg/l	< 1	80	1				
Available Calcium (S)	mg/l	< 1	1300	1				
			_500					
Electrical Conductivity	uS/cm	< 5	2000	3300				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

Subcontracted analysis (S)



DETS Ltd ine Industrial Estate Rose Lane nham Heath Maidstone nt ME17 2JN 01622 850410





4480

DETS Report No: 22-045	512	Date	11/05/2022		Compliance	with Range		
Soil Consultants Ltd		Sampled Time Sampled	None Supplied					
Site Reference: Kneller		TP / BH No	WS8	1 ,				
Road, Twickenham, Lon		Additional		. so		i t	sno	
Project / Job Ref: 10728	3/SG	Refs	None Supplied	Multipurpose	Acidic	Low Fertility	Calcareous	
Order No: 10728/SG		Depth (m)	0.20	lulti.	Ă	wo-	Galc	
Reporting Date: 09/06/	2022	DETS Sample No	598620			_		
Determinand	Reporting Unit	RL						
Soil Texture								
Clay Content (S)	%	N/a	50.0		5 -	35		
Silt Content (S)	%	N/a	47.0		0 -	65		
Sand Content (S)	%	N/a	3.0		30 -			
Textural Class ^(S)	N/a	N/a	Silty Clay		-			
r exteral class	, 4-	.,,	,,		Clay Content 5 - 20%			
				3 - 20	3 - 30	3 - 20		
Loss on Ignition	%	< 0.01	5.70	3 20		3 - 30		
				5 - 20				
Casusa Evasument Canta				3 - 20	3 - 30			
Coarse Fragment Conte >2mm ^(S)		N/a	0.0	0 20	0 20	0 20	0 20	
>2mm (5) >20mm (S)	%	N/a		0 - 30	0 - 30	0 - 30	0 - 30	
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10	
>50mm ^(S)	%	N/a	0.0	0	0	0	0	
pH ^{MU}	pH Units	N/a	5.5	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0	
Carbonate	%	< 1.4	< 1.4				> 1	
Available Plant Nutrient		0.04			0.45			
Total Nitrogen (5)	%	< 0.01	< 0.01	≥ 0.15	≥ 0.15		≥ 0.15	
Phosphorus (Extractable)	mg/l	< 3	43	16 - 140	16 - 140	≤ 15	16 - 140	
Potassium (Extractable)	mg/l	< 20	65	121 - 1500	121 - 1500		121 - 150	
Magnesium (Extractable)	mg/l	< 1	55	51 - 600	51 - 600		51 - 600	
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	340	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1	
Exchangeable Sodium (S)	%	< 0.1	< 0.1				-	
Phytotoxic Elements (by	/ soil pH)		-	Multipurpos	se & Specific ran	ige	psoils at p	
			1	< 6.0		- 7.0	> 7.0	
Zinc ^{MU}	mg/kg	< 3	45	< 200		200	< 300	
Copper ^{MU}	mg/kg	< 4	20	< 100		135	< 200	
Nickel ^{MU}	mg/kg	< 3	10	< 60	<	75	< 110	
Visible Contaminants (A								
>2mm	%	N/a	0.0	< 0.5				
Plastics	%	N/a	0.00	< 0.25				
Sharps	%	N/a	0.0		()		
Additional Analytes								
Available Sodium ^(S)	mg/l	< 1	110					
Available Calcium ^(S)	mg/l	< 1	2000					
Electrical Conductivity	uS/cm	< 5	2100	3300			1	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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U Denotes ISO17025 accredited test

Subcontracted analysis (S)





Soil Analysis Certificate - Sample Descriptions					
DETS Report No: 22-04512					
Soil Consultants Ltd					
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN					
Project / Job Ref: 10728/SG					
Order No: 10728/SG					
Reporting Date: 09/06/2022					

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
598619	WS7	None Supplied	0.10	10.7	Brown sandy clay with vegetation
598620	WS8	None Supplied	0.20	12	Brown sandy clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample $^{\rm VS}$ Unsuitable Sample $^{\rm VS}$





Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04512
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 09/06/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No				
Soil Soil	D AR		Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES Determination of BTEX by headspace GC-MS	E012 E001				
Soil	D		Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002				
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009				
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition o 1,5 diphenylcarbazide followed by colorimetry					
Soil	AR		Determination of complex cyanide by distillation followed by colorimetry	E015				
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015				
Soil	AR		Determination of total cyanide by distillation followed by colorimetry Gravimetrically determined through extraction with cyclohexane	E015				
Soil Soil	D AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID	E011 E004				
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by	E022				
Soil	AR	Flectrical Conductivity	electrometric measurement Determination of electrical conductivity by addition of water followed by electrometric measurement	E023				
			· ·					
Soil	D AR		Determination of elemental sulphur by solvent extraction followed by GC-MS	E020 E004				
Soil Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004				
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	E004				
Soil	D	C12-C16, C16-C21, C21-C40) Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009				
Soil	D	Fraction Organic Carbon (FOC)	Determination of Fluoride by extraction with water & analysed by for circumatography Determination of TOC by combustion analyser.	E027				
Soil	D		Determination of TOC by combustion analyser.	E027				
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027				
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029				
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010				
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019				
Soil	D		Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025				
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002				
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004				
Soil	AR		Moisture content; determined gravimetrically	E003				
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009				
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010				
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005				
Soil	AR		Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008				
Soil	D		Gravimetrically determined through extraction with petroleum ether	E011				
Soil	AR		Determination of pH by addition of water followed by electrometric measurement	E007				
Soil	AR D		Determination of phenols by distillation followed by colorimetry	E021 E009				
Soil Soil	D		Determination of phosphate by extraction with water & analysed by ion chromatography Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013				
Soil	D		Determination of total sulphate by extraction with water & analysed by ion chromatography	E009				
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014				
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018				
Soil	D		Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024				
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006				
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017				
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011				
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010				
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004				
Soil	AR	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)		E004				
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001				
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001				

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pH	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%





Steph Grimes Soil Consultants Ltd Chiltern House Earl Howe Road Holmer Green High Wycombe Buckinghamshire HP15 6QT

Derwentside Environmental Testing Services Ltd

Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04512

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 20/05/2022

Sample Scheduled Date: 20/05/2022

Report Issue Number: 1

Reporting Date: 09/06/2022

Authorised by:

Ela Mysiara Quality Manager

Dates of laboratory activities for each tested analyte are available upon request.

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For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



DETS Ltd ane Industrial Estate Rose Lane nham Heath Maidstone nt ME17 2JN 01622 850410





4480

		Date					
DETS Report No: 22-04512		Sampled	11/05/2022		Compliance	with Range	
Soil Consultants Ltd Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN		Time Sampled	None Supplied				
		TP / BH No	WS7	Se		₽	ر س
Project / Job Ref: 1072	8/SG	Additional Refs	None Supplied	dr.p	Acidic	ertili	Calcareous
Order No: 10728/SG		Depth (m)	0.10	Multipurpose	Ac	Low Fertility	Calca
Reporting Date: 09/06/	022	DETS Sample No	598619	_		_	
Determinand	Reporting Unit	RL		1			
Soil Texture	•	-					
Clay Content (S)	%	N/a	17.6	 	5 -	35	
Silt Content (S)	%	N/a	31.9	 		65	
Sand Content (S)	%	N/a	50.5	 		- 85	
Textural Class (S)	N/a	N/a	Sandy Loam		30	-	
rextural class (7)	IN/a	IV/a	Saliuy Luaili		Clay Conto	nt 5 - 20%	
				2 20			2 20
oss on Ignition	%	< 0.01	4.90	3 - 20	3 - 30	2 - 20 nt 20 - 35%	3 - 20
70							
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Conte							
>2mm ^(S)	%	N/a	9.0	0 - 30	0 - 30	0 - 30	0 - 30
>20mm ^(S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm ^(S)	%	N/a	0.0	0	0	0	0
oH ^{M∪}	pH Units	N/a	5.2	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrient	s						
Total Nitrogen ^(S)	%	< 0.01	< 0.01	≥ 0.15	≥ 0.15		≥ 0.15
Phosphorus (Extractable)	mg/l	< 3	28	16 - 140	16 - 140	≤ 15	16 - 140
Potassium (Extractable)	mg/l	< 20	70	121 - 1500	121 - 1500		121 - 150
Magnesium (Extractable)	mg/l	< 1	56	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	360	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium (S)	%	< 0.1	< 0.1				
Phytotoxic Elements (by	y soil pH)			Multipurpos	e & Specific ran	Purpose To	psoils at p
				< 6.0	6.0	- 7.0	> 7.0
Zinc ^{MU}	mg/kg	< 3	33	< 200		200	< 300
Copper ^{MU}	mg/kg	< 4	14	< 100		135	< 200
Nickel MU	mg/kg	< 3	8	< 60	<	75	< 110
Visible Contaminants (A	ir Dried Soil)						
>2mm	%	N/a	0.0		< 1	0.5	
Plastics	%	N/a	0.00		< 0).25	
Sharps	%	N/a	0.0		(0	
Additional Analytes		-		Ī			
Available Sodium (S)	mg/l	< 1	80	1			
Available Calcium (S)	mg/l	< 1	1300	1			
			_500				
Electrical Conductivity	uS/cm	< 5	2000	3300			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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Subcontracted analysis (S)



DETS Ltd ine Industrial Estate Rose Lane nham Heath Maidstone nt ME17 2JN 01622 850410





4480

DETS Report No: 22-045	512	Date	11/05/2022		Compliance	with Range	
Soil Consultants Ltd Site Reference: Kneller Hall, 65 Kneller		Sampled Time Sampled	None Supplied				
		TP / BH No	WS8	1 ,			
Road, Twickenham, Lon		Additional		. so		i t	sno
Project / Job Ref: 10728	3/SG	Refs	None Supplied	l dind	Acidic	Ferti	Calcareous
Order No: 10728/SG		Depth (m)	0.20	Multipurpose	Ă	Low Fertility	Galc
Reporting Date: 09/06/	2022	DETS Sample No	598620			_	
Determinand	Reporting Unit	RL					
Soil Texture							
Clay Content (S)	%	N/a	50.0		5 -	35	
Silt Content (S)	%	N/a	47.0		0 -	65	
Sand Content (S)	%	N/a	3.0		30 -	- 85	
Textural Class ^(S)	N/a	N/a	Silty Clay			-	
r exteral class	, 4-	.,,	,,		Clay Conte	nt 5 - 20%	
				3 - 20	3 - 30	2 - 20	3 - 20
Loss on Ignition	%	< 0.01	5.70	3 20		nt 20 - 35%	0 20
				5 - 20	5 - 30	2 - 20	5 - 20
Casusa Evasument Canta				3 - 20	3 - 30	2 - 20	3 - 20
Coarse Fragment Conte >2mm ^(S)		N/a	0.0	0 20	0 20	0 20	0 20
>2mm (5) >20mm (S)	%	N/a		0 - 30	0 - 30	0 - 30	0 - 30
>20mm (S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm ^(S)	%	N/a	0.0	0	0	0	0
pH ^{MU}	pH Units	N/a	5.5	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0
Carbonate	%	< 1.4	< 1.4				> 1
Available Plant Nutrient		0.04			0.45		
Total Nitrogen (5)	%	< 0.01	< 0.01	≥ 0.15	≥ 0.15		≥ 0.15
Phosphorus (Extractable)	mg/l	< 3	43	16 - 140	16 - 140	≤ 15	16 - 140
Potassium (Extractable)	mg/l	< 20	65	121 - 1500	121 - 1500		121 - 150
Magnesium (Extractable)	mg/l	< 1	55	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	340	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium (S)	%	< 0.1	< 0.1				-
Phytotoxic Elements (by	/ soil pH)		-	Multipurpos	se & Specific ran	ige	psoils at p
			1	< 6.0		- 7.0	> 7.0
Zinc ^{MU}	mg/kg	< 3	45	< 200		200	< 300
Copper ^{MU}	mg/kg	< 4	20	< 100		135	< 200
Nickel ^{MU}	mg/kg	< 3	10	< 60	<	75	< 110
Visible Contaminants (A							
>2mm	%	N/a	0.0			0.5	
Plastics	%	N/a	0.00		< 0	.25	
Sharps	%	N/a	0.0		()	
Additional Analytes							
Available Sodium ^(S)	mg/l	< 1	110				
Available Calcium ^(S)	mg/l	< 1	2000				
Electrical Conductivity	uS/cm	< 5	2100	3300			1

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

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Subcontracted analysis (S)





Soil Analysis Certificate - Sample Descriptions					
DETS Report No: 22-04512					
Soil Consultants Ltd					
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN					
Project / Job Ref: 10728/SG					
Order No: 10728/SG					
Reporting Date: 09/06/2022					

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
598619	WS7	None Supplied	0.10	10.7	Brown sandy clay with vegetation
598620	WS8	None Supplied	0.20	12	Brown sandy clay with vegetation

Moisture content is part of procedure E003 & is not an accredited test Insufficient Sample $^{\rm VS}$ Unsuitable Sample $^{\rm VS}$





Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-04512
Soil Consultants Ltd
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 09/06/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No				
Soil Soil	D AR		Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES Determination of BTEX by headspace GC-MS	E012 E001				
Soil	D		Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002				
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009				
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition o 1,5 diphenylcarbazide followed by colorimetry					
Soil	AR		Determination of complex cyanide by distillation followed by colorimetry	E015				
Soil	AR		Determination of free cyanide by distillation followed by colorimetry	E015				
Soil	AR		Determination of total cyanide by distillation followed by colorimetry Gravimetrically determined through extraction with cyclohexane	E015				
Soil Soil	D AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID	E011 E004				
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by	E022				
Soil	AR	Flectrical Conductivity	electrometric measurement Determination of electrical conductivity by addition of water followed by electrometric measurement	E023				
			· ·					
Soil	D AR		Determination of elemental sulphur by solvent extraction followed by GC-MS	E020 E004				
Soil Soil	AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004				
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12,	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	E004				
Soil	D	C12-C16, C16-C21, C21-C40) Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009				
Soil	D	Fraction Organic Carbon (FOC)	Determination of Fluoride by extraction with water & analysed by for circumatography Determination of TOC by combustion analyser.	E027				
Soil	D		Determination of TOC by combustion analyser.	E027				
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027				
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029				
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010				
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019				
Soil	D		Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025				
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002				
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004				
Soil	AR		Moisture content; determined gravimetrically	E003				
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009				
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010				
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005				
Soil	AR		Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008				
Soil	D		Gravimetrically determined through extraction with petroleum ether	E011				
Soil	AR		Determination of pH by addition of water followed by electrometric measurement	E007				
Soil	AR D		Determination of phenols by distillation followed by colorimetry	E021 E009				
Soil Soil	D		Determination of phosphate by extraction with water & analysed by ion chromatography Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013				
Soil	D		Determination of total sulphate by extraction with water & analysed by ion chromatography	E009				
Soil	D		Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014				
Soil	AR		Determination of sulphide by distillation followed by colorimetry	E018				
Soil	D		Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024				
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006				
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017				
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011				
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010				
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004				
Soil	AR	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)		E004				
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001				
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001				

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pH	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%





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Derwentside Environmental Testing Services Ltd

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Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-04511

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Sample Receipt Date: 20/05/2022

Sample Scheduled Date: 20/05/2022

Report Issue Number: 1

Reporting Date: 30/05/2022

Authorised by:

Dave Ashworth Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.





Soil Analysis Certificate DETS Report No: 22-04511 Soil Consultants Ltd Date Sampled 11/05/22 10/05/22 11/05/22 10/05/22 10/05/22 Time Sampled None Supplied None Supplied None Supplied None Supplied None Supplied Site Reference: Kneller Hall, 65 Kneller Road, TP / BH No WS9/0.40 WS1/0.50 WS3/0.70 WS2A/1.60 WS2/0.80 Twickenham, London, TW2 7DN Project / Job Ref: 10728/SG Additional Refs None Supplied None Supplied None Supplied None Supplied None Supplied Order No: 10728/SG Depth (m) 0.40 0.50 0.70 1.60 0.80 **DETS Sample No** Reporting Date: 30/05/2022 598604 598606 598607 598608

Determinand	Unit	RL	Accreditation				
Asbestos Screen (S)	N/a	N/a	ISO17025	Detected	Not Detected	Not Detected	
Sample Matrix ^(S)	Material Type	N/a	NONE	Bundles of otile fibres			
Asbestos Type (S)	PLM Result	N/a	ISO17025	Chrysotile			
рН	pH Units	N/a	MCERTS	7.2	7.5	6.9	
Electrical Conductivity	uS/cm	< 5	NONE	471	312	419	
Total Cyanide	mg/kg	< 2	NONE	8	< 2	< 2	
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	668	1609	1505	
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.07	0.16	0.15	
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	68	115	235	
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.07	0.12	0.23	
Total Sulphur	%	< 0.02	NONE	0.08	0.11	0.14	
Organic Matter (SOM)	%	< 0.1	MCERTS	5.6	1.4	15.1	
Arsenic (As)	mg/kg	< 2	MCERTS	11	12	29	
W/S Boron	mg/kg	< 1	NONE	2.5	< 1	1.9	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	< 0.2	1.4	
Chromium (Cr)	mg/kg	< 2	MCERTS	13	27	26	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	32	27	110	
Lead (Pb)	mg/kg	< 3	MCERTS	134	68	478	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	1.2	
Nickel (Ni)	mg/kg	< 3	MCERTS	12	22	31	
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	76	72	493	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	
EPH (C10 - C40)	mg/kg	< 6	MCERTS	56	3500	86	





Soil Analysis Certificate										
DETS Report No: 22-04511	Date Sampled	09/05/22	09/05/22	09/05/22	13/05/22	13/05/22				
Soil Consultants Ltd	Time Sampled	None Supplied								
Site Reference: Kneller Hall, 65 Kneller Road,	TP / BH No	TP6/1.00	BH02/0.80	BH02/1.60	HP1/0.70	HP2/0.60				
Twickenham, London, TW2 7DN										
Project / Job Ref: 10728/SG	Additional Refs	None Supplied								
Order No: 10728/SG	Depth (m)	1.00	0.80	0.80	0.70	0.60				
Reporting Date: 30/05/2022	DETS Sample No	598609	598610	598611	598612	598613				

Determinand	Unit	RL	Accreditation				
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	N	lot Detected
Sample Matrix ^(S)	Material Type	N/a	NONE				
Asbestos Type (S)	PLM Result	N/a	ISO17025				
pH	pH Units	N/a	MCERTS	7.8	7.4		7.8
Electrical Conductivity	uS/cm	< 5	NONE	141	194		209
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2		< 2
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	834	436		988
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.08	0.04		0.10
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	19	12		69
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.02	0.01		0.07
Total Sulphur	%	< 0.02	NONE	0.03	0.02		0.04
Organic Matter (SOM)	%	< 0.1	MCERTS	1.2	2.9		1.9
Arsenic (As)	mg/kg	< 2	MCERTS	8	14		12
W/S Boron	mg/kg	< 1	NONE	< 1	< 1		< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.7		0.4
Chromium (Cr)	mg/kg	< 2	MCERTS	12	16		15
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2		< 2
Copper (Cu)	mg/kg	< 4	MCERTS	11	108		24
Lead (Pb)	mg/kg	< 3	MCERTS	65	181		62
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1		< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	10	15		11
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3		< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	26	201		236
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2		< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	< 6	61		39





Soil Analysis Certificate						
DETS Report No: 22-04511	Date Sampled	None Supplied	None Supplied	None Supplied	12/05/22	
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	TP / BH No	BH01	BH03	BH04	WS4	
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: 10728/SG	Depth (m)	0.80	1.40	1.00	0.20	
Reporting Date: 30/05/2022	DETS Sample No	598614	598615	598616	598617	

Determinand	Unit	RL	Accreditation		
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	
Sample Matrix ^(S)	Material Type	N/a	NONE		
Asbestos Type (S)	PLM Result	N/a	ISO17025		
pH	pH Units	N/a	MCERTS	7.7	
Electrical Conductivity	uS/cm	< 5	NONE	136	
Total Cyanide	mg/kg	< 2	NONE	< 2	
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	< 200	
Total Sulphate as SO ₄	%	< 0.02	MCERTS	< 0.02	
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	< 10	
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	< 0.01	
Total Sulphur	%	< 0.02	NONE	< 0.02	
Organic Matter (SOM)	%	< 0.1	MCERTS	0.7	
Arsenic (As)	mg/kg	< 2	MCERTS	12	
W/S Boron	mg/kg	< 1	NONE	< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	18	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	8	
Lead (Pb)	mg/kg	< 3	MCERTS	35	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	14	
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	33	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	
EPH (C10 - C40)	mg/kg	< 6	MCERTS	< 6	





Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-04511	Date Sampled	11/05/22	10/05/22	10/05/22	09/05/22	09/05/22
Soil Consultants Ltd	Time Sampled	None Supplied				
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	WS1/0.50	WS3/0.70	WS2A/1.60	TP6/1.00	BH02/0.80
Road, Twickenham, London, TW2 7DN						
Project / Job Ref: 10728/SG	Additional Refs	None Supplied				
Order No: 10728/SG	Depth (m)	0.50	0.70	1.60	1.00	0.80
Reporting Date: 30/05/2022	DETS Sample No	598604	598606	598607	598609	598610

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.38	0.23	0.73	< 0.1	0.14
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	1.16	0.74	2.59	< 0.1	0.55
Pyrene	mg/kg	< 0.1	MCERTS	1.01	0.69	2.17	< 0.1	0.59
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.60	0.41	1.18	< 0.1	0.44
Chrysene	mg/kg	< 0.1	MCERTS	0.64	0.38	1.31	< 0.1	0.42
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.85	0.48	1.74	< 0.1	0.65
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.37	0.22	0.73	< 0.1	0.28
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.70	0.34	1.61	< 0.1	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.61	0.34	1.64	< 0.1	0.57
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.41	0.22	0.99	< 0.1	0.41
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	6.7	4	14.7	< 1.6	4.6





Soil Analysis Certificate - Speciated PAHs									
DETS Report No: 22-04511	Date Sampled	13/05/22	None Supplied						
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied						
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	HP2/0.60	BH04						
Road, Twickenham, London, TW2 7DN									
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied						
Order No: 10728/SG	Depth (m)	0.60	1.00						
Reporting Date: 30/05/2022	DETS Sample No	598613	598616						

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	0.32	< 0.1		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	0.82	< 0.1		
Pyrene	mg/kg	< 0.1	MCERTS	0.75	< 0.1		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.42	< 0.1		
Chrysene	mg/kg	< 0.1	MCERTS	0.37	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.43	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.21	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.36	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.34	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.21	< 0.1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	4.2	< 1.6		





Soil Analysis Certificate - TPH CWG Banded									
DETS Report No: 22-04511	Date Sampled	11/05/22	13/05/22	13/05/22					
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied	None Supplied					
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	TP / BH No	WS1/0.50	HP1/0.70	HP2/0.60					
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied	None Supplied					
Order No: 10728/SG	Depth (m)	0.50	0.70	0.60					
Reporting Date: 30/05/2022	DETS Sample No	598604	598612	598613					

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	3	< 3	4	
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10	
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21	
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	





Soil Analysis Certificate - BTEX / MTBE					
DETS Report No: 22-04511	Date Sampled	11/05/22	13/05/22	13/05/22	
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	WS1/0.50	HP1/0.70	HP2/0.60	
Road, Twickenham, London, TW2 7DN					
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied	None Supplied	
Order No: 10728/SG	Depth (m)	0.50	0.70	0.60	
Reporting Date: 30/05/2022	DETS Sample No	598604	598612	598613	

Determinand	Unit	RL	Accreditation				
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	





Soil Analysis Certificate - Volatile Organic	Compounds (VOC)				
DETS Report No: 22-04511	Date Sampled	11/05/22	13/05/22		
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	WS1/0.50	HP1/0.70		
Road, Twickenham, London, TW2 7DN					
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied		
Order No: 10728/SG	Depth (m)	0.50	0.70		
Reporting Date: 30/05/2022	DETS Sample No	598604	598612		

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5		
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5		
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10		
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5		
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10		
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5		
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5		
MTBE	ug/kg	< 5	MCERTS	< 5	< 5		
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5		
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5		
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5		
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5		_
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5		
Bromochloromethane	ug/kg ug/kg	< 5	MCERTS	< 5	< 5		+
1,1,1-Trichloroethane	ug/kg ug/kg	< 5	MCERTS	< 5	< 5		
		< 10	MCERTS	< 10	< 10		
1,1-Dichloropropene Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5		
1,2-Dichloroethane	ug/kg		MCERTS				
	ug/kg	< 5		< 5	< 5		
Benzene	ug/kg	< 2	MCERTS	< 2	< 2		
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5		
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5		
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5		
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5		
TAME	ug/kg	< 5	MCERTS	< 5	< 5		
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5		
Toluene	ug/kg	< 5	MCERTS	< 5	< 5		
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5		
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10		
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5		
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5		
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5		
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5		
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5		
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5		
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2	< 2		
m,p-Xylene	ug/kg	< 2	MCERTS	< 2	< 2		
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2		
Styrene	ug/kg	< 5	MCERTS	< 5	< 5		
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10		
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5		
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5		
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5		
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5		
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5		
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5		
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5		1
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5		
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5		
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5		1
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	 	1
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	 	1
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	 	+
1,4-Dichlorobenzene	ug/kg ug/kg	< 5	MCERTS	< 5	< 5	 	+
n-Butylbenzene	ug/kg ug/kg	< 5	MCERTS	< 5	< 5	 	+
						 	1
1,2-Dichlorobenzene	ug/kg	< 5 < 10	MCERTS	< 5 < 10	< 5 < 10		
.,2-Dibromo-3-chloropropane	ug/kg		MCERTS				
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5		





Soil Analysis Certificate - Semi Volatile Org	anic Compounds (S	/OC)			
DETS Report No: 22-04511	Date Sampled	11/05/22	13/05/22		
Soil Consultants Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	WS1/0.50	HP1/0.70		
Road, Twickenham, London, TW2 7DN					
Project / Job Ref: 10728/SG	Additional Refs	None Supplied	None Supplied		
Order No: 10728/SG	Depth (m)	0.50	0.70		
Reporting Date: 30/05/2022	DETS Sample No	598604	598612		

						-	
Determinand	Unit	RL	Accreditation				
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15		
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15		
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15		
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
4-Chloroanaline	mg/kg	< 0.15	NONE	< 0.15	< 0.15		
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1		
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15		
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		



Tel: 01622 850410

Soil Analysis Certificate - PCB (7 Congener	s)			
DETS Report No: 22-04511	Date Sampled	13/05/22		
Soil Consultants Ltd	Time Sampled	None Supplied		
Site Reference: Kneller Hall, 65 Kneller	TP / BH No	HP1/0.70		
Road, Twickenham, London, TW2 7DN				
Project / Job Ref: 10728/SG	Additional Refs	None Supplied		
Order No: 10728/SG	Depth (m)	0.70		
Reporting Date: 30/05/2022	DETS Sample No	598612		

Determinand	Unit	RL	Accreditation			
PCB Congener 28	mg/kg	0.008	NONE	< 0.008		
PCB Congener 52	mg/kg	0.008	NONE	< 0.008		
PCB Congener 101	mg/kg	0.008	NONE	< 0.008		
PCB Congener 118	mg/kg	0.008	NONE	< 0.008		
PCB Congener 138	mg/kg	0.008	NONE	< 0.008		
PCB Congener 153	mg/kg	0.008	NONE	< 0.008		
PCB Congener 180	mg/kg	0.008	NONE	< 0.008		
Total PCB (7 Congeners)	ma/ka	< 0.1	NONE	< 0.1		





DETS Report No: 22-04511		Date Sampled	11/05/22		Landfill Was	te Acceptance (Criteria Limit
Soil Consultants Ltd		Time Sampled	None Supplied				
Site Reference: Kneller Hall, Road, Twickenham, London, T		TP / BH No	WS9/0.40			Stable Non-	
Project / Job Ref: 10728/SG		Additional Refs	None Supplied		Inert Waste		Hazardou Waste
Order No: 10728/SG		Depth (m)	0.40		Landfill	waste in non- hazardous Landfill	Landfill
Reporting Date: 30/05/2022	2	DETS Sample No	598603			Lanum	
Determinand	Unit	MDL					
TOC ^{MU}	%	< 0.1	2.4		3%	5%	6%
Loss on Ignition	%	< 0.01	3.60				10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6		
Sum of PCBs	mg/kg	< 0.1	< 0.1		1		
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500		
Total PAH ^{MU}	mg/kg	< 1.7	< 1.7		100		
pH ^{MU}	pH Units	N/a	7.6			>6	
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			To be	To be evaluated
Eluate Analysis			10:1	Cumulativ 10:1		for compliance N 12457-3 at I	leaching te
Liuate Analysis			mg/l	mg/kg	using by	(mg/kg)	L/3 10 I/ Kg
Arsenic ^U	1		< 0.01	< 0.1	0.5	(mg/kg)	25
Barium ^U	-		< 0.02	< 0.2	20	100	300
Cadmium ^U	-		< 0.005	< 0.005	0.04	1	5
Chromium ^U	┨		< 0.005	< 0.05	0.5	10	70
Copper ^U	-		< 0.003	< 0.05	2	50	100
	-				0.01		
Mercury ^U	-		< 0.0005	< 0.005		0.2	2
Molybdenum ^U	-		0.001	0.01	0.5	10	30
Nickel ^U	_		< 0.007	< 0.07	0.4	10	40
Lead ^U	_		< 0.005	< 0.05	0.5	10	50
Antimony ^U	4		< 0.005	< 0.05	0.06	0.7	5
Selenium ^U	_		< 0.005	< 0.05	0.1	0.5	7
Zinc ^U	_		0.008	0.08	4	50	200
Chloride ^U			1.2	12	800	15000	25000
Fluoride ^U			< 0.5	< 5	10	150	500
Sulphate ^U			1.2	12	1000	20000	50000
TDS			24	240	4000	60000	100000
Phenol Index			< 0.01	< 0.1	1	-	-
DOC			3.3	32.7	500	800	1000
Leach Test Information							
					1		
Sample Mass (kg)			0.10		⊣		
Dry Matter (%)			88.7		4		
Moisture (%)			12.8				
Stage 1							
Volume Eluate L10 (litres)			0.89		4		
					-1		
					I		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or aseceived portion

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DETS Report No: 22-04511		Date Sampled	10/05/22		Landfill Was	te Acceptance	Criteria Limi
Soil Consultants Ltd		Time Sampled	None Supplied				
Site Reference: Kneller Hall, Road, Twickenham, London, T		TP / BH No	WS2/0.80			Stable Non-	
Project / Job Ref: 10728/SG		Additional Refs	None Supplied		Inert Waste		Hazardou Waste
Order No: 10728/SG		Depth (m)	0.80		Landfill	waste in non- hazardous Landfill	Landfill
Reporting Date: 30/05/2022		DETS Sample No	598608			Landini	
Determinand	Unit	MDL					
TOC ^{MU}	%	< 0.1	1		3%	5%	6%
Loss on Ignition	%	< 0.01	3.80				10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6		
Sum of PCBs	mg/kg	< 0.1	< 0.1		1		
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500		
Total PAH ^{MU}	mg/kg	< 1.7	< 1.7		100		
pH ^{MU}	pH Units	N/a	7.4			>6	
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			To be	To be evaluated
Eluate Analysis	•		10:1	Cumulativ 10:1		for compliance EN 12457-3 at	leaching te
Eluace Allarysis			mg/l	mg/kg	using bo	(mg/kg)	L/ 5 10 1/ kg
Arsenic ^U			< 0.01	< 0.1	0.5	2	25
Barium ^U	-		< 0.02	< 0.2	20	100	300
Cadmium ^U	-		< 0.0005	< 0.005	0.04	1	5
Chromium ^U	┨		< 0.005	< 0.05	0.5	10	70
Copper ^U	\dashv		< 0.003	< 0.1	2	50	100
Mercury ^U	-		< 0.005	< 0.005	0.01	0.2	2
	-				0.01	10	
Molybdenum ^U	-		0.001	0.01			30
Nickel ^U			< 0.007	< 0.07	0.4	10	40
Lead ^U	4		< 0.005	< 0.05	0.5	10	50
Antimony ^U	4		< 0.005	< 0.05	0.06	0.7	5
Selenium ^U	4		< 0.005	< 0.05	0.1	0.5	7
Zinc ^U	_		< 0.005	< 0.05	4	50	200
Chloride ^U			2.8	28	800	15000	25000
Fluoride ^U			< 0.5	< 5	10	150	500
Sulphate ^U			2.5	25	1000	20000	50000
TDS			34	340	4000	60000	100000
Phenol Index			< 0.01	< 0.1	1	-	-
DOC			3.1	31.1	500	800	1000
Leach Test Information							
					_		
					1		
Sample Mass (kg)			0.10		_		
Dry Matter (%)			85.8		_		
Moisture (%)			16.6		_		
Stage 1							
Volume Eluate L10 (litres)			0.88		4		
					-		
					1		
					_		

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		Date					
DETS Report No: 22-04511		Sampled	09/05/22		Landfill Was	te Acceptance	Criteria Limi
Soil Consultants Ltd		Time Sampled	None Supplied				
Site Reference: Kneller Hall, Road, Twickenham, London, 1		TP / BH No	BH02/1.60			Stable Non- reactive	
Project / Job Ref: 10728/SG		Additional Refs	None Supplied		Inert Waste		Hazardous Waste
Order No: 10728/SG		Depth (m)	0.80			hazardous Landfill	Landfill
Reporting Date: 30/05/2022	2	DETS Sample No	598611				
Determinand	Unit						
TOC ^{MU}	%	< 0.1	0.5		3%	5%	6%
Loss on Ignition	%	< 0.01	2.80				10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6		
Sum of PCBs	mg/kg	< 0.1	< 0.1		1 500		
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500		
Total PAH ^{MU}	mg/kg	< 1.7	< 1.7		100		
pH ^{MU}	pH Units	N/a	7.5			>6 To be	To bo
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			evaluated	To be evaluated
	-		10:1	Cumulativ	e Limit values	for compliance	
Eluate Analysis				10:1	using BS	EN 12457-3 at	L/S 10 l/kg
			mg/l	mg/kg		(mg/kg)	
Arsenic ^U			< 0.01	< 0.1	0.5	2	25
Barium ^U			0.03	0.3	20	100	300
Cadmium ^U	_		< 0.0005	< 0.005	0.04	1	5
Chromium ^U			< 0.005	< 0.05	0.5	10	70
Copper ^U			< 0.01	< 0.1	2	50	100
Mercury ^U	_		< 0.0005	< 0.005	0.01	0.2	2
Molybdenum ^U			0.002	0.02	0.5	10	30
Nickel ^U	_		< 0.007	< 0.07	0.4	10	40
Lead ^U			< 0.005	< 0.05	0.5	10	50
Antimony ^U	_		< 0.005	< 0.05	0.06	0.7	5
Selenium ^U	_		< 0.005	< 0.05	0.1	0.5	7
Zinc ^U	_		< 0.005	< 0.05	4	50	200
Chloride ^U	⊣		1.5	15	800	15000	25000
Fluoride ^U	⊣		0.6	6.1	10	150	500
Sulphate ^U	4		3.8	38	1000	20000	50000
TDS	4		40	400	4000	60000	100000
Phenol Index	4		< 0.01	< 0.1	1	-	
DOC			7.8	77.8	500	800	1000
Leach Test Information					_		
				+	4		
				+	4		
County Mass (lee)			0.10	+	_		
Sample Mass (kg)			0.10	+	4		
Dry Matter (%)			86.1	+	_		
Moisture (%)			16.2	+	_		
Stage 1			0.00		_		
Volume Eluate L10 (litres)			0.88	+ + -			
				+ + -	\dashv		
			I				
					_		

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DETS Report No: 22-04511		Date Sampled	None		Landfill Was	te Acceptance (Criteria Limit
Soil Consultants Ltd		Time Sampled	None Supplied				
Site Reference: Kneller Hall, Road, Twickenham, London,		TP / BH No	Supplied BH01			Stable Non-	
Project / Job Ref: 10728/SG		Additional Refs	None Supplied		Inert Waste	reactive HAZARDOUS	Hazardous Waste
Order No: 10728/SG		Depth (m)	0.80		Landfill	waste in non- hazardous	Landfill
Reporting Date: 30/05/2022	2	DETS Sample No	598614			Landfill	
Determinand	Unit						
TOC ^{MU}	%		2.4		3%	5%	6%
Loss on Ignition	%	< 0.01	4.20				10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6		1
Sum of PCBs	mg/kg	< 0.1	< 0.1		1		
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500		
Total PAH ^{MU}	mg/kg	< 1.7	27.2		100		
pH ^{MU}	pH Units	N/a	6.5			>6	
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			To be evaluated	To be evaluated
			10:1	Cumulativ		for compliance	
Eluate Analysis				10:1	using BS	EN 12457-3 at I	./S 10 l/kg
			mg/l	mg/kg		(mg/kg)	
Arsenic ^U	_		< 0.01	< 0.1	0.5	2	25
Barium ^U	_		< 0.02	< 0.2	20	100	300
Cadmium ^U	_		< 0.0005	< 0.005	0.04	1	5
Chromium ^U			< 0.005	< 0.05	0.5	10	70
Copper ^U	-		< 0.01	< 0.1	0.01	50	100
Mercury ^U			< 0.0005 0.001	< 0.005	0.01	0.2 10	30
Molybdenum ^U Nickel ^U			< 0.007	0.01 < 0.07	0.4	10	40
Lead ^U	-		< 0.007	< 0.05	0.5	10	50
Antimony ^U			< 0.005	< 0.05	0.06	0.7	5
Selenium ^U	-		< 0.005		0.1	0.5	7
Zinc ^U			< 0.005	< 0.05 < 0.05	4	50	200
Zinc ⁻ Chloride ^U	⊣		1.6	< 0.05 16	800	15000	25000
Cnioride ^u	⊣		< 0.5	< 5	10	15000	500
Fluoride ^s Sulphate ^U	⊣		3.5	35	1000	20000	50000
TDS	┥		30	300	4000	60000	100000
Phenol Index	-		< 0.01	< 0.1	1	-	-
DOC	┪		4.1	41.2	500	800	1000
Leach Test Information	•			11.2	1 300		1000
					1		
	1				1		
					┑		
					7		
Sample Mass (kg)			0.11		1		
Dry Matter (%)			82.8		7		
Moisture (%)			20.8		7		
Stage 1							
Volume Eluate L10 (litres)			0.88				
, ,							

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or aseceived portion

Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation





DETS Report No: 22-04511 Date Sampled Soil Consultants Ltd Time Sampled			None		Landfill Waste Acceptance Criteria Limits		
			Supplied None Supplied				
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN TP / BH No			ВН03			Stable Non-	
Project / Job Ref: 10728/SG		Additional Refs	None Supplied		Inert Waste Landfill	reactive HAZARDOUS	Hazardous Waste
Order No: 10728/SG		Depth (m)	508615			waste in non- hazardous Landfill	Landfill
Reporting Date: 30/05/2022	2	DETS Sample No					
Determinand	Unit	MDL					
TOC ^{MU}	%	< 0.1	0.6		3%	5%	6%
Loss on Ignition	%	< 0.01	2.10				10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6		
Sum of PCBs	mg/kg	< 0.1	< 0.1		1		
Mineral Oil MU	mg/kg	< 10	< 10		500		
Total PAH ^{MU}	mg/kg	< 1.7	< 1.7		100		
pH ^{MU}	pH Units	N/a	7.5			>6	
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			To be evaluated	To be evaluated
			10:1	Cumulativ		for compliance	
Eluate Analysis			//	10:1	using BS	EN 12457-3 at I	L/S 10 I/kg
!!			mg/l	mg/kg	0.5	(mg/kg)	25
Arsenic ^U	_		< 0.01	< 0.1	0.5	2	25
Barium ^U	_		< 0.02	< 0.2	20	100	300
Cadmium ^U	_		< 0.0005	< 0.005	0.04	1	5
Chromium ^U	=		< 0.005	< 0.05	0.5	10	70
Copper ^U	-		< 0.01	< 0.1	0.01	50	100
Mercury ^U			< 0.0005 0.002	< 0.005	0.01	0.2 10	30
Molybdenum ^U Nickel ^U			< 0.002	0.02 < 0.07	0.4	10	40
Lead ^U	-		< 0.007	< 0.05	0.5	10	50
Antimony ^U			< 0.005	< 0.05	0.06	0.7	5
Selenium ^U	-		< 0.005		0.1	0.5	7
Zinc ^U			< 0.005	< 0.05 < 0.05	4	50	200
Zinc************************************	\dashv		1.6	16	800	15000	25000
Cnioride ^u	⊣		< 0.5	< 5	10	15000	500
Sulphate ^U	\dashv		2.0	20	1000	20000	50000
TDS	-1		59	590	4000	60000	100000
Phenol Index	-		< 0.01	< 0.1	1	-	-
DOC	┪		3.4	33.9	500	800	1000
Leach Test Information	•		. J	33.3	300		1000
	1				1		
					1		
	_				7		
					1		
Sample Mass (kg)			0.10		1		
Dry Matter (%)			88.1		1		
Moisture (%)			13.4		1		
Stage 1					1		
Volume Eluate L10 (litres)			0.89		1		
- \/					1		
				The state of the s	7		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or aseceived portion

Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation





DETS Report No: 22-04511 Soil Consultants Ltd Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN TP / BH No			12/05/22		Landfill Waste Acceptance Criteria Limits		
			None Supplied WS4			Stable Non-	
Order No: 10728/SG		Depth (m)	(m) 0.20			hazardous Landfill	Landfill
Reporting Date: 30/05/2022	2	DETS Sample No					
Determinand	Unit	MDL					
TOC ^{MU}	%	< 0.1	1.5		3%	5%	6%
Loss on Ignition	%	< 0.01	3.90				10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6		
Sum of PCBs	mg/kg	< 0.1	< 0.1		1		
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500		
Total PAH ^{MU}	mg/kg	< 1.7	22.7		100		
pH ^{MU}	pH Units	N/a	5.5			>6	
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			To be evaluated	To be evaluated
			10:1	Cumulativ		for compliance	
Eluate Analysis			//	10:1	using BS I	EN 12457-3 at I	./S 10 I/kg
!!	_		mg/l	mg/kg	0.5	(mg/kg)	25
Arsenic ^U	4		< 0.01	< 0.1	0.5	2	25
Barium ^U	4		< 0.02	< 0.2	20	100	300
Cadmium ^U	_		< 0.0005	< 0.005	0.04	1	5
Chromium ^U	_		< 0.005 < 0.01	< 0.05 < 0.1	0.5	10 50	70 100
Copper ^U	-		< 0.005		0.01	0.2	2
Mercury ^U Molybdenum ^U	-		< 0.0003	< 0.005	0.01	10	30
Mickel ^U	-		< 0.001	< 0.01 < 0.07	0.4	10	40
Lead ^U	-		< 0.007	< 0.05	0.5	10	50
Antimony ^U	-		< 0.005	< 0.05	0.06	0.7	5
Selenium ^U	-		< 0.005		0.00	0.5	7
Zinc ^U	-		0.010	< 0.05 0.10	4	50	200
Zinc ⁻ Chloride ^U	⊣		1.4	14	800	15000	25000
Cnioride ⁰	⊣		< 0.5	< 5	10	15000	500
Fluoride ^s Sulphate ^U	⊣		< 1.0	< 10	1000	20000	50000
TDS	⊣		15	150	4000	60000	100000
Phenol Index	1		< 0.01	< 0.1	1	-	-
DOC	-		2.6	25.9	500	800	1000
Leach Test Information	•		2.0	23.9	300	000	1000
	1				┪		
	1				1		
	-			 	┪		
					┪		
Sample Mass (kg)			0.10	i i	1		
Dry Matter (%)			93.1		7		
Moisture (%)			7.4		1		
Stage 1			· · · ·		1		
Volume Eluate L10 (litres)			0.89		7		
				 	-1		
					-		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or aseceived portion

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-04511	
Soil Consultants Ltd	
Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN	
Project / Job Ref: 10728/SG	,
Order No: 10728/SG	
Reporting Date: 30/05/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
598603	WS9/0.40	None Supplied	0.40	11.3	Brown sandy clay with stones
598604	WS1/0.50	None Supplied	0.50	16.2	Black sandy clay with stones
598606	WS3/0.70	None Supplied	0.70	22.8	Grey sandy clay
598607	WS2A/1.60	None Supplied	1.60	46.4	Black loamy sand with vegetation
598608	WS2/0.80	None Supplied	0.80	14.2	Brown sandy clay with stones
\$ 598609	TP6/1.00	None Supplied	1.00	13.7	Brown sandy clay with stones and concrete
\$ 598610	BH02/0.80	None Supplied	0.80		Brown sandy clay with stones and concrete
\$ 598611	BH02/1.60	None Supplied	0.80	13.9	Brown sandy clay with stones
598612	HP1/0.70	None Supplied	0.70	16.2	Brown sandy clay with stones
598613	HP2/0.60	None Supplied	0.60	8.7	Brown sandy clay with stones and concrete
^ 598614	BH01	None Supplied	0.80	17.2	Brown sandy clay with stones
^ 598615	BH03	None Supplied	1.40	11.8	Brown sandy clay with stones
^ 598616	BH04	None Supplied	1.00	9.1	Brown sandy clay with stones
598617	WS4	None Supplied	0.20	6.9	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{I/S} Unsuitable Sample ^{U/S}

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Soil Analysis Certificate - Methodology & Miscellaneous Information DETS Report No: 22-04511
Soil Consultants Ltd

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG Order No: 10728/SG Reporting Date: 30/05/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D		Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil Soil	AR D		Determination of BTEX by headspace GC-MS Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E001 E002
Soil	D		Determination of cations in soil by aqua-regia digestion followed by icr-ocs Determination of chloride by extraction with water & analysed by ion chromatography	E002
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of	E016
			1,5 diphenylcarbazide followed by colorimetry	
Soil Soil	AR AR		Determination of complex cyanide by distillation followed by colorimetry Determination of free cyanide by distillation followed by colorimetry	E015 E015
Soil	AR		Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D		Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID Determination of electrical conductivity by addition of saturated calcium sulphate followed by	E004
Soil	AR	Electrical Conductivity	electrometric measurement	E022
Soil	AR	,	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D		Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil Soil	AR AR		Determination of acetone/hexane extractable hydrocarbons by GC-FID Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004 E004
			Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by	
Soil	AR	C12-C16, C16-C21, C21-C40)	headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil Soil	D D		Determination of TOC by combustion analyser. Determination of TOC by combustion analyser.	E027 E027
Soil	D		Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D		Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR		Moisture content; determined gravimetrically	E003
Soil	D		Determination of nitrate by extraction with water & analysed by ion chromatography Determination of organic matter by oxidising with potassium dichromate followed by titration with	E009
Soil	D	Organic Matter	iron (II) sulphate Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the	E010
Soil	AR	PAH - Speciated (EPA 16)	use of surrogate and internal standards	E005
Soil	AR D		Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008 E011
Soil Soil	AR		Gravimetrically determined through extraction with petroleum ether Determination of pH by addition of water followed by electrometric measurement	E011
Soil	AR		Determination of phenols by distillation followed by colorimetry	E021
Soil	D		Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D		Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil Soil	D D		Determination of sulphate by extraction with water & analysed by ion chromatography Determination of water soluble sulphate by extraction with water followed by ICP-OES	E009 E014
Soil	AR		Determination of water soluble sulphate by extraction with water followed by 1cr-ocs	E014
Soil	D		Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of this example by systection in caustic code followed by acidification followed by	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR		Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)		E004
Soil	AR		Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (Cb-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001





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Water Analysis Certificate - Methodology & Miscellaneous Information DETS Report No: 22-04511 Soil Consultants Ltd

Site Reference: Kneller Hall, 65 Kneller Road, Twickenham, London, TW2 7DN

Project / Job Ref: 10728/SG

Order No: 10728/SG

Reporting Date: 30/05/2022

Matrix	Analysed	Determinand	Brief Method Description	Method
Maura	On	Determinand	brief Metilod Description	No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF		Determination of BTEX by headspace GC-MS	E101
Water	F		Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F		Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF		Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by	E104
Water	F		Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F		Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F		Based on National Rivers Authority leaching test 1994	E301
Leachate	F		Based on BS EN 12457 Pt1, 2, 3	E302
Water	F		Determination of metals by filtration followed by ICP-MS	E102
Water	F		Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F		Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of BAH compounds by concentration through CDE cartridge, collection in	E105
Water	F	PCR - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethal	E108
Water	UF		Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF		Determination of pH by electrometric measurement	E107
Water	F		Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF		Determination of redox potential by electrometric measurement	E113
Water	F		Determination of readx potential by electrometric measurement Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulnhide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF		Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34,	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF		Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered UF Unfiltered

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	12.1	%
Loss on Ignition	Soil	BS EN 12457	20.4	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	13.9	%
pH	Soil	BS EN 12457	0.248	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	15.9	%
Barium	Leachate	BS EN 12457	14.4	%
Cadmium	Leachate	BS EN 12457	12.6	%
Chromium	Leachate	BS EN 12457	13.4	%
Copper	Leachate	BS EN 12457	13.1	%
Mercury	Leachate	BS EN 12457	16.2	%
Molybdenum	Leachate	BS EN 12457	13.6	%
Nickel	Leachate	BS EN 12457	16.0	%
Lead	Leachate	BS EN 12457	12.4	%
Antimony	Leachate	BS EN 12457	14.6	%
Selenium	Leachate	BS EN 12457	16.5	%
Zinc	Leachate	BS EN 12457	14.5	%
Chloride	Leachate	BS EN 12457	17.0	%
Fluoride	Leachate	BS EN 12457	12.0	%
Sulphate	Leachate	BS EN 12457	25.1	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	20.4	%
pН	Soil	BS 3882: 2015	0.248	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

Kneller Hall

65 Kneller Road, Twickenham, London TW2 7DN

Report No:

10728/SG

Site photographs

Photo No 1

Description:

General view of Kneller Hall

Direction: Looking N

Date: 05/05/22



Photo No 2

Description:

View of rear of Kneller Hall

Direction: Looking SSW





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 3

Description:

General view of pond in central south west of site, to the rear of Kneller Hall. Appears concrete lined

Direction: Looking NW

Date: 05/05/22



Photo No 4

Description:

View of rear light well into basement of Kneller Hall. (light wells to front and rear of Kneller Hall)

Direction: Looking SW





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 5

Description:

General view of multiple extensions to Kneller Hall and dilapidated decking.

Direction: Looking SW

Date: 05/05/22

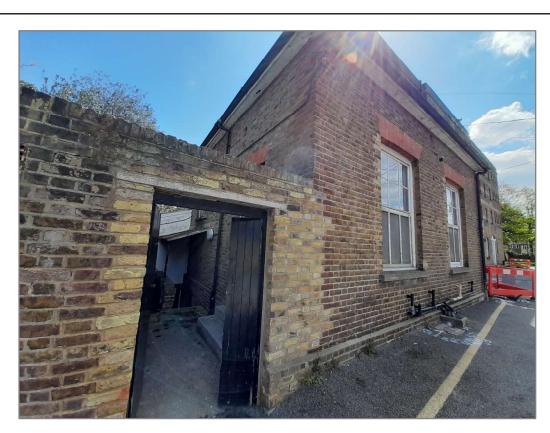


Photo No 6

Description:

View of basement plant room on northernmost portion of Kneller Hall.

Direction: Looking SE





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 7

Description:

General view of sports pitches on the east half of site. Twickenham Stadium in background.

Direction: Looking E

Date: 05/05/22

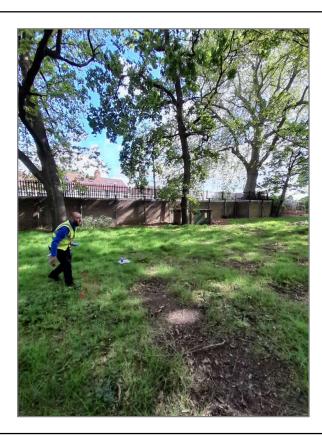


Photo No 8

Description:

View of north boundary of site (western half), with gas cupboard in heavily wooded area.

Direction: Looking NE





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 9

Description:

General view of wooded area on the northern portion of site and car park in north west corner of site.

Direction: Looking NE

Date: 05/05/22



Photo No 10

Description:

View of garages in north western portion of site, with instrument rehearsal rooms beyond.

Direction: Looking N





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 11

Description:

General view of instrument practice rooms and wooded area, with outdoor band stand beyond.

Direction: Looking SE

Date: 05/05/22



Photo No 12

Description:

View of eastern half of wooded northern boundary.

Direction: Looking E





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 13

Description:

General view of wooded boundary and teaching building in the western corner of site.

Direction: Looking SW

Date: 05/05/22



Photo No 14

Description:

View of car park and accommodation and teaching blocks in the south western portion of site.

Direction: Looking NW





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 15

Description:

General view of accommodation structures. Basement plant room in grassed courtyard area circled in red.

Direction: Looking NE

Date: 05/05/22



Photo No 16

Description:

View of grassed courtyard area, accommodation blocks and basement plant room.

Direction: Looking NE





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 17

Description:

General view of Band Practice Hall plant basement and evidence of repairs.

Direction: Looking E

Date: 05/05/22



Photo No 18

Description:

General view of Band Practice Hall plant basement.

Direction: Looking E





Kneller Hall 65 Kneller Road, Twickenham, London TW2 7DN Report No:

10728/SG

Site photographs

Photo No 19

Description:

Internal view of Band Practice Hall roof, showing wall pin retaining bars.

Direction: Looking W

Date: 05/05/22



Photo No 20

Description:

General view of Band Practice Hall with external concrete supports and wall retaining pins circled in red.

Direction: Looking SW



